Annals of Congress
Introduction to ICSEMIS

In 2006, the International Council of Sport Science and Physical Education (ICSSPE), the International Olympic Committee (IOC), the International Paralympic Committee (IPC) and the International Federation of Sports Medicine (FIMS) signed a Memorandum of Understanding to join efforts to have one large multi-disciplinary, professional conference as successor of the Pre-Olympic, Pre-Paralympic and Sport Scientific Congresses, which was named International Convention on Science, Education and Medicine in Sport (ICSEMIS).

The first ICSEMIS was held in Guangzhou, China in 2008, under the theme "Sport Sciences and Harmonious Society in the 21st Century". The second was held in Glasgow, UK in 2012 just prior to the London Olympic and Paralympic Games, under the theme "Sport... Inspiring a Learning Legacy".

This third edition of the event will be held in Santos / SP, Brazil under the theme "Saying Yes to Diversity in Sport". Between August 31st thru September 4th - 2016, the ICSEMIS 2016 will bring to the city of Santos, thousands of participants from all professional and academic sectors linked to sport, physical education, exercise, physical activity and sports medicine.
WELCOME FROM THE CHAIR

Dear Friends and Colleagues,

On behalf of the Coordinating Committee of the International Convention on Science, Education and Medicine in Sport - ICSEMIS 2016, I hereby welcome all of you to this worldwide event focusing on sports science.

The ICSEMIS 2016 will be held in Brazil, in its third edition after the 2008 ICSEMIS in Guangzhou, China, and the ICSEMIS 2012 in Glasgow, UK.

The theme "Say Yes to Diversity in Sport" reminds us of the importance of supporting the development of cutting-edge knowledge on the science of sport and its application to the various social groups in order to obtain the maximum benefits that sports activity can deliver to the individual and to his/her community.

The event is being organized in a partnership between the Federal University of São Paulo (UNIFESP), the International Paralympic Committee (IPC), the International Federation of Sports Medicine (FIMS) and the International Council of Sport Science and Physical Education (ICSSPE). It aims to bring together experts from all over the world in professional and academic sectors linked to sports science and education, providing an important interaction and a unique opportunity for exchange of information.

This interaction will be accomplished through various activities such as presentation of scientific papers, display of products and equipment from various fields of sports science, sports training tutorials, live sports coaching, among others.

Between August 31st thru September 4th - 2016, the ICSEMIS 2016 will bring to the city of Santos / SP, Brazil, thousands of participants from all professional and academic sectors linked to sport, physical education, exercise, physical activity and medicine in sport.

We look forward to the enthusiasm and the presence of all at ICSEMIS 2016.

Professor Soraya Soubhi Smaili
(UNIFESP - Federal University of São Paulo)
ABOUT ICSEMIS

ICSEMIS is a multi-disciplinary, professional conference aiming to bring together experts from all over the world in professional and academic sectors linked to sports science and education, providing an important interaction and a unique opportunity for exchange of information, accomplished through various activities. The first ICSEMIS was held in Guangzhou, China in 2008, under the theme "Sport Sciences and Harmonious Society in the 21st Century". The second was held in Glasgow, UK in 2012 just prior to the London Olympic and Paralympic Games, under the theme "Sport... Inspiring a Learning Legacy".
OBJECTIVES

To promote knowledge and integration in sports science

To exchange sport science, clinical, health and pedagogic information

To promote education about medicine in science and sports exercise

To encourage multidisciplinary approaches

To network among researchers in sport medicine and health sciences

To present cutting edge research and developments

To secure public engagement by young people and ordinary members of our communities
WHO WE ARE

UNIFESP CONSORTIUM

Federal University of São Paulo (UNIFESP)

University of São Paulo (USP)

Federal University of Minas Gerais (UFMG)

University of Campinas (UNICAMP)

São Paulo State University (UNESP)

The Center of Studies of the Physical Fitness Research Laboratory from São Caetano do Sul (CELAFISCs)
WHO WE ARE

ICC PARTNERS

The International Coordinating Committee for ICSEMIS is a collaboration between the following three partners:
WHO WE ARE

INTERNATIONAL ORGANISING COMMITTEE

Peter Van de Vliet, IPC

Dr. Peter Van de Vliet is Medical & Scientific Director of the International Paralympic Committee (IPC), with office in Bonn, Germany, since October 2006. His portfolio includes classification, anti-doping, medical services, and sports sciences. Dr. Van de Vliet, Belgian citizen, holds a Ph.D. in Physiotherapy and Motor Rehabilitation from the Katholieke Universiteit Leuven, Belgium, on the theme of ‘Exercise in Clinical Depression’. Prior to taking the position in the IPC, he was commercial agent in mobility devices for persons with impairment, and later worked as researcher at the Leuven University with particular interest in Paralympic classification and psychosocial determinants of sports-participation in athletes with impairment. He was member of the Belgian Paralympic Team for Atlanta 2006 (Athletics Coach) and Athens 2004 (Wheelchair Rugby Team Manager), and member of the Belgian Paralympic Committee Elite Athlete Sport Counseling Group. He also was Chef de Mission for numerous Belgian delegations at European and World Championships in IPC Athletics and IWAS Wheelchair Rugby in the period 1992-2006. Dr. Van de Vliet regularly speaks and publishes on Paralympic sport classification, anti-doping and medical care, and acts as occasional reviewer for several international journals.

Fabio Pigozzi, FIMS

EDUCATION: Graduated in Medical Sciences (cum Laude) at the Rome University “La Sapienza”. Specialisations in Cardiology and in Sports Medicine. Honorary Doctor in Sport Science at the Aristotle University of Thessaloniki, Greece. Profesor Honorario, Faculty of Medicine, Universidad de Buenos Aires, Argentina. Doctorate “Honoris Causa” in Health Sciences, Catholic University San Antonio, Murcia, Spain, MD, PhD. CAREER: Rector at the State Sports University of Rome “Foro Italico” (2013-2019); Full Professor of Internal Medicine and Director, Sports Medicine Unit, University of Rome “Foro Italico”; Scientific Director of the FIFA ((Fédération Internationale de Football Association) Medical Center of Excellence of Rome (2010-); Member of the Board of Directors (2009-11) and of the Technical and Scientific Committee (2011-2014) of the Italian Space Agency; Member of the Health National Council (2009-2014); Member of the Technical Health Committee of the Ministry of Health (2015). Contributed to several topics in Sport Medicine and Sport Science, particularly on cardiovascular response to physical exercise and training, physical medicine and rehabilitation.
nutrition and antidoping. Author of about 200 scientific publications. SPORT ADMINISTRATION: President of the International Federation of Sports Medicine (2010-); Member of the Foundation Board (2015-); and of the Health, Medical and Research Committee of the World Anti-Doping Agency-WADA (2008-); Member of the Medical Commission—Medical and Scientific Group of the International Olympic Committee (2014-); Member of the Medical Commission of the Association of the National Olympic Committees-ACNO (2014-); Member of the Medical and Antidoping Commission of the European Olympic Committees-EOC (2015-); Member of the Medical Committee of the World Olympians Association-WOA (2015-); Member of the Executive Board (2008-) and Chairman of the Medical Committee (1996-) of the Union Internationale de Pentathlon Moderne; Member of the Executive Board of the Italian Olympic Committee (2001-2009/2013-2016). Member of the Medical Commission -Games Group of the International Olympic Committee (1999-2009); Member of the Commission for Culture and Olympic Education of the International Olympic Committee (2008-2010); Secretary General of the European Federation of Sports Medicine Associations (1997-2009); Honorary President of the European Federation of Sports Medicine (2009-2013); Consultant, Medical Services and Head of Doping Control for the Torino 2006 Olympic and Paralympic Winter Games (2002-2006).

Detlef Dumon, ICSSPE

As Executive Director since 2007, Detlef Dumon fills a strategic key position within the global network of the International Council of Sport Science and Physical Education. He facilitates contact between academic experts and their findings in various sport science disciplines and areas such as physical activity, sport and development, and physical education, with policy makers in governments, public administration and organised sports. Long standing collaborations and partnerships have led to trustful relations with leading ministerial officials in several countries and expert organisations within the UN system. In close cooperation with respective stakeholders, Detlef Dumon has been engaged with several global and national policy development, moderation and rapprochement initiatives between ministries, as well as between governmental and non-governmental organisations. Detlef Dumon holds a Master degree in linguistics and journalism, has worked for several communications agencies and has extensive knowledge and experience in working in intercultural settings and across professional disciplines and organisational structures.
WHO WE ARE

LOCAL ORGANISING COMMITTEE

Soraya Soubhi Smaili (Chair), UNIFESP


Ciro Winckler de Oliveira Filho (Vice-Chair), UNIFESP

Professor of São Paulo Federal University. Doctor in Adapted Physical Activity at Campinas University. Researcher at Paralympic Sport. Technical coordinator of Athletics at Brazilian Paralympic Committee. Member of Brazilian Paralympic Academy. Member of IPC-Athletics Coaches Council. 4 participation in Paralympic Games (Sydney, Athens, Beijing and London) and Brazilian Athletics Team Leader at Athens, Beijing, and London Paralympic Games. Participation at Brazilian Team in Paralympic and Olympic Athletics World Championships.

Regina Celia Spadari (Vice-Chair), UNIFESP
Regina Celia Spadari is a full Professor at the Federal University of Sao Paulo, where she was the Director of the Campus Baixada Santista (2011-2015). She is the leader of the research group at CNPq untitled “Group for the Study of Stress Biology”. She investigates several aspects of the stress effects on peripheral systems, mostly the cardiac response to catecholamines and adrenergic signaling. The group also investigates the effects of stress hormones on behavior and on athletes performance. She has published 58 scientific articles, supervised 34 master’s degree thesis and 15 PhD thesis. She is a biologist (Paulista State University Júlio de Mesquita Filho, 1974), master in Biological Sciences / Physiology by the State University of Campinas (1978), PhD in Human Physiology by the University of São Paulo (1985) and livre docente by the State University of Campinas (1996). The title of full professor was obtained in 2007 at UNIFESP, where she is a teacher since 2005.

Alessandra Medeiros, UNIFESP

Graduated at Physical Education (1997) and Ph.d. at Physical Education from University of São Paulo (2006). Has experience in exercise training and cardiovascular disease, acting on the following subjects: heart failure, hypertension, hemodynamics, sympathetic nervous system, ventricular function and skeletal muscle.

Ana R. Dâmaso - UNIFESP

Associated Professor and Free Docent - UNIFESP
Post PhD in Pediatrics Sciences - UNIFESP
PhD in Nutritional Sciences - UNIFESP
Master in Physical Education - EEF USP
Especialization in Sports Sciences - Celafiscs
Graduate in Physical Education - UEG

Carlos Eduardo Pinfildi, UNIFESP

Is Professor of Physiotherapy at University Federal of São Paulo - Brazil - Campus Baixada Santista. He has graduated from Imes - Fafica (2002), Master and Ph.D in Health Science at Unifesp (2004, 2008) and Postdoctoral at Griffith University - Australia (2015). He has experience in musculoskeletal injuries related to sports and degenerative disorders. He has been studying the physical agents, for
instance low level laser therapy, ultrasound and neuromuscular electrical stimulation in tissue healing mainly in tendon, muscles and pain management.

Emilson Colantonio, UNIFESP


Helga Tatiana Tucci, UNIFESP

Received her bachelor's degree from Universidade de Ararquara, a Master's and a PhD in Medical Science – Emphasis in Rehabilitation from Universidade de São Paulo (Brazil). Part of her PhD was done at University of Washington. She is currently Professor in the Department of Department of Human Moviment Science Graduate Program at Universidade Federal de São Paulo. Her research interests are in shoulder biomechanics and in electromyography fatigue and exercise training.

João Bosco Pesquero, UNIFESP

JBP holds a bachelor's degree in Chemistry at the University of São Paulo (1986), master's degree and PhD in Biological Sciences (Molecular Biology) at the Federal University of São Paulo (1989 and 1992, respectively) and post-doctoral position in molecular biology at the University of Heidelberg and Max-Delbrück Institute for molecular Medicine in Berlin, Germany. Is currently Full Professor in the Department of Biophysics at Federal University of São Paulo. Has experience in Biochemistry, Molecular Biology with emphasis on the following topics: kallikrein-kinin system, renin-angiotensin system, molecular biology of genetic diseases and genetics of sports. Coordinator of the Project Athletes of the Future, the Omics in Sports. Founding partner of the Biotechnology Company Proteobrás Biotechnology Development Ltd. (www.proteobras.com.br) and Exxtend - Solution in Oligos (www.exxtend.com.br).
João Paulo Botero, UNIFESP

Graduated in Physical Education from the Federal University of São Carlos (2001), MA in Physiological Sciences from the Federal University of São Carlos (2004) and PhD in Physiological Sciences from the Federal University of São Carlos (2010). Adjunct professor at the Federal University of São Paulo, Santos Campus, in the course of Physical Education and professor the Postgraduate Interdisciplinary Program in Health Sciences. Head of the Department of Human Movement Sciences. Experience in the area of Physical Education, acting on the following topics: Exercise and Aging, Exercise and Obesity, Exercise Physiology, Resistive Exercise and Sports Training.

José Angelo Barela, UNESP

Professor of Human Movement Sciences at Physical Education Department, Institute of Biosciences, São Paulo State University and at Institute of Physical Activity and Sports, University of Cruzeiro do Sul. Undergraduate from the São Paulo State University in Physical Education and Ph.D. in Motor Development at University of Maryland, College Park, USA. Research interest is to understand now sensory information is couple to motor action throughout lifespan and in different populations and in different conditions including sports.

José Roberto Jardim, UNIFESP

Associate Professor, Director of the Pulmonary Rehabilitation Centre and Former Head of the Respiratory Diseases Division at Escola Paulista de Medicina of Federal University of São Paulo, Brazil. Professor Jardim graduated in medicine in 1970 at the Escola Paulista de Medicina, Federal University of São Paulo, Brazil, where he was later awarded his PhD in medical sciences. He has also completed a 2-year fellowship in respiratory pathophysiology from McGill University in Montreal, Canada. Professor Jardim has been Director of the Brazilian Thoracic Society (SBPT) leading the Education Department twice, and served as Chairman of the COPD Committee 3 times. He has also been a member of the Planning Committee of the Rehabilitation Assembly of American Thoracic Society (ATS), and has served as Nominating Committee. Professor Jardim is past-President of the Latin American Thoracic Society (ALAT) for two terms and has served on the Board of Directors of American Thoracic Society representing the international community. He is currently on the Editorial Boards for
several Brazilian and International Journals and has recently published a book on rehabilitation. His main interests are in asthma, COPD and pulmonary rehabilitation.

Julio Cerca Serrão, USP

Bachelor (1993) in Physical Education from the School of Physical Education and Sport at the University of São Paulo (USP-EEFE), master’s (1996) in Science of Motricity at the Biosciences Institute of the São Paulo State University, Ph.D. (1999) and Full Professor (2007) by EEFE-USP. He is currently Deputy Director of Physical Education and Sport – University of São Paulo. Which Also has the coordination of the Biomechanics Laboratory. It has experience in Biophysics, with emphasis on Biomechanics. His research involves the Biomechanics of Sport Biomechanics of Locomotion, the biomechanics of exercise, and the Biomechanics Footwear.

Marco Tulio de Mello, UFMG

Marco Túlio de Mello is graduated in Physical Education at Federal University of Uberlândia-UFU (1989) and he has specialization in Physical Education for Persons with Special Needs also by UFU. He is Ph.D. in psychobiology at the Federal University of Sao Paulo - UNIFESP (1997) and Full Professor at the University of Campinas - UNICAMP (2007) and the Federal University of Sao Paulo UNIFESP (2009). He is an Associate Professor in the Department of Sports at Faculty of Physical Education, Physiotherapy and Occupational Therapy (FEFFTO) in Federal University of Minas Gerais (UFMG). He has experience in Sleep, Sleep Disorders, Drowsiness, Fatigue, Accidents, Stress Physiology and Athletic Training. He is supervisor of masters and doctoral programs for graduate at UNIFESP and UFMG. He is also Coordinator of the Psychobiology and Exercise Studies Centre, and Technical Director of the Multidisciplinary Center for Sleepiness and Accidents. He is a member of the INAPSS/IPC (International Network for Research in Paralympic Sport Science, linked to the International Paralympic Committee) and Member of the Brazilian Paralympic Academy (APB) and Scientific Coordinator of the APB. He is currently a sitting member/owner of the Thematic Chamber Health and Environment of the National Transit - CONTRAN and Deputy Member of the Advisory Board of Physical Education, National Council for Scientific and Technological Development - CNPq, the Federal Government.

Maria José da Silva Fernandes, UNIFESP
Biologist, PhD in Neuroscience, is an Associate Professor at the Department of Neurology and Neurosurgery of UNIFESP. Area of expertise is Neurophysiology and the main topics are: Neurodegeneration and neuroregeneration, Temporal lobe epilepsy, Neurochemistry and Proteomics. Review service for Federal and other granting agencies: CNPq, CAPES, FAPESP, the Ministry of Health (PPSUS), Inserm. Supervises students from IC, MSc, PhD, and postdoctoral position at post-graduate program in Neurology/Neuroscience UNIFESP (CAPES - 6). Institutional Administrative Responsibilities: member of the Congregation of the Paulista School of Medicine (2015-2017 ), the trustee board (2013-2015) and the planning board of the UNIFESP (2013-2017). Holds the position of chief of staff of the rectory (early 2013). She held positions on the board of the Professor’s Association of UNIFESP (ADUNIFESP) since 2005 and was President from 2009 to 2011.

Maria Stella Peccin, UNIFESP

Bachelors in Physical Therapy (Faculdade de Ciências da Saúde do Instituto de Porto Alegre - 1990), Specialist in ‘Superior Education Methodology’ and in the ‘Locomotor System in Sports’. Master’s in Rehabilitation (Federal University of Sao Paulo [UNIFESP] - 2001) and PhD in Sciences in the Department of Internal Medicine and Therapeutics (Federal University of Sao Paulo [UNIFESP] - 2005). Former Chairwoman for the Department of Human Movement Sciences (UNIFESP, 2011-2014). Currently serving as a researcher at the Brazilian Cochrane Centre, professor and mentor for the graduate program in Evidence-based health care and interdisciplinary in Health Sciences (UNIFESP). Coordinator for the multi-professional residency program in Orthopedics and Traumatology (UNIFESP). Coordinator for the ‘Project Health and Sports: an interdisciplinary approach partnered with the pro-sports Foundation of Santos’. Areas of expertise include but are not limited to Education and Health focusing on evidence-based practice, research methodology, musculoskeletal and sports rehabilitation (assessment, promotion, prevention and recovery).

Miguel de Arruda, UNICAMP

Graduated in Physical Education from the Catholic University of Campinas (1975), Master's degree in Physical Education from the University of São Paulo (1990). PhD in Physical Education from the Faculty of Physical Education UNICAMP (1997). Actually is Dean of the Faculty of Physical Education - Unicamp. It has experience in Physiology with emphasis on stress physiology, acting on the following topics: football, sports training, physical examination, anthropometry and motor performance.
Odair Aguiar Júnior, UNIFESP

Degree in Biological Sciences from the State University of Campinas (Unicamp) in 1997, where he also received a Ph.D. in Cellular and Structural Biology and postdoctoral studies in Molecular Biology. He is currently Adjunct Professor IV of the Federal University of São Paulo (UNIFESP), Campus Santos, where Deputy Academic Director (2015-2019). It is guiding the Postgraduate Program "Interdisciplinary Health Sciences" and "Food, Nutrition and Health". It has experience in animal cytogenetics, molecular biology and sperm ultrastructural analysis. Currently investigating aspects of "Pathophysiology of the Male Reproductive System" with emphasis on the study of testis and epididymal physiology under the action of exogenous substances and/or potentially damaging physiological conditions. His group also explores natural substances as possible protectors to testis and epididymal functions.

Paulo Azevedo, UNIFESP

Bachelor in Physical Education (1997), master’s degree (2007) and PhD (2010) in Physiological Science at Federal University of São Carlos. He is currently Adjunct Professor at Federal University of São Paulo, which also has the coordination of the Exercise Physiology Laboratory. His line of research Exercise Physiology and sport performance.

Ricardo Luis Fernandes Guerra, UNIFESP

Graduated in Physical Education (Bachelors and educational Degree) from the Federal University of São Carlos (1997-1998), master's (2000) and Ph.D. (2004) in Physiological Sciences, Federal University of São Carlos and Sandwich PhD in Nutritional Biochemistry from the University of California-Berkeley (2003). Works as assistant professor IV, mentor program in graduate education in health sciences and coordinator of the Physical Education (health modality) of the Federal University of São Paulo-Campus UNIFESP-Santos. Has experience in the sport and physiology, with an emphasis in exercise physiology applied to sport and health, acting on the following topics: sport, obesity, elderly and women, with the main line of research: "Exercise, Nutrition and Applied Sports the Health".
Ricardo Mario Arida, UNIFESP

Ricardo Mario Arida received his Ph.D. from the Department of Neurology at Universidade Federal de São Paulo, Brazil (1999) for his work studying the relationship between epilepsy and physical exercise. He did his postdoctoral research on the role of central fatigue hypothesis at Oxford University, UK (1999-2000). He continued his research on the effect of physical activity in epilepsy as Assistant Professor in the Laboratory of Experimental Neurology at Universidade Federal de São Paulo – Brazil (2001-2006). Currently, he is Associate Professor at the Department of Physiology – Laboratory of Neurophysiology, Universidade Federal de São Paulo. He was elected as a Member of Taskforce on Sports and Epilepsy - International League Against Epilepsy (ILAE) and Member of São Paulo State Academy of Science. His scientific activity is documented by more than 180 publications in peer-reviewed and indexed international journals. He has experience in Neurophysiology, acting on the following subjects: neuroplasticity, physical exercise and brain, exercise during brain development and brain aging and exercise. Specifically, his research is focused on the mechanisms by which exercise reduces seizure frequency in animal models of epilepsy. Research Interests: Neurological diseases and exercise, neuroplasticity, epilepsy and exercise, brain and exercise.

Rogério Cruz de Oliveira, UNIFESP

Undergraduate in Physical Education from the State University of Goiás (2002), Master degree in Physical Education from the State University of Campinas (2006) and Ph.D. in Physical Education from the State University of Campinas (2010). Adjunct Professor III of the Federal University of São Paulo, Campus Santos (SP). Professor accredited in Graduate Programs Stricto Sensu Education in Health Sciences (Professional Mode) and Interdisciplinary Health Sciences at the same institution. He has experience in the area of Physical Education, acting mainly on the following subjects: Pedagogical Practice in Physical Education, Body and culture, Body and Health, Cultural diversity and Physical Education, Qualitative Research in Physical Education, Sports Learning, Teaching Physical Education, and Vocational training in physical education and health practices.

Sergio Luiz Domingues Cravo, UNIFESP

Degree in Physical Therapy from the Catholic University of Campinas (PUCC, 1978), MS in Human Physiology at the Institute of Biomedical Sciences, University of São Paulo (ICB-USP, 1982), Doctor of
Science by ICB-USP (1987) both under the direction Prof. Dr. Cesar Timo-Iaria. Post doctorate by the Department of Neurology, Cornell University Medical College (New York, USA) with Donald J. Reis and Shaum F. Morrison (1987-1989). Assistant Professor, Department of Physiology ICB-USP (1983-1992). Associate Professor, Department of Physiology at the Federal University of São Paulo (UNIFESP, 1992-2001). He is currently Associate Professor (Associate Professor) of the Department of Physiology at the Paulista School of Medicine, Federal University of São Paulo (UNIFESP 2001 - present). Operates mainly in the area of neural regulation of cardiovascular system, with emphasis on: 1. the role of vasomotor centers of the bulb in regulating blood pressure and blood volume; B. pathophysiological mechanisms of cardiovascular disorders associated with obstructive sleep apnea.

Sylvia Helena Souza da Silva Batista, UNIFESP

Degree in Bachelor of Psychology from the Federal University of Pará (1985), degree in Psychologist Training from the Federal University of Pará (1986), degree in Full Degree in Psychology from Federal University of Pará (1986), master's and doctorate in Education (Psychology of Education) from the Pontifical Catholic University of São Paulo (1993). I work in the area of education and health, with an emphasis on Education in Health Sciences, with emphasis on the teacher training subjects for higher education in health, learning and health training. In these areas realize my academic activities (teaching, research, extension) and directed my publications (papers and books). Beyond graduation, I act as a permanent teacher of Graduate Interdisciplinary Program in Health Sciences (masters and doctoral) and Education in Health Sciences (professional master). In the field of academic management occupied the posts of deputy head of the Health Department, Education and Society (Campus Santos / UNIFESP), deputy director (elected) Campus Santos, Federal University of São Paulo (April / 11 to February / 15), coordinator of the Education Professional Master's Program in Health Sciences (CEDESS / ISS / UNIFESP up to ten / 14). I am currently director (elected) Campus Santos, Federal University of São Paulo (April / 15).

Vânia D’Almeida, UNIFESP

Vânia D’Almeida, Ph.D. is an Associate Professor at the Department of Psychobiology and Coordinator of the Post-Graduate Program in Psychobiology at Universidade Federal de São Paulo (UNIFESP). VD’A holds a bachelor's degree in Biology in 1984, received the master's degree and PhD in Biological Sciences (Molecular Biology) at UNIFESP (1988 and 1993, respectively) and a post-doctoral position in Biochemistry at the Universidade de São Paulo (USP). Has experience in the areas of Biochemistry and Genetics with emphasis on Metabolism and Bioenergetics, acting on the following topics: homocysteine, oxidative stress, epigenetics, animal models of disease and inborn errors of metabolism.
Vinícius Terra holds a bachelor's degree in Physical Education and PhD in Education from the Audiovisual Studies Laboratory at Unicamp (University of Campinas), with research in Body, Art and Humanities. Has experience in production and cultural management, areas in which he worked both in the public and private sector. Coordinated the cultural action area at SESC-SP (Social Service of Commerce). Was granted a scholarship from the Ministry of Culture in advanced studies on cultural policy, in France. Is currently a Professor at the Federal University of São Paulo and coordinator of the Body & Art Laboratory and the Audiovisual Resources Laboratory. He produces original work in photography and video. Was awarded by the Ministry of Culture, and represented Brazil at the Frankfurt Book Fair in 2013.

Victor Matsudo, CELAFISCS

Medical Doctor, Especialized in Orthopedics and Traumathology; and in Sports Medicine. Full Professor in Medicine (Gama Filho University). Scientific Coordinator of the Center of Studies of the Physical Fitness Research Laboratory from São Caetano do Sul – CELAFISCS. General Chair of the Agita São Paulo Program, of São Paulo State Secretariat of Health. Past-Vice-President of the International Council of Sports Sciences and Physical Education - ICSSPE/CIEPSS, Status A-UNESCO. Chairman of the Physical Activity of Network from the Americas – RAFA/PANA. Past Chairman and Member of the Executive Board of the Agita Mundo Network. Received the International Grand Prix in Sports Medicine at Barcelona Olympic Games, 1992. Received the “Philip Noël Baker” Award, in Sports Medicine Area, by the International de Council of Sports Sciences and Physical Education, 1995. Received the Prince Faisal Award, by the International Federation of Physical Education (FIEP), 1996. Received the Carso Foundation Award, 2011. Received the Citation Award do American College of Sports Medicine, 2014. Received the Odyssey Award, do American College of Sports Medicine, 2015. Member of the Sports Nutrition Commission from the International Olympic Committee. Member of Scientific Board of Actigraph Company. Member of the Preventive Medicine Committee of Stanford University. Former Scientific Editor of Brazilian Journal of Science and Movement. Member of the "American College of Sports Medicine". Fellow do "American Academy of Kinesiology and Physical Education". Founder of the "International Society for the Advancement of Kinanthropometry".
Wagner Correia Santos, UNIFESP

Graduated in physical education from the University of Mogi das Cruzes - UMC (1982), majoring in Physiology of Exercise by Paulista Medical School - EPM / UNIFESP (1992), Master on Health Science (Physiology of Exercise) by the Federal University of São Paulo - UNIFESP (2003). Coordinator of Exercise Physiology Laboratory at the Pulmonary Rehabilitation Center of the UNIFESP / EPM - Federal University of São Paulo, Coordinator of Extension Course (Sport and Leisure) (UNIFESP - PROEX) in Embu das Artes, Indaiatuba and Valinhos. Has experience in Physical Education with an emphasis in Exercise Physiology, Sports, Training and Health Sciences, is Researcher Member of the Brazilian Paralympic Academy, Advisor on UnaSus "Programa Mais Médicos" (PAB5) and Supervisor on the Open University Brazil - UAB - acting on the Specialization Course in Municipal Public Management (2015-2016).

Wagner Luiz do Prado, UNIFESP

Wagner Luiz do Prado: received the Bacharel Degree in Physical Education from Faculdade de Educação Física de Santo André - Brazil (1999); the M.S Degree in Physiological Science at from Federal University of São Carlos - Brazil (2004), and Ph.D Degree in Nutrition from Federal University of São Paulo - Brazil (2007). Currently he is Professor at Human Science Departament from Federal University of São - Santos - Brazil. Accredited Researcher by CNPq-Brazil.
WHO WE ARE

SCIENTIFIC COMMITTEE

Yves C. Vanlandewijck (Co-Chair)

Yves C. Vanlandewijck is Professor in Rehabilitation Sciences at the Faculty of Kinesiology and Rehabilitation Sciences of the University of Leuven. His research interests include exercise physiology, biomechanics and ergonomics, applied to neuromusculoskeletal impairment in a rehabilitation to elite sports continuum. His main research applications focus on the development of evidence-based classification systems in disability sports to ensure fairness in athletic competition categories, with a particular interest in the relationship between intellectual functioning and performance of athletes with intellectual disability. From 1997 to 2001 he was the vice-president of the International Federation of Adapted Physical Activity; he is the founding editor of the European Journal of Adapted Physical Activity and the editor of the IOC Series Book “The Paralympic Athlete”. He was a member of the IOC Medical and Scientific Working Group and member of the Associations Board of the International Council of Sport Science and Physical Education. He is a member of the Sport Science Committee of the International Paralympic Committee (IPC) since 1995 and Chairperson since 2004.

Osnat Fliess-Douer

Osnat Fliess-Douer (PhD in Rehabilitation Sciences and Physiotherapy, Faculty of Kinesiology and Rehabilitation Sciences at KU Leuven, Belgium) is an appointed lecturer and the director of the Hydrotherapy courses at Wingate collage Israel. Osnat is an Associate Professor at the Erasmus Mundas Program in Adapted Physical Activity at the Catholic University of Leuven where she teaches theoretical and practical courses. She is a member of the IPC (International Paralympic Committee) Sport Science Committee since 2010. Her recent
research focuses on wheeled mobility rehabilitation in spinal cord injuries, and on validation of aerobic and anaerobic field tests for talent identification in Paralympic sports. Osnat is a certified international Jahara® aquatic technique teacher, wheelchair basketball coach and classifier.

**FIMS**

![Yannis Pitsiladis](image1)

**Yannis Pitsiladis**

Professor Pitsiladis has an established history of research into the importance of lifestyle and genetics for human health and performance. Following 15 years at the University of Glasgow (Institute of Cardiovascular and Medical Sciences) where he created the largest known DNA biobank from world-class athletes, he was appointed Professor of Sport and Exercise Science at the University of Brighton (School of Sport and Service Management). Here he is in the process of establishing state-of-the-art laboratories in human systems biology with special applications to sport and exercise science, sports medicine and sports nutrition. His current research priority is the application of “OMICS” (i.e. genomics, transcriptomics, metabolomics and proteomics) to the detection of drugs in sport with particular reference to recombinant human erythropoietin (rHuEpo) and growth hormone (rHuGH). His most recent research is funded by the World Anti-Doping Agency (WADA), he has sat on two WADA committees and an expert group of the International Olympic Committee (IOC). He is a member of the scientific commission of the International Sports Medicine Federation (FIMS), a Fellow of the American College of Sports Medicine (ACSM) and an expert committee pool member of the Biotechnology and Biological Sciences Research Council (BBSRC). He is an adjunct Professor of Medical Physiology at the University of Technology (Kingston, Jamaica), Moi University (Eldoret, Kenya) and Addis Ababa University (Addis Ababa, Ethiopia). He has published over 100 peer-reviewed papers, written and edited a number of books and has featured in numerous research documentaries (e.g. BBC, NHK Japan, CNBC) and popular books (e.g. Bounce, The Sports Gene).

![José Kawazoe Lazzoli](image2)

**José Kawazoe Lazzoli**

Member of the FIMS Executive Committee. Treasurer of the FIMS - International Federation of Sports Medicine. Professor at Cardiology Division, Hospital Santa Teresa, Petropolis, RJ, BRAZIL.

**ICSSPE**

![Annette Hofmann](image3)

**Annette Hofmann**

Is full professor for Sports Studies at the Ludwigsburg University of Education in Germany. She teaches various aspects of sport pedagogy and cultural studies of sport. Her main research interests are: Ethnicity and sport,
gender and sport, sport and the ´ill´ female body, German-American sports and bilingual aspects of teaching Physical Education. Annette Hofmann is the President of the International Society for the History of Sport and Physical Education (ISHPES) and Vice President of the German Gymnastic Federation (Deutsche Turner-Bund), the biggest sports for all association. She is an academic editor of the International Journal of the History of Sport and review editor of the Journal of Sport History. She holds several other positions on national and international academic boards, and has about 200 publications.

Joseph Maguire

Studied as an undergraduate in London and gained a BEd (1st class honours) from the University of London. Professor Maguire completed his PhD in Sociology at the University of Leicester. He is a two–term former President of the International Sociology of Sport Association. He is currently an executive board member of the International Council for Sports Science and Physical Education and Velux Visiting Professor at the University of Copenhagen.

Professor Maguire has received a number of major accolades:
- Academician of the Academy of Social Sciences for his contribution to sociology and the social sciences of sport (2012).
- The International Sociology of Sport Association ISSA Honorary Member’s Award (2011).

Brazil Based

Alessandra Medeiros, UNIFESP

Graduated at Physical Education (1997) and Ph.d. at Physical Education from University of São Paulo (2006). Has experience in exercise training and cardiovascular disease, acting on the following subjects: heart failure, hypertension, hemodynamics, sympathetic nervous system, ventricular function and skeletal muscle.

José Angelo Barela, UNESP

Degree in Sport Physical Education and Technical State University Paulista Julio de Mesquita Filho (1987), master’s degree in Human Movement Sciences at the Federal University of Rio Grande do Sul (1992) and PhD in Motor Development from the University of Maryland, United States (1997). He is currently adjunct professor at Southern Cross University and the Universidade Estadual Paulista, operating graduation, teaching classes in the Bachelor’s Degree in Physical Education. Also directs and Teaches courses at the Graduate in Human Movement Sciences program, line of research Coordination and Control of Human Movement, University of
Southern Cross has experience in Physical Education, acting on the sub-themes: Development and control motor and postural control.

Julio Cerca Serrão, USP

Bachelor (1993) in Physical Education from the School of Physical Education and Sport at the University of São Paulo (USP-EEFE), master's (1996) in Science of Motricity at the Biosciences Institute of the São Paulo State University, Ph.D. (1999) and Full Professor (2007) by EEFE-USP. He is currently Deputy Director of Physical Education and Sport – University of São Paulo. Which also has the coordination of the Biomechanics Laboratory. It has experience in Biophysics, with emphasis on Biomechanics. His research involves the Biomechanics of Sport Biomechanics of Locomotion, the biomechanics of exercise, and the Biomechanics Footwear.

Marco Tulio de Mello, UFMG

Marco Túlio de Mello is graduated in Physical Education at Federal University of Uberlândia-UFU (1989) and he has specialization in Physical Education for Persons with Special Needs also by UFU. He is Ph.D. in psychobiology at the Federal University of São Paulo - UNIFESP (1997) and Full Professor at the University of Campinas - UNICAMP (2007) and the Federal University of São Paulo UNIFESP (2009). He is an Associate Professor in the Department of Sports at Faculty of Physical Education, Physiotherapy and Occupational Therapy (FEFFTO) in Federal University of Minas Gerais (UFMG). He has experience in Sleep, Sleep Disorders, Drowsiness, Fatigue, Accidents, Stress Physiology and Athletic Training. He is supervisor of masters and doctoral programs for graduate at UNIFESP and UFMG. He is also Coordinator of the Psychobiology and Exercise Studies Centre, and Technical Director of the Multidisciplinary Center for Sleepiness and Accidents. He is a member of the INAPSS/IPC (International Network for Research in Paralympic Sport Science, linked to the International Paralympic Committee) and Member of the Brazilian Paralympic Academy (APB) and Scientific Coordinator of the APB. He is currently a sitting member/owner of the Thematic Chamber Health and Environment of the National Transit - CONTRAN and Deputy Member of the Advisory Board of Physical Education, National Council for Scientific and Technological Development - CNPq, the Federal Government.

Miguel de Arruda, UNICAMP

Graduated in Physical Education from the Catholic University of Campinas (1975), Master's degree in Physical Education from the University of São Paulo (1990). PhD in Physical Education from the Faculty of Physical Education UNICAMP (1997). Actually is Dean of the Faculty of Physical Education - Unicamp. It has experience in Physiology with emphasis on stress physiology, acting on the following topics: football, sports training, physical examination, anthropometry and motor performance.
Ricardo Mario Arida, UNIFESP (Chair)

Ricardo Mario Arida received his Ph.D. from the Department of Neurology at Universidade Federal de São Paulo, Brazil (1999) for his work studying the relationship between epilepsy and physical exercise. He did his postdoctoral research on the role of central fatigue hypothesis at Oxford University, UK (1999-2000). He continued his research on the effect of physical activity in epilepsy as Assistant Professor in the Laboratory of Experimental Neurology at Universidade Federal de São Paulo – Brazil (2001-2006). Currently, he is Associate Professor at the Department of Physiology – Laboratory of Neurophysiology, Universidade Federal de São Paulo. He was elected as a Member of Taskforce on Sports and Epilepsy - International League Against Epilepsy (ILAE) and Member of São Paulo State Academy of Science. His scientific activity is documented by more than 180 publications in peer-reviewed and indexed international journals. He has experience in Neurophysiology, acting on the following subjects: neuroplasticity, physical exercise and brain, exercise during brain development and brain aging and exercise. Specifically, his research is focused on the mechanisms by which exercise reduces seizure frequency in animal models of epilepsy. Research Interests: Neurological diseases and exercise, neuroplasticity, epilepsy and exercise, brain and exercise.

Victor Matsudo, CELAFISCS

Medical Doctor, Especialized in Orthopedics and Traumathology; and in Sports Medicine. Full Professor in Medicine (Gama Filho Universit), Scientific Coordinator of the Center of Studies of the Physical Fitness Research Laboratoty from São Caetano do Sul – CELAFISCS. General Chair of the Agita São Paulo Program, of São Paulo State Secretariat of Health. Past-Vice-President of the International Council of Sports Sciences and Physical Education - ICSSPE/CIEPSS, Status A- UNESCO. Chairman of the Physical Activity of Network from the Americas – RAFA/PANA. Past Chairman and Member of the Executive Board of the Agita Mundo Network. Received the International Grand Prix in Sports Medicine at Barcelona Olympic Games, 1992. Received the “Philip Noël Baker” Award, in Sports Medicine Area, by the International the International de Council of Sports Sciences and Physical Education, 1995. Received the Prince Faisal Award, by the International Federation of Physical Education (FIEP), 1996. Received the Carso Foundation Award, 2011. Received the Citation Award do American College of Sports Medicine, 2014. Received the Odyssey Award, do American College of Sports Medicine, 2015. Member of the Sports Nutrition Commission from the International Olympic Committee. Member of Scientific Board of Actigraph Company. Member of the Preventive Medicine Committee of Stanford Universit Former Scientific Editor of Brazilian Journal of Science and Movement. Member of the “American College of Sports Medicine” . Fellow do “American Academy of Kinesiology and Physical Education”. Founder of the “International Society for the Advancement of Kinanthropometry”.

pág. 27
WHO WE ARE

SCIENTIFIC BOARD

Alessandra Medeiros (UNIFESP)

Ana R. Dâmaso (UNIFESP)

Anneliese Goslin

Camila Aparecida Machado de Oliveira (UNIFESP)
Carlos Eduardo Pinfildi (UNIFESP)

Cheri Blauwet

Ciro Winckler de Oliveira Filho (UNIFESP)

Clarice Rocha (UFRGS)

Claudia Ridel Juzwiak (UNIFESP)

Cora Burnett

David Legg
Nara Rejane Cruz de Oliveira (UNIFESP)

Odair Aguiar Júnior (UNIFESP)

Osnat Fliess-Douer (IPC)

Paulo Azevedo (UNIFESP)

Rafael Herling Lambertucci (UNIFESP)

Raphael Ritti (UNIFESP)

Raymond So
Sergio Luiz Domingues Cravo (UNIFESP)

Sylvia Helena Souza da Silva Batista (UNIFESP)

Uwe Pühse

Vânia D’ Almeida (UNIFESP)

Víctor Matsudo (CELAFISCS)

Vinícius Demarchi Silva Terra (UNIFESP)

Wagner Luiz do Prado (UNIFESP)
Walter Thompson

Yves C. Vanlandewijck (IPC)
WHO WE ARE

FINANCE COMMITTEE

João Bosco Pesquero (Chair)

JBP holds a bachelor's degree in Chemistry at the University of São Paulo (1986), master's degree and PhD in Biological Sciences (Molecular Biology) at the Federal University of São Paulo (1989 and 1992, respectively) and post-doctoral position in molecular biology at the University of Heidelberg and Max-Delbrück Institute for molecular Medicine in Berlin, Germany. Is currently Full Professor in the Department of Biophysics at Federal University of São Paulo. Has experience in Biochemistry, Molecular Biology with emphasis on the following topics: kallikrein-kinin system, renin-angiotensin system, molecular biology of genetic diseases and genetics of sports. Coordinator of the Project Athletes of the Future, the Omics in Sports. Founding partner of the Biotechnology Company Proteobrás Biotechnology Development Ltd. (www.proteobras.com.br) and Exxtend-Solution in Oligos (www.exxtend.com.br).

José Roberto Jardim

Associate Professor, Director of the Pulmonary Rehabilitation Centre and Former Head of the Respiratory Diseases Division at Escola Paulista de Medicina of Federal University of São Paulo, Brazil. Professor Jardim graduated in medicine in 1970 at the Escola Paulista de Medicina, Federal University of São Paulo, Brazil, where he was later awarded his PhD in medical sciences. He has also completed a 2-year fellowship in respiratory pathophysiology from McGill University in Montreal, Canada. Professor Jardim has been Director of the Brazilian Thoracic Society (SBPT) leading the Education Department twice, and served as Chairman of the COPD Committee 3 times. He has also been a member of the Planning Committee of the Rehabilitation Assembly of American Thoracic Society (ATS), and has served at the Nominating Committee. Professor Jardim is past-
President of the Latin American Thoracic Society (ALAT) for wom terms and has served on the Board of Directors of American Thoracic Society representing the international community. He is currently on the Editorial Boards for several Brazilian and International Journals and has recently published a book on rehabilitation. His main interests are in asthma, COPD and pulmonary rehabilitation.

Maria José da Silva Fernandes

Biologist, PhD in Neuroscience, is an Associate Professor at the Department of Neurology and Neurosurgery of UNIFESP. Area of expertise is Neurophysiology and the main topics are: Neurodegeneration and neuroregeneration, Temporal lobe epilepsy, Neurochemistry and Proteomics. Review service for Federal and other granting agencies: CNPq, CAPES, FAPESP, the Ministry of Health (PPSUS), Inserm. Supervises students from IC, MSc, PhD, and postdoctoral position at post-graduate program in Neurology / Neuroscience UNIFESP ( CAPES - 6). Institutional Administratives Responsibilities: member of the Congregation of the Paulista School of Medicine (2015-2017), the trustee board (2013-2015) and the planning board of the UNIFESP (2013-2017). Holds the position of chief of staff of the rectory (early 2013). She held positions on the board of the Professor’s Association of UNIFESP (ADUNIFESP) since 2005 and was President from 2009 to 2011.

Maria Stella Peccin

Bachelors in Physical Therapy (Faculdade de Ciências da Saúde do Instituto de Porto Alegre - 1990), Specialist in ‘Superior Education Methodology’ and in the ‘Locomotor System in Sports’. Master’s in Rehabilitation (Federal University of Sao Paulo [UNIFESP] - 2001) and PhD in Sciences in the Department of Internal Medicine and Therapeutics (Federal University of Sao Paulo [UNIFESP] - 2005). Former Chairwoman for the Department of Human Movement Sciences (UNIFESP, 2011-2014). Currently serving as a researcher at the Brazilian Cochrane Centre, professor and mentor for the graduate program in Evidence-based health care and interdisciplinary in Health Sciences (UNIFESP). Coordinator for the multi-professional residency program in Orthopedics and Traumatology (UNIFESP). Coordinator for the ‘Project Health and Sports: an interdisciplinary approach partnered with the pro-sports Foundation of Santos’. Areas of expertise include but are not limited to Education and Health focusing on evidence-based practice, research methodology, musculoskeletal and sports rehabilitation (assessment, promotion, prevention and recovery).

Sergio Luiz Domingues Cravo

Degree in Physical Therapy from the Catholic University of Campinas (PUCC, 1978), MS in Human Physiology at the Institute of Biomedical Sciences, University of São Paulo (ICB-USP, 1982), Doctor of Science by ICB-USP (1987) both under the direction Prof. Dr. Cesar Timo-ilaria. Post doctorate by the Department of Neurology,
Cornell University Medical College (New York, USA) with Donald J. Reis and Shaum F. Morrison (1987-1989). Assistant Professor, Department of Physiology ICB-USP (1983-1992). Associate Professor, Department of Physiology at the Federal University of São Paulo (UNIFESP, 1992-2001). He is currently Associate Professor (Associate Professor) of the Department of Physiology at the Paulista School of Medicine, Federal University of São Paulo (UNIFESP 2001 -present). Operates mainly in the area of neural regulation of cardiovascular system, with emphasis on: 1. the role of vasomotor centers of the bulb in regulating blood pressure and blood volume; B. pathophysiological mechanisms of cardiovascular disorders associated with obstructive sleep apnea.
WHO WE ARE

LOGISTIC COMMITTEE

Carlos Eduardo Pinfildi

Is Professor of Physiotherapy at University Federal of São Paulo - Brazil - Campus Baixada Santista. He has graduated from Imes - Fafica (2002), Master and Ph.D in Health Science at Unifesp (2004, 2008) and Postdoctoral at Griffith University - Australia (2015). He has experience in musculoskeletal injuries related to sports and degenerative disorders. He has been studying the physical agents, for instance low level laser therapy, ultrasound and neuromuscular electrical stimulation in tissue healing mainly in tendon, muscles and pain management.

Emilson Colantonio

Helga Tatiana Tucci

Received her bachelor’s degree from Universidade de Ararquara, a Master’s and a PhD in Medical Science – Emphasis in Rehabilitation from Universidade de São Paulo (Brazil). Part of her PhD was done at University of Washington. She is currently Professor in the Department of Department of Human Moviment Science Graduate Program at Universidade Federal de São Paulo. Her research interests are in shoulder biomechanics and in electromyography fatigue and exercise training.

João Paulo Botero

Graduated in Physical Education from the Federal University of São Carlos (2001), MA in Physiological Sciences from the Federal University of São Carlos (2004) and PhD in Physiological Sciences from the Federal University of São Carlos (2010). Adjunct professor at the Federal University of São Paulo, Santos Campus, in the course of Physical Education and professor the Postgraduate Interdisciplinary Program in Health Sciences. Head of the Department of Human Movement Sciences. Experience in the area of Physical Education, acting on the following topics: Exercise and Aging Exercise and Obesity, Exercise Physiology, Resistive Exercise and Sports Training.

Odair Aguiar Júnior

Degree in Biological Sciences from the State University of Campinas (Unicamp) in 1997, where he also received a Ph.D. in Cellular and Structural Biology and postdoctoral studies in Molecular Biology. He is currently Adjunct Professor IV of the Federal University of São Paulo (UNIFESP), Campus Santos, where Deputy Academic Director (2015-2019). It is guiding the Postgraduate Program "Interdisciplinary Health Sciences" and "Food, Nutrition and Health". It has experience in animal cytogenetics, molecular biology and sperm ultrastructural analysis . Currently investigating aspects of "Pathophysiology of the Male Reproductive System" with emphasis on the study of testis and epididymal physiology under the action of exogenous substances and / or potentially damaging physiological conditions. His group also explores natural substances as possible protectors to testis and epididymal functions.
Maria Stella Peccin

Bachelors in Physical Therapy (Faculdade de Ciências da Saúde do Instituto de Porto Alegre - 1990), Specialist in ‘Superior Education Methodology’ and in the ‘Locomotor System in Sports’. Master’s in Rehabilitation (Federal University of Sao Paulo [UNIFESP] - 2001) and PhD in Sciences in the Department of Internal Medicine and Therapeutics (Federal University of Sao Paulo [UNIFESP] - 2005). Former Chairwoman for the Department of Human Movement Sciences (UNIFESP, 2011-2014). Currently serving as a researcher at the Brazilian Cochrane Centre, professor and mentor for the graduate program in Evidence-based health care and interdisciplinary in Health Sciences (UNIFESP). Coordinator for the multi-professional residency program in Orthopedics and Traumatology (UNIFESP). Coordinator for the ‘Project Health and Sports: an interdisciplinary approach partnered with the pro-sports Foundation of Santos’. Areas of expertise include but are not limited to Education and Health focusing on evidence-based practice, research methodology, musculoskeletal and sports rehabilitation (assessment, promotion, prevention and recovery).

Rogério Cruz de Oliveira

Undergraduate in Physical Education from the State University of Goiás (2002), Master degree in Physical Education from the State University of Campinas (2006) and Ph.D. in Physical Education from the State University of Campinas (2010). Adjunct Professor III of the Federal University of São Paulo, Campus Santos (SP). Professor accredited in Graduate Programs Stricto Sensu Education in Health Sciences (Professional Mode) and Interdisciplinary Health Sciences at the same institution. He has experience in the area of Physical Education, acting mainly on the following subjects: Pedagogical Practice in Physical Education, Body and culture, Body and Health, Cultural diversity and Physical Education, Qualitative Research in Physical Education, Sports Learning, Teaching Physical Education, and Vocational training in physical education and health practices.

Wagner Luiz do Prado

Wagner Luiz do Prado: received the Bacharel Degree in Physical Education from Faculdade de Educação Física de Santo André - Brazil (1999); the M.S Degree in Physiological Science at from Federal University of São Carlos - Brazil (2004), and Ph.D Degree in Nutrition from Federal University
of São Paulo - Brazil (2007). Currently he is Professor at Human Science Departament from Federal University of São - Santos - Brazil. Accredited Researcher by CNPq-Brazil.
WHO WE ARE

SOCIAL COMMITTEE

Ricardo Luis Fernandes Guerra

Graduated in Physical Education (Bachelors and educational Degree) from the Federal University of São Carlos (1997-1998), master's (2000) and Ph.D. (2004) in Physiological Sciences, Federal University of São Carlos and Sandwich PhD in Nutritional Biochemistry from the University of California-Berkeley (2003). Works as assistant professor IV, mentor program in graduate education in health sciences and coordinator of the Physical Education (health modality) of the Federal University of São Paulo-Campus UNIFESP-Santos. Has experience in the sport and physiology, with an emphasis in exercise physiology applied to sport and health, acting on the following topics: sport, obesity, elderly and women, with the main line of research: “Exercise, Nutrition and Applied Sports the Health”.

Vinícius Demarchi Silva Terra

Vinicius Terra holds a bachelor's degree in Physical Education and PhD in Education from the Audiovisual Studies Laboratory at Unicamp (University of Campinas), with research in Body, Art and Humanities. Has experience in production and cultural management, areas in which he worked both in the public and private sector. Coordinated the cultural action area at SESC-SP (Social Service of Commerce). Was granted a scholarship from the Ministry of Culture in advanced studies on cultural policy, in France. Is currently a Professor at the Federal University of São Paulo and coordinator of the Body & Art Laboratory and the Audiovisual Resources Laboratory. He produces original work in photography and video. Was awarded by the Ministry of Culture, and represented Brazil at the Frankfurt Book Fair in 2013.
Sylvia Helena Souza da Silva Batista

Degree in Bachelor of Psychology from the Federal University of Pará (1985), degree in Psychologist Training from the Federal University of Pará (1986), degree in Full Degree in Psychology from Federal University of Pará (1986), master’s and doctorate in Education (Psychology of Education) from the Pontifical Catholic University of São Paulo (1993). I work in the area of education and health, with an emphasis on Education in Health Sciences, with emphasis on the teacher training subjects for higher education in health, learning and health training. In these areas realize my academic activities (teaching, research, extension) and directed my publications (papers and books). Beyond graduation, I act as a permanent teacher of Graduate Interdisciplinary Program in Health Sciences (masters and doctorate) and Education in Health Sciences (professional master). In the field of academic management occupied the posts of deputy head of the Health Department, Education and Society (Campus Santos / UNIFESP), deputy director (elected) Campus Santos, Federal University of São Paulo (April / 11 to February / 15), coordinator of the Education Professional Master's Program in Health Sciences (CEDESS / ISS / UNIFESP up to ten / 14). I am currently director (elected) Campus Santos, Federal University of São Paulo (April / 15).
WHO WE ARE

ICSEMIS 2016 PARTNERS: GOVERNMENT

Ministry of
Sport

BRAZILIAN GOVERNMENT

CNPq

Conselho Nacional de Desenvolvimento Científico e Tecnológico

FAPESP

São Paulo Research Foundation
WHO WE ARE

ICSEMIS 2016 PARTNERS: UNIVERSITIES AND ASSOCIATIONS

ABRAFITO - Associação Brasileira de Fisioterapia Traumato-Ortopédica

ALBERT EINSTEIN
Sociedade Beneficente Israelita Brasileira

ANDIFES - Associação Nacional dos Dirigentes das Instituições Federais de Ensino Superior

ASSOCIAÇÃO PAULISTA PARA O DESENVOLVIMENTO DA MEDICINA
“Gestão em Saúde e Educação”

Banco do Brasil

CBCE - Colégio Brasileiro de Ciências do Esporte
COFFITO - Conselho Federal de Fisioterapia e Terapia Ocupacional

CREF4/SP - Conselho Regional de Educação Física da 4ª Região

icSPORTS - International Congress on Sport Sciences Research and Technology

SANTOS E REGIÃO - CONVENTION & VISITORS BUREAU

SANTOS F.C. - Santos Futebol Clube

SBAFS - Sociedade Brasileira de Atividade Física e Saúde
ABOUT ICSEMIS 2016 LOGO

When we were asked to create the ICSEMIS 2016 logo, we received some recommendations, where it was clear that we could not use the default olympic symbol (five rings world-famous logo), meaning the 5 continents with each continent represented by a ring of a certain color (Blue-Europe, Yellow-Asia, Black-Africa, Green-Oceania and Red-America).

Therefore we did not use the rings and the consecrated configuration, but segments or parts thereof, keeping the idea of colors (including the same continent colors corresponding to the Olympic rings: Europe-Blue, Asia-Yellow, Africa-Black, Oceania-Green and America-Red) into another symbol which no way resembles the traditional logo.

In addition we put a section devoted to the host country (Brazil) using the exact colors of the national flag, according to the official page of the Brazilian Government (green, yellow, blue and white). We also contemplated the host city of the event, Santos, with its sun and beaches. Please observe the summary below:

Segments of the Olympic rings, with 5 colors corresponding to the five continents.
BRAZILIAN FLAG COLORS
(BRAZIL - HOST COUNTRY)

ATHLETE ON THE PODIUM

SANTOS - HOST CITY
(YELLOW: THE SUN
AND
BLUE AND WHITE: SEA WAVES)
ICSEMIS 2016

The blue color of ICSEMIS 2016 is the same as the Rio 2016 Olympic Games logo.

WebTV Interativa
# SCIENTIFIC PROGRAMME

## FULL PROGRAMME

### Wednesday August 31st

<table>
<thead>
<tr>
<th>Time</th>
<th>SATURNO</th>
<th>Neptuno</th>
<th>URANO</th>
<th>TERRA</th>
<th>MERCURO</th>
<th>VENUS</th>
<th>MARTE</th>
</tr>
</thead>
<tbody>
<tr>
<td>18:15</td>
<td>Opening Conference - KEYNOTE: Victor Matsudo - Physical Activity or drugs? The option is yours! The option is ours! (room SATURNO)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>19:00</td>
<td>Opening Ceremony</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>19:50</td>
<td>Welcome Cocktail</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Thursday September 1

<table>
<thead>
<tr>
<th>Time</th>
<th>SATURNO</th>
<th>Neptuno</th>
<th>URANO</th>
<th>TERRA</th>
<th>MERCURO</th>
<th>VENUS</th>
<th>MARTE</th>
</tr>
</thead>
<tbody>
<tr>
<td>8.30</td>
<td>09.30 - 10.00 NETWORKING</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9.30</td>
<td>KEYNOTE: YANNIS PITSILADIS – Doping – Next essential steps. (room SATURNO)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10.20</td>
<td>Chair: M.T. de Mello</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11.20</td>
<td>Chair: G. Doll-Tepper</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11.30</td>
<td>M.T. de Mello</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11.50</td>
<td>R. Meeussen</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12.50</td>
<td>C.A.M. Moreira</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13.30</td>
<td>IS: Genetics of Sport Performance</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13.50</td>
<td>Chair: J.P. Pesquero</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14.00</td>
<td>J. Seto</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14.20</td>
<td>M. Tanaka</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14.40</td>
<td>Y. Pitsiladis</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15.00</td>
<td>IS: Preparing for extreme conditions: travelling – heat – pollution – altitude</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15.20</td>
<td>Chair: M.T. de Mello</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15.40</td>
<td>Chair: G. Doll-Tepper</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16.00</td>
<td>Chair: R. Meeussen</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16.20</td>
<td>C.A.M. Moreira</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16.30</td>
<td>IS: Genetics of Sport Performance</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16.50</td>
<td>Chair: J.P. Pesquero</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>17.00</td>
<td>J. Seto</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>17.20</td>
<td>M. Tanaka</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>17.40</td>
<td>Y. Pitsiladis</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### 12.50 - 14.00 - Lunch and Cultural Activity: 13.00 - 13.30 MARACATU KZANDA - At the Coffee Break Area

### 15.20 - 16.00 - Coffee-break

## KEYNOTE: PEDRO HALLAI - Physical activity for health and performance: travelers in parallel universes? (room SATURNO)

<table>
<thead>
<tr>
<th>Time</th>
<th>SATURNO</th>
<th>Neptuno</th>
<th>URANO</th>
<th>TERRA</th>
<th>MERCURO</th>
<th>VENUS</th>
<th>MARTE</th>
</tr>
</thead>
<tbody>
<tr>
<td>18.30</td>
<td>IS: Olympic and Paralympic Legacy</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18.50</td>
<td>Chair: D. Legg</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>19.00</td>
<td>G4 Interdisciplinary on Amyotrophic Lateral Sclerosis (ALS)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>19.20</td>
<td>Chair: F.M. Favero</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| 19.40  | M. Krag 
| 19.50  | L. Miserend |
| 20.10  | G5 Salutary Cortisols as tool for monitoring performance in sports |
| 20.30  | Chair: R. Cella Spadari |
| 20.50  | G67 Driller (NZ) |
| 21.10  | M. Carvalho Garcia |
| 21.30  | R. Cella Spadari |
| 22.00  | Chair: M.T. de Mello |
| 22.20  | Chair: G. Doll-Tepper |
| 22.50  | Chair: M.T. de Mello |
| 23.10  | Chair: G. Doll-Tepper |

---

pág. 54
## Friday September 2

<table>
<thead>
<tr>
<th>Time</th>
<th>SATURNO</th>
<th>URANO</th>
<th>TERRA</th>
<th>MERCURIO</th>
<th>VENUS</th>
<th>MARTE</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:30</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9:30</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**9:30 – 10:00: NETWORKING**

<table>
<thead>
<tr>
<th>Time</th>
<th>SATURNO</th>
<th>URANO</th>
<th>TERRA</th>
<th>MERCURIO</th>
<th>VENUS</th>
<th>MARTE</th>
</tr>
</thead>
<tbody>
<tr>
<td>10:00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11:20</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12:50</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**12:50 – 14:00: Lunch and Cultural Activity: 13:00 – 13:30: A CHAT WITH THE VOLLEYBALL PLAYER MARCELLO NEGRAO – At the Neptune Room**

<table>
<thead>
<tr>
<th>Time</th>
<th>SATURNO</th>
<th>URANO</th>
<th>TERRA</th>
<th>MERCURIO</th>
<th>VENUS</th>
<th>MARTE</th>
</tr>
</thead>
<tbody>
<tr>
<td>14:00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15:20</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**15:20 – 16:00: Coffee-break**

<table>
<thead>
<tr>
<th>Time</th>
<th>SATURNO</th>
<th>URANO</th>
<th>TERRA</th>
<th>MERCURIO</th>
<th>VENUS</th>
<th>MARTE</th>
</tr>
</thead>
<tbody>
<tr>
<td>16:00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>17:00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

## September Saturday 3

<table>
<thead>
<tr>
<th>Time</th>
<th>SATURNO</th>
<th>URANO</th>
<th>TERRA</th>
<th>MERCURIO</th>
<th>VENUS</th>
<th>MARTE</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:30</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9:30</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**9:30 – 10:00: NETWORKING**

<table>
<thead>
<tr>
<th>Time</th>
<th>SATURNO</th>
<th>URANO</th>
<th>TERRA</th>
<th>MERCURIO</th>
<th>VENUS</th>
<th>MARTE</th>
</tr>
</thead>
<tbody>
<tr>
<td>10:00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11:20</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**11:20 – 12:50: Lunch and Cultural Activity: CITY OF SANTOS BALLET – At Neptune Room**

<table>
<thead>
<tr>
<th>Time</th>
<th>SATURNO</th>
<th>URANO</th>
<th>TERRA</th>
<th>MERCURIO</th>
<th>VENUS</th>
<th>MARTE</th>
</tr>
</thead>
<tbody>
<tr>
<td>13:15</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14:00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15:20</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**15:20 – 16:00: Coffee-break**

<table>
<thead>
<tr>
<th>Time</th>
<th>SATURNO</th>
<th>URANO</th>
<th>TERRA</th>
<th>MERCURIO</th>
<th>VENUS</th>
<th>MARTE</th>
</tr>
</thead>
<tbody>
<tr>
<td>16:00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>17:00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Sunday September 4

<table>
<thead>
<tr>
<th>Time</th>
<th>SATURNO</th>
<th>Neptuno</th>
<th>URANO</th>
<th>TERRA</th>
<th>MERCURIO</th>
<th>VENUS</th>
<th>MARTE</th>
</tr>
</thead>
<tbody>
<tr>
<td>8.30</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9.30</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>9.30 – 10.00 - NETWORKING</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>KEYNOTE: R. COOPER and M. McNamee - Technology in Paralympic Sport - Optimizing Performance (room SATURNO)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Time</th>
<th>SATURNO</th>
<th>Neptuno</th>
<th>URANO</th>
<th>TERRA</th>
<th>MERCURIO</th>
<th>VENUS</th>
<th>MARTE</th>
</tr>
</thead>
<tbody>
<tr>
<td>10.00</td>
<td>IS Sport Integrity – Myth, Reality, International Understanding ...</td>
<td>G9 A.P.A. B. Inclusion: Global Perspectives</td>
<td>Elite Performance (3)</td>
<td>P.A. &amp; Health (10)</td>
<td>Sport Development (5)</td>
<td>Athlete Career</td>
<td>Sport Medicine (5)</td>
</tr>
<tr>
<td>11.20</td>
<td>P. de Carvalho</td>
<td>Chair: M. Dinold</td>
<td>Chair: P. Azevedo</td>
<td>Chair: W. Thompson &amp; W. Paal</td>
<td>Chair: P. Bukhala</td>
<td>Chair: Y. Vanlandewijk &amp; R. Lamberti</td>
<td>Chair: C. Lebrun &amp; R. Lamberti</td>
</tr>
<tr>
<td>12.50</td>
<td>K. van Deventer</td>
<td>M. Dinold</td>
<td>17 T. Ide (US)</td>
<td>1556 J. Frisqol (BR)</td>
<td>2179 C. Higgs (CA)</td>
<td>1939 A. Silva (BR)</td>
<td>284 Y. Xing (CN)</td>
</tr>
<tr>
<td>13.30</td>
<td>K. Nyit Chin</td>
<td>N. Funes</td>
<td>1934 J. Santos (BR)</td>
<td>1577 R. Sanches (BR)</td>
<td>2181 C. Higgs (CA)</td>
<td>2245 E. Mauzer (BR)</td>
<td>182 W. Zhe (CN)</td>
</tr>
<tr>
<td>14.50</td>
<td>J. Saunders</td>
<td>K. Black</td>
<td>1890 N. Milet (BR)</td>
<td>742 M. Navicenldo (BR)</td>
<td>259 M. Xia (CN)</td>
<td>282 Y. Dong (CN)</td>
<td>1603 W. Wei (CN)</td>
</tr>
<tr>
<td>15.30</td>
<td>IS Values Based Education through Sport and P.E. – Myth and Reality</td>
<td>G1 Why Synchronized Swimming should be a Paralympic Sport</td>
<td>P.A. &amp; Health (2)</td>
<td>Elite Performance (5)</td>
<td></td>
<td>Sport Medicine (3)</td>
<td>Ethics &amp; Integrity</td>
</tr>
<tr>
<td>16.10</td>
<td>Chair: A. Carrao</td>
<td>Chair: C. T. Laezarin</td>
<td>Chaim: G. Fleiss-Dauer</td>
<td>Chair: D. Tucci</td>
<td></td>
<td>Chair: M. McNamee</td>
<td></td>
</tr>
<tr>
<td>17.30</td>
<td>A. Carrao</td>
<td>C. T. Laezarin</td>
<td>616 P. Zhang (CN)</td>
<td>1554 C. Weber (DE)</td>
<td>1740 L. Freire (BR)</td>
<td>1943 C. Perez (BR)</td>
<td>1696 M. Meier (CN)</td>
</tr>
<tr>
<td>18.00</td>
<td>F. Chambers</td>
<td>T. Boales</td>
<td>2139 K. Devroth (IN)</td>
<td>2009 G. Freire (BR)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18.30</td>
<td>M. Gregorou</td>
<td>K. Ambros</td>
<td>2065 A. Karonow (IN)</td>
<td>1594 J. Slikau (BR)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18.50</td>
<td>D. Macdonald</td>
<td>P. Torres</td>
<td>453 ZHAO Li (CN)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>


**14.00 – 15.20 - IS Physical Activity and Health across the Lifespan
Chair: J. Barela
Chair: C. Damiani
Chair: A.R. Reppol Filho
Chair: F.M. Mezzadri
Chair: R.L. Gonçalves**

- G15 Strategy & Legacy for the Olympic & Paralympic Games Rio 2016
- Elite Performance (5)
- Sport Medicine (1)
- Nutrition (2)
- Sport Development (5)
- P.A. & Health (12)
- Chair: J. Janssen & R. Guerra
- Chair: A. Medeiros
- Chair: C. Juwiska
- Chair: R. Gomes
- 490 J. Claudio (BR)
- 790 Raviere (IN)
- 110 C. Juvik (BR)
- 594 K. Cheifan (IN)
- 44 C. Gancers (CN)
- 223 R. Lombardi (BR)
- 1632 Xiaofeng Li (CN)
- 2238 R. Lombardi (BR)
- 2088 G. Jorge (BR)
- 453 ZHAO Li (CN)
- 1305 L. Freire (BR)
KEYNOTE SPEAKERS

ANNELIESE GOSLIN (ZAF)

Professor Dr Anneliese Goslin is a nationally and internationally recognized researcher and advocate in recreation and sport. She holds a D Phil and an MBA from the University of Pretoria. She has published more than 50 peer reviewed scholarly articles and contributed to workbooks and textbooks on sport leadership and international sport business management. She has been awarded numerous honors: State President Sport Award for Promotion of Recreation in South Africa; IOC Sport for All Award for sport development in Africa; Austrian Award for her work in Sport for All, National Association for Girls and Women in Sport International Pathfinder Award (USA); South African Association for Sport and Physical Education Research award for continued promotion of recreation science; Catalyst Award from the Global Center for Women and Sport Leadership (USA); Research Award from the Women’s Sports Foundation (USA). Her professional leadership includes: Previous vice President of TAFISA (Trim and Fitness International Sport for All); Review Board for International Comparative Society for Physical Education and Sport and the International Journal of Sport Management; invited reviewer for African Journal of Physical Education, Recreation and Dance and South African Journal for Research in Sport, Physical Education and Recreation; Editorial Board Member of the International Council of Sport Science and Physical Education (ICSSPE): elected member to the ICSSPE Executive Board, elected Vice President of IAPESGW (International Association of Physical Education and Sport for Girls and Women) and appointed Chair of the South African Ministerial Advisory Committee on Recreation.

Valuing and Devaluing Diversity in Sport: Why care?

Abstract: Despite global policy statements on equality and the value of diversity and inclusivity, global sport continues to experience conflict and dilemmas between policy and practices. Diversity in its broadest context is valued for the richness it brings to human performance. At the same time, however, abundant examples exist of how diversity is devalued and ignored in sport contexts and environments. This presentation explores the primary question of why policy and decision makers in sport needs to bother with diversity. The question is approached and debated from diverse perspectives, including socio-cultural, management, economic and governance perspectives. Faultlines and the juxtaposition between policy and practice are explored and suggestions are offered to increase appreciation for diversity in sport but also focus attention on the negative effects of devaluing diversity in sport.
KEYNOTE SPEAKERS

HERBERT LÖLLGEN (DEU)

Prof. Dr. Med. Herbert Löllgen, FACC, FAHA, F. FIMS. Former Head of Dept. of Internal Medicine, Cardiology, Sports Cardiology, Remscheid (GER), Academic Hospital Univ. Bochum (1985-2008), now private practice (2008) Internal Medicine, Cardiology, Sports Cardiology, Joh. Gutenberg-University, Mainz, Germany. Past and Honorary President of the German Fed. Sports Medicine, Chairman for Scientific and Education Comm. of EFSMA (Europ. Fed. Sports Med. Ass.), Sports Cardiology Working Group, Sports Univ., Cologne; Sports Medicine consultant for the German Olympic Sports Society; consultant for Space Medicine to ESA (European Astronauts), Cologne, Germany. Main Research and Publications: Ergometry (head, working group on ergometry in ICSSPE for many years), cardio-pulmonary function, space medicine, sports medicine and sports cardiology, especially prevention and rehabilitation by physical activity.

Evidence Base Recommendations for Exercise in Health and Disease

Abstract: Regular physical activity (PA) is now widely accepted as one of the most important factors to maintain or improve health and to prevent numerous non-communicable diseases. PA reduces risk of all-cause-and cardiovascular morbidity, mortality and has pleiotropic effects on many organs and organ systems. Risk reduction also occurs during rehabilitation. Regular PA also supports therapy among others in many cardiovascular, metabolic and tumor diseases. Accordingly, regular physical activity can be assumed to act like a drug: there are many indications, a non-linear dose-response curve, many somatic and psychosomatic effects, only few side effects and contraindications. This paper gives an overview on the evidence based recommendations for PA and training in prevention and therapy. Besides, for children, adolescents and elderly subjects at all ages, PA is an important action to preserve by personal responsibility lifelong health, quality of life and autonomy in old age.
KEYNOTE SPEAKERS

MARCO TULIO DE MELLO (BRA)

Federal University of Minas Gerais (UFMG), Department of Sports at Faculty of Physical Education, Physiotherapy and Occupational Therapy (FEFFTO), Belo Horizonte, Minas Gerais, Brazil.

Olympic Games 2016: A major problem for the biological rhythms
KEYNOTE SPEAKERS

MARY O’SULLIVAN (IRL) AND KEH NYIT CHIN (MYS)

Mary O’Sullivan

Mary O’Sullivan is Professor of Physical Education and Youth Sport at the University of Limerick in Ireland. She completed two terms as Dean of the Faculty of Education and Health Sciences and was the founder and Founder of the Physical Education, Physical Activity and Youth Sport (PE PAYS) Research Centre in 2005, now a national research centre. Mary served as Professor and Associate Dean of the College of Education at The Ohio State University, in the USA for 20 years. Her research interests relate to teaching and teacher education in Physical Education with and specific interests in policy, communities of practice, student voice in the curriculum, curriculum innovation, and teacher education accreditation.

Keh Nyit Chin

Keh Nyit Chin, Ph.D., is a professor of physical education Department at the National Taiwan Normal University, Taipei. She has held teaching, research, and administrative appointments at the university. Dr. Keh received her master and doctoral degrees from the Louisiana State University at Baton Rouge. She has coauthored numerous book chapters and journal articles related to physical education teaching and physical fitness. Dr. Keh has and continues to be involved in research in physical education teaching strategies included TGfU and inclusive teaching for students with disability. She has secured funds from the National Science Council for a 3-year research project on TGfU, a 2-year research project on Model-based instruction (TPSR): Gender awareness and interaction in physical education, and from Ministry of Education for a 5-year research project on Physical Fitness Testing for Student with Disability. Besides, she is responsible for training in-service physical teachers on TGfU and promoting the use of this cognitive approach in Taiwan. In the past 5 years, she trained pre- and in service PE teachers to use TPSR in different level of schools responding to the call for promote Moral Education. Presently she is the president of Taiwan Adapted physical Activity Association and honorary president of Taiwan Sport Pedagogy Association, and serves as a member on the PE and Health Education Counseling Committee for Taiwan Education Ministry. Currently she is the Secretary General of ISCPES and the board member of IAPESGW, actively working to bring sports to elderly females and females with disability in Taiwan.
Current Challenges and Opportunities for Pedagogies of Physical Education

Abstract: The question of what to teach in physical education has gained a lot of attention traditionally. In this keynote the focus will be on the challenges and opportunities for Physical Education in contemporary schools and countries. Perspectives from different parts of the world will be shared by the two keynote speakers with particular focus on challenges and opportunities that new pedagogies and instructional models present for physical education in contemporary schools.
KEYNOTE SPEAKERS

PEDRO HALLAL (BRA)

Pedro C Hallal is an Associate Professor at the Universidade Federal de Pelotas. He works in the field of physical activity and health. Pedro is funded by the Wellcome Trust through a New Investigator Award. He was the leader of the 2012 Lancet Physical Activity Series. Pedro coordinates the Global Observatory for Physical Activity.

Physical activity for health and performance: travelers in parallel universes?

Abstract: Physical inactivity has reached pandemic proportions worldwide. Over 5 million deaths every year are attributable to physical inactivity. Around 80% of the adolescents worldwide practice fewer than one hour per day of moderate-to-vigorous intensity physical activity. In this talk, I will address the public health causes and consequences of this pandemic. One of the main objectives of the talk is to bring sports back to the table when discussing physical activity promotion. In recent year, the fields of sports and physical activity have grown separately, like travellers in parallel universes. Here I plan to discuss the possibility of merging these two agendas towards more active and healthier societies around the world.
KEYNOTE SPEAKERS

RORY COOPER (USA) AND MIKE MCNAMEE (GBR)

Rory Cooper

Rory A. Cooper, PhD is the FISA Foundation - Paralyzed Veterans of America Chair at the University of Pittsburgh and Founding Director of the Human Engineering Research Laboratories of the US Department of Veterans Affairs. He has been an author on over 300 peer-reviewed journal publications and his work has received coverage from TIME, CNN, NBC, Forbes Magazine, and other international media sources. Dr Cooper's is a Paralympic medalist and former world record holder; his contributions have been recognized with the Paralympic Scientific Achievement award.

Mike McNamee

Mike McNamee is Professor of Applied Ethics in the College of Engineering at Swansea University, UK. His teaching and research interests are in the philosophy and ethics of engineering, medicine, policing, research, and sports. He has held Visiting Professorships in Belgium, China, Greece, Norway and the USA. He is a former President of the International Association for the Philosophy of Sport and serves or has served on the executive committees of many national and international associations, including the European College of Sport Science, the International Council for sport Science and Physical Education and the Philosophy of Education Society of Great Britain. He was the founding Editor of the journal Sport, Ethics and Philosophy and Routledge’s landmark book series Ethics and Sports.

Technology in Paralympic Sport - Optimizing Performance

Abstract: Technology plays a central role in Paralympic Sport. In cases such as wheelchair racing, hand-cycling, and running with prosthetic limbs; the sport is largely defined by the technology and its interaction with the user. In all Paralympic sports technologies has a tremendous impact on training, classification, and ultimately performance. Examples of advances in technology and their impact on Paralympic Sport will be discussed. These will include sports equipment, measurement, and training technologies.
KEYNOTE SPEAKERS

VICTOR MATSUDO (BRA)

Medical Doctor, Especialized in Orthopedics and Traumathology; and in Sports Medicine. Full Professor in Medicine (Gama Filho University). Scientific Coordinator of the Center of Studies of the Physical Fitness Research Laboratory from São Caetano do Sul – CELAFISC. General Chair of the Agita São Paulo Program, of São Paulo State Secretariat of Health. Past-Vice-President of the International Council of Sports Sciences and Physical Education - ICSSPE/CIEPSS, Status A-UNESCO. Chairman of the Physical Activity of Network from the Americas – RAFA/PANA. Past Chairman and Member of the Executive Board of the Agita Mundo Network. Received the International Grand Prix in Sports Medicine at Barcelona Olympic Games, 1992. Received the “Philip Noël Baker” Award, in Sports Medicine Area, by the International the International de Council of Sports Sciences and Physical Education, 1995. Received the Prince Faisal Award, by the International Federation of Physical Education (FIEP), 1996. Received the Carso Foundation Award, 2011. Received the Citation Award of American College of Sports Medicine, 2014. Received the Odyssey Award, of American College of Sports Medicine, 2015. Member of the Sports Nutrition Commission of Stanford University. Former Scientific Editor of Brazilian Journal of Science and Movement. Member of the "American College of Sports Medicine". Fellow of "American Academy of Kinesiology and Physical Education". Founder of the "International Society for the Advancement of Kinanthropometry".

Physical Activity or Drugs? The Option is Yours! The Option is Ours!

Abstract: Probably because the fact that public health policies used to be strongly influenced by medical doctors, drugs and surgeries are the usual prescription for mostly of the patients worldwide. Considering the amazing cost increase of exams, drugs, surgeries and hospitalization, this approach cannot be sustained, even in well-developed countries. Degenerative diseases are killing mostly of the people, and strong evidences have shown that physical activity (PA) and good diet presented better results in controlling the incidence of diabetes type 2 than the group that received metformin. Similar results have been observed with patients submitted to physical activity when compared to the ones who have been taken drugs in controlling hypertension, hypercholesterolemia, stroke, myocardial infarction, osteoporosis, renal failure, cancer, and more recently with Alzheimer patients and other cognitive impairments. More remarkable was the results of patients who taked PA protocols that got a higher survival indices than patients submitted to cardiac surgery (stent). It is also important to emphasize that the cost-effectiveness of PA interventions used to be higher than drug or surgery approaches. It is almost incredible to realize that mostly of these benefits are reachable just taking at least 30 minutes of moderate PA per day for five days (or 150 minutes per week), in one session or two sessions of 15
minutes or even three sessions of 10 minutes. About 20 years ago we have launched the Agita São Paulo program, with the main purpose of increasing the PA level of a population of about 40 million inhabitants in the state of São Paulo, Brazil. Among the outstanding program results it is highlighted the reduction around 55% in the hospitalization by diabetes and hypertension in the city of Sorocaba; and the World Bank conclusion that Agita São Paulo program represented a 310 million US dollar saving in the health sector, because the impact on medical dates, exams, drugs consumption, hospitalization and surgeries, as consequence of a proportionally 70% decline in sedentarism in that state.
KEYNOTE SPEAKERS

WALTER R. THOMPSON (USA)

Dr. Walter Thompson - Associate Dean for Graduate Studies and Research

Dr. Walter Thompson is a tenured Regents’ Professor of Kinesiology and Health (College of Education) with a second academic appointment in the Department of Nutrition (Lewis School of Nursing and Health Professions) and the School of Public Health at Georgia State University in Atlanta. Dr. Thompson has published over 125 research-based articles on many different topics and has received over $20 million in funding for his various initiatives. He has authored or has edited 14 books. Because of his personal interest in at-risk kids living in the inner city, he serves as the Executive Director of the After-School All-Stars Atlanta, a comprehensive after school initiative for middle school aged children now in 23 sites with an average daily attendance of 3,000. Children participating in his program are typically those living in poverty. The program meets after school during the school year and for five weeks during the summer. In 2006 Dr. Thompson received the prestigious Georgia State University College of Education Faculty Service Award. That same year his program was selected by the Georgia State University President to receive the “Most Outstanding University Program” award. In 2008, the After-School All-Stars was selected to receive the “Regional Excellence Award” by the Atlanta Civic League and it is the recipient of the 2008 Atlanta Partners for Education A+ Summa Cum Laude Award. In 2009, his program received the celebrated Hosea Williams Award for Community Activism. In 2012, Dr. Thompson received the Georgia State University Exceptional Service Award. Dr. Thompson has been a member of the IPC Sports Science Committee for more than a decade.

"Exercise is Medicine": Implications for Population Behaviour Change

"Exercise is Medicine" has become a global health initiative. Yet while the integration of physical activity promotion in healthcare settings can have a powerful impact on some segments of the population, for other segments, the medicalization of exercise can create barriers to participation. Drawing on exercise behaviour change theory and research, this presentation will address opportunities and challenges created by the "Exercise is Medicine" movement, with regard to increasing physical activity among both able-bodied and disabled populations.
KEYNOTE SPEAKERS

YANNIS PITSILADIS (GRC)

Professor Yannis Pitsiladis has an established history of research into the importance of lifestyle and genetics for human health and performance. Following 15 years at the University of Glasgow, Scotland where he created the largest known DNA biobank from world-class athletes, he was appointed (in 2013) Professor of Sport and Exercise Science and Director of the FIMS Reference Collaborating Centre of Sports Medicine for Anti-Doping Research at the University of Brighton. His current research priority is the application of “OMICS” (i.e. genomics, transcriptomics, metabolomics and proteomics) to the detection of drugs in sport with particular reference to recombinant human erythropoietin (rHuEpo) and growth hormone (rHuGH). His most recent research is funded by the World Anti-Doping Agency (WADA), he is currently a member of the International Olympic Committee (IOC) Medical and Scientific Commission, a member of the Executive Committee and Chair of the Scientific Commission of the International Sports Medicine Federation (FIMS), and has sat on two WADA committees. He is a Fellow of the American College of Sports Medicine (ACSM) and an expert committee pool member of the Biotechnology and Biological Sciences Research Council (BBSRC). He is an adjunct Professor of Medical Physiology at Addis Ababa University (Addis Ababa, Ethiopia). He has published over 120 peer-reviewed papers, written and edited a number of books and has featured in numerous research documentaries (e.g. BBC, NHK Japan, CNBC) and popular books (e.g. Bounce, The Sports Gene). Professor Pitsiladis is the founding member of the SUB2 marathon project (www.sub2hrs.com): the SUB2 marathon project is the first dedicated international research initiative made up of specialist multidisciplinary scientists from academia, elite athletes and strategic industry partners with the aim to promote clean marathon running i.e. high performance marathon running without doping. He is also the founding member of the Athlome Project: The main aim of the Athlome project is to characterize the genetics and biology of sport and exercise medicine, as a platform to understanding healthy body function and major chronic disease conditions (e.g., cardiovascular disease, obesity, type 2 diabetes). The Athlome project captures genotype and phenotype data of elite athletes, adaptation to exercise training (in both human and animal models), and muscle-related injuries from excising studies and consortiums worldwide. To achieve this ambitious goal, different approaches are being used including (but not limited to) genome-wide association studies (GWAS), whole exome sequencing, RNA sequencing, genotype-phenotype association, and epigenetic analyses. Particular priority is also given to tissue-specific and systemic “omics” analysis (such as transcriptomics in the first instance) to develop personalized medicine applications including “intelligent training” and the discovery of “omics” signatures of doping.

Doping: Next essential steps
INVITED SYMPOSIA

ELITE ATHLETE: FROM THE PREVENTION TO THE SPORTS RETURN

Chair: Moisés Cohen (BRA) - Full Professor and Chairman of the Orthopedic and Sports Medicine Department of the Escola Paulista de Medicina of the Universidade Federal de São Paulo - UNIFESP. FIFA - Medical Centre of Excellence UNIFESP Director - São Paulo, Brasil. Brazilian Knee Society and Brazilian Orthopedic Sports Medicine Society past president. ISAKOS past president 2011-2013. Federação Paulista de Futebol Director of the Medical Committee. Board of directors of the CBF Football Brazilian Doctors National Committee.

Abstract

This symposium will address four important issues, starting with the prevention of sudden cardiac death, which unfortunately is increasing day by day in sports practice, followed by the main topics related to the injuries prevention through some methods and programs to avoid the most frequent musculoskeletal sports lesions in athletes. The higher competitively and the violence in elite athletes may be one of the main causes to increase the number of concussions in sports and the rules to avoid them and the main parameters to make the more accurate diagnosis in and out of the field will be considered. Finally, the most difficult questions to answer are: when and how the athlete will return and what are the criteria to define the right moment to be back to the sports practice? At the end, the audience will be able to understand the importance of the prevention programs and what are the best criteria and the best moment to allow the athletes to return to sports.

Speakers:


Title Presentation: “Prevention of sudden cardiac death in the athlete”
2. André Pedrinelli (BRA) - Sports medicine Division Chairman of IOT-HC-FMUSP. FIFA - Medical Centre of Excellence USP Director - São Paulo, Brazil. FIMS USP - Collaboration Center. Team Physician of the Brazilian National Football Team.

**Title Presentation:** Injury prevention in the elite athlete


**Title Presentation:** Concussion in elite athlete

4. Moisés Cohen (BRA) - Full Professor and Chairman of the Orthopedic and Sports Medicine Department of the Escola Paulista de Medicina of the Universidade Federal de São Paulo - UNIFESP. FIFA - Medical Centre of Excellence UNIFESP Director - São Paulo, Brasil. Brazilian Knee Society and Brazilian Orthopedic Sports Medicine Society past president. ISAKOS past president 2011-2013. Federação Paulista de Futebol Director of the Medical Committee. Board of directors of the CBF Football Brazilian Doctors National Committee.

**Title Presentation:** Criteria for return to sports in high performance athletes
INVITED SYMPOSIA

ELITE PERFORMANCE

Chair: Paulo Azevedo (BRA) - Federal University of São Paulo, Human Movement Science Department, Santos, São Paulo, Brazil.

Abstract

The aim of the present symposium is to present to the audience the most recent scientific discoveries related to elite performance. Professor Will Hopkins will be speaking and debating about statistic analysis. Athletes vary in their performance from one competition to the next, typically by 1-2% at the Olympic level for sports in which athletes compete as individuals. Giving an elite athlete an enhancement of performance similar in magnitude to this variability increases the athlete’s chances of winning a medal, but simulations show that the smallest important enhancement of one extra medal every 10 competitions is achieved with a change in performance of as little as 0.3 of the variability. Performance of elite solo athletes is therefore fundamentally unreliable, and special designs and analyses are required when studying or monitoring performance of such athletes in field tests and competitions. With elite team sports the Holy Grail is an analytical method for identifying the changes in match performance indicators and fitness tests of individual athletes that would result in their team winning one extra match in every 10 matches. The second speaker, Professor Irineu Loturco, will focus on simple ways to increase and monitor the speed-power performance in elite sports. As muscle power and sprinting speed are widely recognized as determinant factors of individual performance, several studies have been designed to determine better and more effective methods for increasing these neuromechanical capacities in top-level athletes. Although many of these training approaches have advantages in specific contexts, to be fully implemented, the majority require either time-consuming testing routines or extensive periods of time, which may hamper their use in professional sports. In this context, it seems rational to search for simpler and more realistic ways to improve and control the speed and power performances of elite athletes. The aim of this speech is to demonstrate how some of these “practical and applied strategies” can be used for such purposes, presenting experimental data collected from subjects at the extremes of human performance and up to date cases of athletes involved in the Olympic and Paralympic Games. Professor Miguel de Arruda will be speaking about biological predictors of performance and the importance of these on youth training and athletic performance improvement. It has great importance because growth and maturation development are strongly correlated with motor control and performance in youth. In the sequence we will be hearing to Professor Paulo Azevedo talking about fatigue as a limiting factor of performance. Some data has recently indicated that central nervous system can be modulated in order to improve athletes’ performance. Thus, we will discuss about the effectiveness of ergogenic strategies in performance improvement.
Speakers:

1. Paulo Azevedo (BRA) - Federal University of São Paulo, Human Movement Science Department, Santos, São Paulo, Brazil.
   Title Presentation: Central fatigue and ergogenic strategies

2. Will Hopkins (AUS) - Institute for Sport Exercise and Active Living, Victoria University, Melbourne, Australia
   Title Presentation: Medal-winning Enhancements of Performance

3. Irineu Loturco (BRA) - Director of Sport Science and Research at the Nucleus of High Performance in Sport, São Paulo, Brazil.
   Title Presentation: Simple ways to increase and monitor the speed-power performance in elite sports

4. Miguel Arruda (BRA) - Physical Education College, UNICAMP, Campinas, São Paulo, Brazil
   Title Presentation: Youth training: Biological predictors and indicators
INVITED SYMPOSIA

GENETICS OF SPORT PERFORMANCE

Chair: João Bosco Pesquero (BRA) - Department of Biophysics at Federal University of São Paulo, São Paulo, Brazil.

Abstract

Despite numerous attempts to discover genetic variants associated with elite athletic performance, injury predisposition and elite/world-class athletic status, there has been limited progress. Because of the reliance on candidate gene analyses, involving a small number of single nucleotide polymorphisms (SNPs) and structural variants (eg, the commonly studied insertion/deletion polymorphisms) coordinated research efforts are needed. New approaches involving large, well-funded consortia and utilising well-phenotyped large cohorts and genome-wide technologies will be necessary for meaningful progress to be made. In order to plan and develop this capacity, a first of a kind symposium was held on the Greek island of Santorini from 14-17th May 2015 (http://celebratorysymposium.net) to review the most significant findings in “omics” technologies with particular applications in sports medicine and sport science and to explore future trends and possibilities, including a Position Stand/Santorini Declaration. Participants were identified in view of enhancing existing studies (eg, PowerGene, Genesis, GAMES and GeneSmart) by assimilating all previous and current initiatives into one new global consortium, the Athlome Project Consortium, to move the field forward significantly. The main aim of the Athlome project is to characterize the genetics and biology of exercise performance, as a platform to understanding healthy body function and major chronic disease conditions (i.e., Cardiovascular disease, Obesity, Type 2 Diabetes ect.). The Athlome project captures genotype and phenotype data of elite athletes, adaptation to exercise training (in both human and animal models), and muscle-related injuries from excising studies and consortiums worldwide. To achieve this ambitious goal, different approaches will be used including (but not limited to) genome-wide association studies (GWAS), whole exome sequencing, RNA sequencing, genotype-phenotype association, and epigenetic analyses. Particular priority will also be given to tissue-specific and systemic “omics” analysis (such as transcriptomics in the first instance) to develop personalized medicine applications including “intelligent training” and the discovery of “omics” signatures of doping.

Speakers:

1. Jane Seto (AUS) - Murdoch Childrens Research Institute, Australia.

Title Presentation: A gene for speed: ACTN3, athletes and human health
2. Masashi Tanaka (JPN) - Director, Department of Clinical Laboratory, Tokyo Metropolitan Geriatric Hospital, Tokyo, Japan.

**Title Presentation:** The 1000 Athlomes Project: An initiative for whole genome sequencing of elite athletes

3. Yannis Pitsiladis (GRC) - FIMS Reference Collaborating Centre of Sports Medicine for Anti-Doping Research, University of Brighton, Eastbourne, United Kingdom.

**Title Presentation:** Genomics of elite sporting performance: The Human Athlome Project
INVITED SYMPOSIA

OLYMPIC AND PARALYMPIC LEGACY

Chair: David Legg (CAN) - Department of Physical Education and Recreation Studies, Mount Royal University, Alberta, Canada. David is a faculty member teaching adapted physical activity and sport management. As a volunteer, David is the Past President for the Canadian Paralympic Committee, and past board member for the 2015 Pan Parapan American Games in Toronto. Currently, David serves on the International Paralympic Committee's Sport Science Committee. Academically, David was a Research Fellow at Northeastern University in Boston and is presently an instructor for the sport management program within the Erasmus Mundus Masters of Adapted Physical Activity at Leuven University in Belgium. He has also been a visiting instructor while on sabbatical at Dalhousie University in Halifax and Deakin University in Melbourne. David edited and wrote multiple chapters in the first book on Paralympic Legacies.

Abstract

Legacy and impact of major Games remains one of the most important issues relating to multisport mega-events across the globe and it could be argued that the development of legacy is one of the most urgent imperatives in sport. In the book Paralympic Legacies the editors David Legg and Keith Gilbert, provide an overview of the discussion related to legacy and impact of major games that forms the foundation from which the presentation will be rooted.

According to Legg and Gilbert (2011) the notion of legacy emerged from Olympic Movement’s desire for recognition. Girginov and Hills (2008, p. 2091) referred to the IOC’s quest for legacy in the following manner: “.....the concept of ‘legacy’, which together with the concept of ‘sustainable sports development’, has become an essential part of the IOC and the Organising Committee of the Olympic Games (OCOG) vocabulary’. The idea of legacy became so important that the IOC amended it’s own Charter to include a particular reference to the creation of positive legacies from the Games.

This recognition of the importance of legacy started arguably in 2002 when the Olympic Studies Centre in Barcelona organised the International Symposium on Legacy of the Olympic Games, ‘1984-2000’, (Chappelet, 2008, p. 2). The attendees of this conference, however, may have left with more questions than answers. Gratton and Preuss (2008 p.1923) noted that the conference ‘attempted to define legacy, but the participants found that there are several meanings of the concept, and some of the contributions have highlighted the convenience of using other expressions and concepts that can mean different things in different languages and cultures’.

Legg and Gilbert (2011) recognized this confusion in assessing the Olympic Games legacy research that took place following the 2002 Symposium. In their attempts to better understand legacy from Paralympic Games they noted that it would likely mean 'something handed down or received from an ancestor or predecessor', (Macquarie Dictionary, 2006), ‘a birthright or heritage’, (Free Online Dictionary, 2010) ‘a form of bequeath’ or literally it means ‘that which is left behind’ (Merriam Webster...
Dictionary, 2009). Legg and Gilbert (2011) for their purposes choose the latter ‘that which is left behind’ as the definitive open ended meaning in part because it was broad enough to cover most aspects of legacy as displayed in the academic narratives by authors such as Cashman (2003, p.32), Chappelet (2008, p. 3), Gratton and Preuss (2008, p. 1922), Girginov and Hills (2008, p.2092).

Using this understanding then it would seem that the hope, although not always the reality, for many major sporting events is to leave behind something positive that is worth the expense of hosting. Gratton and Preuss (2008, p. 2) list the positive characteristics of legacy as ranging from: ‘...commonly recognised aspects (urban planning, sport infrastructure) to less recognised intangible legacies, such as urban revival, enhanced international reputation, increased tourism, improved public welfare, additional employment, more local business opportunities, better corporate relocation, chances for city marketing, renewed community spirit, better interregional cooperation, production of ideas, production of cultural values, popular memory, experience and additional knowhow’. Cashman, Kennett, de Morgas and Noria (2003) had a second process by which to assess the benefits of legacy arguing that it can be broken down into six categories: [a] economic [b] the built and physical environment [c] information and education [d] public life, politics and culture [e] sport and [f] symbols, memory and history. Other legacies that appear to be more recent have focused on environmental sustainability and community health. As alluded to earlier these legacies are typically viewed as intended and beneficial. It is also important for us to recognize, however, that there are also positive unintended legacies and unintended negative impacts. Legacies and impacts of major Games such as the Olympic and Paralympic Games are thus diverse in their breadth, depth and level of understanding and impact.

In this presentation the speakers will review their own understandings of the impacts and legacies of major games by speaking to legacy from three different perspectives, historical, practical and philosophical. Our goal then is to further our understanding on this important subject with the ultimate result hopefully being of better understanding of how these impacts can be ensured.

The first presentation by Dr. Michael Krüger from the University of Muenster, Germany will provide the historical context for an understanding of legacy and the Olympic and Paralympic Games. The second presentation by Dr. Misener from Western University in Canada will then address the impact and legacy of major games by focusing on the social impacts of sporting events and how sport and events are used as tools for increasing sport participation. In particular Dr. Misener will focus on research conducted at the 2014 Commonwealth Games in Glasgow, Scotland and the 2015 Parapan American Games in Toronto, Canada. The third presentation will be from Dr. David Howe of Loughborough University in the United Kingdom. Dr. Howe will speak to legacy and impact of Games from the perspective lexicology drawing upon Bourdieuian concepts, paying close attention to historical and ethical issues related to the meaning of impact and legacy of major Games. The session will be moderated by Dr. Legg, a Professor from Mount Royal University in Canada.

Speakers:

1. Michael Krüger (DEU) - Sports Pedagogy, Physical Education, History, University of Muenster, Germany. Dr. Krüger previously studied the academic subjects of Pedagogy, Sport Science and History at Wuerzburg and Tuebingen Universities in German and Leicester in Great Britain. Dr. Kruger is a council member of ISHPES and has had numerous publications on Olympism, Olympic history, and Olympic education.
Title Presentation: Historical context for an understanding of impact and legacy from the Olympic and Paralympic Games

2. Laura Misener (CAN) - Sport Management, School of Kinesiology, Western University, Ontario, Canada. Dr. Misener’s research and professional interests concern sport as an instrument of social change. She seeks to critically examine numerous ways that sport has been purported to positively influence community development, social infrastructure, social inclusion, and healthy lifestyles of community members. In particular, her focus lies in the area of how sporting events, in particular disability sport events can be used to positively affect communities in terms of local development, sport development, and social inclusion/exclusion. Her overall goal is to develop both theoretical and practical means of enhancing the value and outcomes of sport for positive social change.

Title Presentation: Social impacts of sport events: Challenges, Opportunities, and Strategies

3. David Howe (GBR) - Social Anthropology of Sport, Loughborough University, United Kingdom.
David’s ethnographic research focuses on unpacking the embodied socio-cultural milieu surrounding inclusive physical activity and disability sport. His publications on the co-constitution of disability and medicine in sport mark him out as the leader in the socio-cultural investigation of disability sport. With reference to the culture of disability, ethics of Paralympism, health and disability and medical discourse surrounding the Paralympic Games, David is concerned with his research highlighting ways and means of making more empowering for marginalised populations. David teaching in the anthropology of sport has recently begun to focus on the importance of legacy and impact of mega events such as the Olympic and Paralympic Games.

Title Presentation: Historical and ethical issues related to the meaning of impact and legacy of major Games
INVITED SYMPOSIA

ORGANIZING STRUCTURED PHYSICAL ACTIVITY PROGRAMS FOR UNDERREPRESENTED CHILDREN AND YOUTH

Chair: Walter Thompson (USA) - Associate Dean for Graduate Studies and Research

Dr. Walt Thompson is a tenured Regents’ Professor of Kinesiology and Health (College of Education) with a second academic appointment in the Department of Nutrition (Lewis School of Nursing and Health Professions) and the School of Public Health at Georgia State University in Atlanta. Dr. Thompson has published over 125 research-based articles on many different topics and has received over $20 million in funding for his various initiatives. He has authored or has edited 14 books. Because of his personal interest in at-risk kids living in the inner city, he serves as the Executive Director of the After-School All-Stars Atlanta, a comprehensive after school initiative for middle school aged children now in 23 sites with an average daily attendance of 3,000. Children participating in his program are typically those living in poverty. The program meets after school during the school year and for five weeks during the summer. In 2006 Dr. Thompson received the prestigious Georgia State University College of Education Faculty Service Award. That same year his program was selected by the Georgia State University President to receive the “Most Outstanding University Program” award. In 2008, the After-School All-Stars was selected to receive the “Regional Excellence Award” by the Atlanta Civic League and it is the recipient of the 2008 Atlanta Partners for Education A+ Summa Cum Laude Award. In 2009, his program received the celebrated Hosea Williams Award for Community Activism. In 2012, Dr. Thompson received the Georgia State University Exceptional Service Award. Dr. Thompson has been a member of the IPC Sports Science Committee for more than a decade.

Abstract

In every country around the world there are children either living in poverty or have a physical or intellectual disability that often marginalizes them from the rest of society. No matter the location, from Europe to Asia, from North America to South America, these children often have no place to go after school, on the weekends, or during the summer when there are no formal school programs. Inclusion of children with special needs (economic, physical, intellectual) is the cornerstone to social justice and ultimately inclusion. This symposium focuses on the development, maintenance and sustainability of structured physical activity programs, including sports, for children and youth who are typically marginalized within societies and the global community. These young people are typically in societal minority groups including indigenous populations, the poor, and those with physical and intellectual disabilities. Speakers will talk about each of these disadvantaged children and youth and how they become marginalized within society then offer specific examples of successful programs concentrating on initial program development (including funding), continuation, and preserving future sustainability. These successful programs have been recognized by their peers and by international organizations for their unique approaches to solving a world issue – to help create a generation of people who previously have been out of the mainstream of society. Speakers will offer scientific evidence that these programs
work, and work effectively. Using the scientific approach of paired comparisons, children engaged in these programs often exceed their counterparts (peers) in measured parameters of physical and intellectual gains. Speakers will talk about their experiences in North America (Atlanta, Georgia USA), Africa (Rwanda, Kenya, Mozambique, Senegal), and South America (Suriname).

Speakers:

1. Walter Thompson (USA) - Associate Dean for Graduate Studies and Research Dr. Walt Thompson is a tenured Regents' Professor of Kinesiology and Health (College of Education) with a second academic appointment in the Department of Nutrition (Lewis School of Nursing and Health Professions) and the School of Public Health at Georgia State University in Atlanta. Dr. Thompson has published over 125 research-based articles on many different topics and has received over $20 million in funding for his various initiatives. He has authored or has edited 14 books. Because of his personal interest in at-risk kids living in the inner city, he serves as the Executive Director of the After-School All-Stars Atlanta, a comprehensive after school initiative for middle school aged children now in 23 sites with an average daily attendance of 3,000. Children participating in his program are typically those living in poverty. The program meets after school during the school year and for five weeks during the summer. In 2006 Dr. Thompson received the prestigious Georgia State University College of Education Faculty Service Award. That same year his program was selected by the Georgia State University President to receive the “Most Outstanding University Program” award. In 2008, the After-School All-Stars was selected to receive the “Regional Excellence Award” by the Atlanta Civic League and it is the recipient of the 2008 Atlanta Partners for Education A+ Summa Cum Laude Award. In 2009, his program received the celebrated Hosea Williams Award for Community Activism. In 2012, Dr. Thompson received the Georgia State University Exceptional Service Award. Dr. Thompson has been a member of the IPC Sports Science Committee for more than a decade.

Title Presentation: Organizing after school and summer programs for economically disadvantaged children living in the urban environment

2. Rinske de Jong (NLD) - Rinske de Jong has a bachelor degree in Human Movement Sciences and a master’s degree in Adapted Physical Activity. For 7 years Rinske has been working for the Dutch Olympic and Paralympic Committee involved in the area of Paralympic Talent Recruitment and sports for people with a disability on a grassroots level. Since 2008 Rinske has been a board member of PlayAble, a non-profit social venture designing adapted sport programs and coaches training to promote the rights and abilities of people with a disability through sport. The first projects were started in Kenya and Uganda. Rinske went to Rwanda, Mozambique, Aruba, Suriname, Curacao and Trinidad and Tobago to train coaches and assist local organisations to be able to run their own inclusive sport programs.

Title Presentation: Play-Able: designing adapted sports program and coaches training to promote the rights and abilities of people with disabilities through sports
3.Fenna Walhain (SUR) - Fenna Walhain has a bachelor degree in Human Kinetic Technology (2007) and master’s degree Human Movement Sciences at the VU University Amsterdam (2010). For 5 years Fenna Walhain has been working both as teacher and researcher at the Anton de Kom University of Suriname and educates Biomechanics and Kinesiology for physiotherapy education. Since 2013 Fenna Walhain has done research in the field of physical activity, fitness and motor coordination in children with different cultural backgrounds, living in urban versus rural areas in Suriname.

**Title Presentation:** Health-related fitness, motor coordination, physical and sedentary activities of urban and rural children in Suriname
INVITED SYMPOSIA

PHYSICAL ACTIVITY AND BRAIN HEALTH

Chair: Romain Meeusen (BEL) - Prof. Dr. Romain Meeusen, (PhD) is head of the Human Physiology Research Group at the Vrije Universiteit Brussel. His research interest is focussed on "Exercise and the Brain in Health & Disease" exploring the influence of neurotransmitters on human performance, training, rehabilitation. Recent work is on Thermoregulation, Neurogenesis, Cognition, nutrition in health & disease. He teaches on exercise physiology, training & coaching and sports physiotherapy. Romain published ca 400 articles and book chapters in peer-reviewed journals, 18 books on sport physiotherapy, and gave lectures at more than 750 national and international conferences. He is past President of the Belgian Society of Kinesiology, the Belgian Federation of Sports Physiotherapy, and the society of kinesiology Belgium. He is former Board member of the European College of Sport Science ECSS (2000-2013), and of the American College of Sports Medicine (ACSM) (2010-2013). In 2009 he received the Belgian ‘Francqui Chair’ at the Université Libre de Bruxelles on ‘Exercise and the Brain’. He is also holder of two named lecturing chairs at the Vrije Universiteit Brussel. He is director of the Human Performance lab of the Vrije Universiteit Brussel, where he works with several top athletes, and is scientific advisor of the ‘Lotto Cycling Institute’ (Lotto-Soudal professional cycling team).

Abstract

Today an emerging body of literature has documented the beneficial influence of physical exercise on several aspects of brain function. In humans, physical exercise promotes brain health by its positive influence on mood changes, decreased levels of anxiety and depression. It is also clear that exercise improves learning and memory, and can be an efficient therapy in the prevention and treatment of several neurological diseases. The purpose of this symposium is to report on the recent findings of the effect of physical activity on brain health. The first speaker (R. Meeusen) will explain the possible mechanisms by which exercise will influence neurotransmission and neurogenesis, and how these neurochemical and molecular reactions might explain the preventive and therapeutic effect of physical activity on brain health. The second and third speaker (R. Arida, A. Dunn) will elaborate on this topic form two specific pathologies : epilepsy and depression (mood disorders). It will be explained how physical activity may be a potential candidate as non-pharmacological treatment of epilepsy, and help in the reduction of seizure susceptibility. The main results from several meta-analyses show that exercise also has an antidepressant effect compared with control conditions. Exercise is a safe therapy which has no medication side effects such as withdrawal symptoms, weight gain , dry mouth or insomnia, but shows potential health benefits such as weight reduction, increased cardiovascular health, and musculo-skeletal strength and endurance. Therefore exercise can be a strong intervention for several brain disorders and for the improvement of quality of life of these individuals.

Speakers:

pág. 80
1. Romain Meeusen (BEL) - Prof. Dr. Romain Meeusen, (PhD) is head of the Human Physiology Research Group at the Vrije Universiteit Brussel. His research interest is focussed on “Exercise and the Brain in Health & Disease” exploring the influence of neurotransmitters on human performance, training, rehabilitation. Recent work is on Thermoregulation, Neurogenesis, Cognition, nutrition in health & disease. He teaches on exercise physiology, training & coaching and sports physiotherapy. Romain published ca 400 articles and book chapters in peer-reviewed journals, 18 books on sport physiotherapy, and gave lectures at more than 750 national and international conferences. He is past President of the Belgian Society of Kinesiology, the Belgian Federation of Sports Physiotherapy, and the society of kinesiology Belgium. He is former Board member of the European College of Sport Science ECSS (2000-2013), and of the American College of Sports Medicine (ACSM) (2010-2013). In 2009 he received the Belgian ‘Francqui Chair’ at the Université Libre de Bruxelles on Exercise and the Brain’. He is also holder of two named lecturing chairs at the Vrije Universiteit Brussel. He is director of the Human Performance lab of the Vrije Universiteit Brussel, where he works with several top athletes, and is scientific advisor of the ‘Lotto Cycling Institute’ (Lotto-Soudal professional cycling team).

Title Presentation: Exercise, neurotransmission, neurogenesis and brain health

2. Ricardo Mario Arida (BRA) - Ricardo Mario Arida received his Ph.D. from the Department of Neurology at Universidade Federal de São Paulo, Brazil (1999) for his work studying the relationship between epilepsy and physical exercise. He did his postdoctoral research on the role of central fatigue hypothesis at Oxford University, UK (1999-2000). He continued his research on the effect of physical activity in epilepsy as Assistant Professor in the Laboratory of Experimental Neurology at Universidade Federal de São Paulo – Brazil (2001-2006). Currently, he is Associate Professor at the Department of Physiology – Laboratory of Neurophysiology, Universidade Federal de São Paulo. He was elected as a Member of Taskforce on Sports and Epilepsy - International League Against Epilepsy (ILAE) and Member of São Paulo State Academy of Science. His scientific activity is documented by more than 180 publications in peer-reviewed and indexed international journals. He has experience in Neurophysiology, acting on the following subjects: neuroplasticity, physical exercise and brain, exercise during brain development and brain aging and exercise. Specifically, his research is focused on the mechanisms by which exercise reduces seizure frequency in animal models of epilepsy. Research Interests: Neurological diseases and exercise, neuroplasticity, epilepsy and exercise, brain and exercise.

Title Presentation: Physical activity and epilepsy
3. Danusa Dias Soares (BRA) - Danusa Dias Soares received her Ph.D. from the Department of Physiology and Biophysics at Universidade Federal de Minas Gerais, Brazil (2003) working with serotonergic system and fatigue mechanisms during exercise. During her Ph.D. she did a “Sandwich” program (CAPES) at INSERM at Bordeaux, France (2002), where she worked with serotonergic system and different models of stress. She is a Full Professor of Exercise Physiology at Universidade Federal of Minas Gerais, Brazil, where she works since 1994. She did her postdoctoral research on exercise, nutrition and brain at Vrije Universiteit Brussel, Belgium (2014-2015). Dr. Soares is currently the coordinator of Exercise Physiology Laboratory (LAFISE) at Universidade Federal of Minas Gerais, Brazil, where she has been doing research on monoaminergic systems, more specifically on serotonergic and dopaminergic systems and exercise and on nutritional manipulations and brain function and exercise. She is a member of Brazilian Physiological Society as well as of European College of Sports Science and since January 2014 she has been working as a consultant in the area of physical activity and health for the Brazilian Sports Ministry. Dr. Soares has publications in peer-reviewed and indexed international journals and also book chapters in the field of exercise science and physiology.

Research Interests: Monoaminergic systems and exercise, brain nutrition and exercise, thermoregulation and exercise, fatigue mechanisms during exercise and exercise and chronic diseases.

Title Presentation: Physical activity and depression
INVITED SYMPOSIA

PHYSICAL ACTIVITY AND HEALTH ACROSS THE LIFESPAN

Chair: José Angelo Barela (BRA) - Department of Physical Education, Institute of Biosciences, State University of São Paulo, Rio Claro, Brazil.
Institute of Physical Activity and Sport Sciences, Cruzeiro do Sul University, São Paulo, Brazil.

Abstract

Life has been quite facilitated by many of the “modern” commodities that nowadays we literally have at hand. We can move from one place to other, communicate or contact to almost whomever we wish, and manipulate our near surroundings with much less efforts that we used to. As a consequence, much of physical efforts that were employed in such activities are not necessary anymore and physical activity demands have dropped dramatically. Therefore, promoting physical activity enrolment aiming health issues across the lifespan has definitely become one of the main issues of much of health and physical activity programs. Despite the consensus regarding the importance and the benefits of physical activity in promoting health and well-being issues, the enrolment in such activity is not trivial and is influenced by many issues. Physical activity towards health promotion must be understood as a process, in which must be developed throughout a long process, a lifespan approach. There is also the need to develop, direct, and promote health programs for people with disabilities and special needs. Finally, there is the need to understand the positive effects of proficiency in early motor skills and the enrolment in regular physical activities and sport activities throughout the life. These three main issues will be presented and discussed in this symposium.

Speakers:

1. Geert Savelsbergh (NLD) - is the Desmond Tutu chair for Youth, Sport and Reconciliation, Head of the Motor Learning and Performance group at Research Institute MOVE Amsterdam. In the period of 1991-1996, he was a research fellow of the Royal Netherland Academy of Arts and Sciences and in 2008 he received an honour doctorate of the Faculty of Medicine and Health Sciences, University of Ghent, Belgium. At the moment he is scientific coordinator of the Amsterdam Institute of Sport Science. His research interest is in fundamental research with respect the visual regulation of movement, but also in applied research from a perception-action perspective. Concepts like anticipation, patron recognition in sports as football, tennis, golf and sailing has his attention. Especially for talent development. He has published over 190 papers in international peer reviewed scientific journals and recently a book about talent development entitled ‘Athletic Skills Model for optimal...
talent development’. He is the editor of the Infant behavior and Development, associate editor of International Journal of Sport Psychology. He (co)-supervised 25 PhD projects and currently supervises PhD projects in Netherlands, Australia, Belgium, United Kingdom and South-Africa. He has international teaching experience (Belgium; Brasil; Germany; Italy; Norway; Portugal; United Kingdom).

Title Presentation: Athletic Skills Model: A new innovative program for optimizing healthy talent development

2. Peter Bukhala (KEN). Holds a Masters degree in APA from McGill university-Canada and a PhD in APA from Kenyatta University –Kenya. His expertise is in programme planning for inclusive physical activities. He has been instrumental in the development of the Adapted Physical Activity programmes in Kenyan universities. He developed the first inclusive Camp Shriver programme that brings together learners with intellectual disabilities and their able-bodied peers to learn physical activities at Kenyatta University. This programme has been documented and shown by Reuters across Africa. Peter has been a member of the International Paralympic Committee - Sports Science Committee for the last four years and a member of the Global steering committee for the development of the Special Olympics strategic plan 2010-2015. He teaches disability sports and has supervised and mentored many students at Masters and PhD levels in the area of Adapted Physical Activity. He is currently the acting Registrar Administration at Masinde Muliro University of Science and Technology-Kenya, a position that has enabled him to champion for more inclusion of students with disabilities into the university and the communit.

Title Presentation: Physical activity and health for persons with disability across the lifespan: developing nations perspective
INVITED SYMPOSIA

PREPARING FOR EXTREME CONDITIONS: TRAVELLING – HEAT – POLLUTION – ALTITUDE

Chair: Marco Tulio de Mello (BRA) - Federal University of Minas Gerais (UFMG), Department of Sports at Faculty of Physical Education, Physiotherapy and Occupational Therapy (FEFFTO), Belo Horizonte, Minas Gerais, Brazil.

Abstract

This symposium will address relevant themes for high performance sports, in particular, problems and difficulties that pollution, altitude, excessive heat, moisture, and low recovery during the sleep period may impair athletic performance. This symposium will consider the following approaches: The first speaker (Romain Meeusen) will address the topic "Exercise, Pollution & the Brain". This presentation introduces an emerging research field focused on the effects of the exposure to air pollution on cognition during exercise, with specific attention to the concentrations of brain-derived neurotrophic factor (BDNF) and inflammatory markers. The second speaker (Ron Maughan) will address the theme "Preparing for exercise in the heat". This approach will bring a discussion of the consequences of physical exercise practice in conditions of high heat and humidity for major athletic contests. This poses a major challenge for competitors since the performance of both physical and mental tasks can be adversely affected by heat. Indeed, high humidity and high solar loads are factors that require consideration as well as the risk of dehydration in hot environments. The third speaker (Jose Magalhaes) will address the theme "Exercising in the Land of the Gods - Challenges at Altitude". The topics that will be covered are altitude and exercise performance, preparatory strategies to face altitude and acclimatization at altitude. The last speaker (Marco Tulio de Mello) will address the theme "sleeping at altitude condition, how is our physical and cognitive recovery?". This talk will address the importance of sleep, physical and cognitive recovery process, as well as, how much sleep and all the physical and cognitive recovery process can be impaired in hypoxic conditions, taking into consideration the periods of training and competitions in altitude conditions and the recovery process. This symposium will take a comprehensive approach that will bring a discussion on sports performance and recovery of athletes, in special, considering training conditions and competitions.

Speakers:
1. Marco Tulio de Mello (BRA) - Federal University of Minas Gerais (UFMG), Department of Sports at Faculty of Physical Education, Physiotherapy and Occupational Therapy (FEFFTO), Belo Horizonte, Minas Gerais, Brazil.

**Title Presentation:** Sleeping at altitude condition: how is our physical and cognitive recovery?

2. Romain Meeusen (BEL) - Vrije Universiteit Brussel – Human Physiology Research Group, Brussel, Belgium.

**Title Presentation:** Exercise, Pollution and the Brain

3. Christiano Antônio Machado Moreira (BRA) - Dr. Christiano is a young scientist in the field environmental physiology, with particular emphases within the regulation of body temperature during exercise, heat acclimation, hydration states, and control of human eccrine sweating. During his Ph.D. in Thermal Physiology (UOW, Australia), Christiano examined the regional distribution and neural control of both thermogenic and psychogenic sweating. In the Post-doc research (UFMG, Brazil), the focus was the impact of extreme, hot environment upon thermoregulation, endotoxemia and exercise performance. Furthermore, Dr. Christiano has collaborated in research projects in Japan and Europe. Current position: fulltime, permanent professor at the Federal University of Juiz de Fora, Brazil. Member of the Exercise Physiology Laboratory at the Federal University of Minas Gerais, Brazil.

**Title Presentation:** Exercise in extreme environment: the heat challenge
INVITED SYMPOSIA

PROTECTING THE HEALTH OF THE ATHLETES: WHAT HAPPENS AFTER RETIREMENT?

Chair: William Roberts (USA) - Department of Family Medicine and Community Health, University of Minnesota, Minnesota, EUA.

Chair: Yannis Pitsiladis (GRC) - FIMS Reference Collaborating Centre of Sports Medicine for Anti-Doping Research, University of Brighton, Eastbourne, United Kingdom.

Abstract

Compared to non-athletes, elite athletes experience more severe injuries -- and long-term effects of those injuries. Former elite athletes also score worse on depression, fatigue and sleep scales. A study of former elite athletes between 40 and 65 years old compared to a representative sample of the U.S. population in the same age range showed:

• Former athletes were more than twice as likely as non-athletes to report physical activity limitations to daily activities and exercise.

• 67 percent of the athletes reported sustaining a major injury and 50 percent reported chronic injuries, compared to 28 percent and 26 percent respectively for non-athletes.

• 70 percent of athletes reported practicing or performing with an injury, compared to 33 percent on non-athletes.

• 40 percent of athletes reported being diagnosed with osteoarthritis after college compared to 24 percent of the non-athletes. Osteoarthritis has been linked to previous joint injuries.

Other issues include blood pressure and cardiovascular disease, repeated concussion and brain function, obesity, and orthopedic issues like spine disc disease and joint replacement. Athletes often have access to a range of expertise during their competitive years, including strength and conditioning coaches and nutritionists, but they often find themselves on their own after retiring. Many elites are participating in sports that are not lifelong activities, so it is important for the athletes to find alternate sports and activities that can keep them active as they age. The most important thing is to stay active for long term quality of life. Continued activity and healthy lifestyle counseling and education should be an expected part of the transition out of the elite and professional level athletics.
This symposium will address several general area of health concern for retired elite athletes:
- Mental Health
- General health - obesity and blood pressure
- Heart issues
- Brain and Concussion
- Bones and Joints

**Speakers:**

1. William Roberts (USA) - Department of Family Medicine and Community Health, University of Minnesota, Minnesota, EUA.

**Title Presentation:** Physical well-being post-retirement

2. Marcelo Callegari Zanetti (BRA) - Graduated in Physical Education (FFCL), Master in Human Kinetics Science (UNESP), Doctor and post-doctoral student in Human Development and Technologies (UNESP). Member of the Laboratory of Studies and Research in Sport Psychology (LEPESPE). Accomplished doctoral stage at Laboratoire de Méthodes et Psychométriques experimental / Groupe d’études en Méthodes Psychométriques Appliquées à la Psychologie du Sport at the Université du Québec à Trois-Rivières (Canada). Professor in undergraduate courses of UNIP Sao Jose do Rio Pardo and undergraduate and graduate program (Masters and PhD) from the University São Judas Tadeu (SP). Member of the board of the Brazilian Association of Sport Psychology and Exercise (ABEPEEx).

**Title Presentation:** Psychological implications of career termination in Brazilian top level athletes
INVITED SYMPOSIA

REHABILITATION

Chair: Maria Stella Peccin (BRA) - Federal University of São Paulo, Human Movement Science Department, Santos, São Paulo, Brazil.

Abstract

Rehabilitation is a broad theme, and in this symposium, we will seek to address the state of art of research in some areas involving Rehabilitation. We will start with physical training in cardiovascular diseases, followed by physical activity in rheumatic diseases, specifically in arthritis, and finally, the focus will be on sports: phototherapy applied to sports and the best scientific evidence available in sports physiotherapy. Prof. Carlos Negrão will address cardiovascular disease (CVD) and physical training (FT). Growing evidence shows that physical training (PT) has a very important role in the prevention and treatment of CVD. PT has been highly recommended both to reduce cardiovascular risk factors, as well as for the treatment of CVD. The changes caused by CVD in the autonomic control and its hemodynamic consequences will be described, as well as the benefits of PT in patients with CVD. Emphasis will be given to the improvement in vagal/sympathetic controls, sympathetic nerve activity, and renin-angiotensin system. Furthermore, the mechanisms involved in these changes and the clinical implications of all the changes achieved through PT in patients with CVD will be discussed. Prof. Sara Piva will talk about physical activity in arthritis. For decades the value of physical activity in arthritis has been questioned. The current evidence strongly supports that regular physical activity is a key ingredient in the treatment of these patients. Exercise not only reduces pain and improves musculoskeletal health, but also reduces inflammation, improves metabolism and mood, and prevents further disability. To enjoy the benefits of physical activity, patients need to use appropriate doses of exercise and follow the basic principles of physical training. However, exercise is rarely prescribed as a medicine; but when prescribed, the doses that are used are generally substandard and insufficient for a therapeutic effect. These issues along with strategies to prescribe exercise in arthritis, with emphasis in osteoarthritis will be discussed. Prof. Nivaldo Parizotto will address the theme phototherapy applied to sports. Many devices using Lasers and LEDs present real effects on human body as analgesic, controlling inflammation and healing different kind of tissues. However, a new approach to human performance is the innovative application of this therapeutic modality. Published data suggest that the application of this therapy is safe and efficient on human performance, including in sports. Results from different research groups will be presented, indicating best dosages and techniques, including the technologies used, advantages and limitations. Lastly, Prof. Stella Peccin will present scientific evidences in sports physiotherapy. There is a number of scientific publications related to physical therapy in sports that tested a variety of interventions. However, there is no consensus on which intervention is more effective. The aim of this presentation is to present some of the best evidence-based approaches available in physical therapy in sports, and where and how to identify them. Also, the lack of evidence on the treatment effect of some approaches will be discussed.
Speakers:

1. **Carlos Negrão (BRA)** - Heart Institute, Clinical Hospital, Medical School, and School of Physical Education and Sport, University of São Paulo, Brazil.
   
   **Title Presentation:** New Paradigms of Exercise in Cardiovascular Diseases

2. **Sara Piva (USA)** - Department of Physical Therapy and Clinical and Translational Science Institute at the University of Pittsburgh.
   
   **Title Presentation:** Physical activity in Arthritis

3. **Nivaldo Parizoto (BRA)** - Professor at Post Graduation Program of Biotechnology – UNIARA, Full Professor Senior (retired) – DFisio-UFSCar.
   
   **Title Presentation:** Phototherapy applied to sports.

4. **Maria Stella Peccin (BRA)** - Federal University of São Paulo, Human Movement Science Department, Santos, São Paulo, Brazil.
   
   **Title Presentation:** Evidence-based physical therapy in sports
INVITED SYMPOSIA

SPORT INTEGRITY – MYTH, REALITY, INTERNATIONAL UNDERSTANDING AND EDUCATIONAL PERSPECTIVES FOR NEXT GENERATION

Chair: Walter King Yan Ho (CHN) - Faculty of Education, University of Macau, Macau, China.

Abstract

Integrity is the issue for long to be upheld by professional as the central value in sport development. The issue turns with global attention as the various scandals for example corruption in business of soccer world, drug use in athletic events and organized crime in sport indicated the gaps in transforming the core value of sport integrity into reality. Clean Sport and Sport Fixing; what kind of message that we want to send to our next generation? This symposium follows the Global Alliance for Sport Integrity and draw the response from professionals on the discussion towards understanding, practice and educational perspectives in arriving on the necessary value of what integrity should have for our next generation. Speakers are expected to share the historical perspective on sport integrity and views on issues with relationship to education of our next generation, systems at works in stopping the sport corruption and possibilities of collaboration for stopping the crime. Speakers from different continent are invited to share their views with purpose to identify the strategies for education of the core value in integrity and importance of clean sport at work.

Speakers:

1. Pedro Ferreira Guedes de Carvalho (PRT) - Vice-president of the Human Sciences Faculty, UBI; President of the Sport Sciences Department, UB; Director of the Master in Sports Science for Teachers, UBI.

Title Presentation: Corruption In Sports: an economic analysis
2. Kallie van Deventer (ZAF) - Stellenbosch University

3. Keh Nyit Chin (MYS) - Keh Nyit Chin, Ph.D., is a professor of physical education Department at the National Taiwan Normal University, Taipei. She has held teaching, research, and administrative appointments at the university. Dr. Keh received her master and doctoral degrees from the Louisiana State University at Baton Rouge. She has coauthored numerous book chapters and journal articles related to physical education teaching and physical fitness. Dr. Keh has and continues to be involved in research in physical education teaching strategies included TGfU and inclusive teaching for students with disability. She has secured funds from the National Science Council for a 3-year research project on TGfU, a 2-year research project on Model-based instruction (TPSR): Gender awareness and interaction in physical education, and from Ministry of Education for a 5-year research project on Physical Fitness Testing for Student with Disability. Besides, she is responsible for training in-service physical teachers on TGfU and promoting the use of this cognitive approach in Taiwan. In the past 5 years, she trained pre- and in-service PE teachers to use TPSR in different level of schools responding to the call for promote Moral Education. Presently she is the president of Taiwan Adapted physical Activity Association and honorary president of Taiwan Sport Pedagogy Association, and serves as a member on the PE and Health Education Counseling Committee for Taiwan Education Ministry. Currently she is the Secretary General of ISCPES and the board member of IAPESGW, actively working to bring sports to elderly females and females with disability in Taiwan.

4. John Saunders (AUS) - John Saunders is currently Associate Professor in the School of Exercise Science of the Australian Catholic University at Brisbane. He holds degrees from the Universities of Oxford, Loughborough, Hull and Queensland in the disciplines of English Literature, Education, Physical Education and Business Management. He has taught and held administrative positions in universities in the UK, Singapore and Australia, served on the National Coaching Panel of the Australian Rugby Union, as National Coach and Director of Coaching Development for the Singapore Rugby Union, as Director of the Victorian Institute of Sport and on the executive committees of the International Council for Health Physical Education and Recreation (ICHPER_SD), the International Council for Sports Science and Physical Education (ICSSPE) and the Australian Council for Health Physical Education and Recreation (ACHPER). John is currently Editor in Chief of
International Sports Studies and a member of the International Research Network in Sport Tourism (IRNIST).
INVITED SYMPOSIA

SPORT MEGA-EVENTS: DIVERSE SOCIAL SCIENTIFIC PERSPECTIVES FROM THE GLOBAL NORTH AND THE GLOBAL SOUTH

Chair: Kimberly Schimmel (USA) - Professor of the Sociology of Sport; Director, School of Foundations, Leadership and Administration; Vice President, International Sociology of Sport Association, Kent State University, Ohio, USA.

Abstract

Four internationally recognized sport studies scholars from the Global North and the Global South address the diversity theme of the conference from a diverse social scientific perspective. The panel will demonstrate that the phenomenon of sport mega-events is one of the central problematics of our contemporary era. Scholars on this panel will address the historical, cultural, socio-psychological, and local civic policy implications of sport mega-events. They will suggest that these events require scrutiny from inter-disciplinary perspectives before the civic and scholarly communities can come to agreement about the worth of large-scale events such as the Olympic Games. The panel will discuss the benefits and burdens of the Olympics from each of their perspectives.

Speakers:

1. Katia Rubio (BRA) - University of São Paulo (USP), School of Physical Education and Sports, Department of Human Body Movement Education, São Paulo, Brazil.

Title Presentation: Brazilian Athletes’ Experiences of the Olympics: From Dictatorship to Democracy

2. Kimberly Schimmel (USA) - Professor of the Sociology of Sport; Director, School of Foundations, Leadership and Administration; Vice President, International Sociology of Sport Association, Kent State University, Ohio, USA.

Title Presentation: Toward a thanatology of Olympic stadiums
3. Annette Hofmann (DEU) - Is full professor for Sports Studies at the Ludwigsburg University of Education in Germany. She teaches various aspects of sport pedagogy and cultural studies of sport. Her main research interests are: Ethnicity and sport, gender and sport, sport and the ‘ill’ female body, German-American sports and bilingual aspects of teaching Physical Education. Annette Hofmann is the President of the International Society for the History of Sport and Physical Education (ISHPES) and Vice President of the German Gymnastic Federation (Deutsche Turner-Bund), the biggest sports for all association. She is an academic editor of the International Journal of the History of Sport and review editor of the Journal of Sport History. She holds several other positions on national and international academic boards, and has about 200 publications.

**Title Presentation:** "How Colorful is This!" The International Deutsche Turnfest 2017 in Berlin: A Sport for All - Mega-Event between Spectacle, Participation and Solidarity
INVITED SYMPOSIA

SPORTS MEDICINE CONSIDERATIONS FOR THE FEMALE OLYMPIC AND PARALYMPIC ATHLETE

Chair: Connie Lebrun (CAN) - Professor for the department of Family Medicine in the Faculty of Medicine and Dentistry; Adjunct Professor for the Faculty of Physical Education and Recreation; and Adjunct Professor for the Faculty of Rehabilitation Medicine, all at the University of Alberta, Alberta, Canada.

Abstract

This symposium will address contemporary sports medicine issues of the elite female athlete. Topics to be covered include the clinical complexities of the Olympic and Paralympic female athlete including not only female athlete triad and Relative Energy Deficiency in Sport (RED-S), but also research updates on injury patterns, neuromuscular control, and genitourinary considerations, among others; key considerations of bone metabolism and health in Paralympic female athletes; and the unique sports nutrition and energy availability variability among Olympic and Paralympic female athletes.

Speakers:

1. Connie Lebrun (CAN) - Professor for the department of Family Medicine in the Faculty of Medicine and Dentistry; Adjunct Professor for the Faculty of Physical Education and Recreation; and Adjunct Professor for the Faculty of Rehabilitation Medicine, all at the University of Alberta, Alberta, Canada.

Title Presentation: Clinical Complexities of the Olympic Female Athlete - an Overview

2. Claudia Ridel Juzwiak (BRA) - Federal University of São Paulo, Santos, São Paulo, Brazil.

Title Presentation: Sports Nutrition and Energy Availability - Unique Variability Amongst Olympic and Paralympic Female Athletes (Olympic and Paralympic-focused)
3. Monica E. Rho (USA) - Director of the Women's Sports Medicine Program at Rehabilitation Institute of Chicago (RIC), an assistant professor at RIC/Northwestern University Feinberg School of Medicine, and is an attending physician in the RIC Sports and Spine Rehabilitation Center, Chicago, USA.

**Title Presentation:** Clinical Complexities of the Paralympic Female Athlete - an Overview

4. Leslie R. Morse (USA) - Assistant Professor of Physical Medicine and Rehabilitation, Harvard Medical School, Spaulding Rehabilitation Hospital Boston, Massachusetts, USA.

**Title Presentation:** Bone Metabolism and Bone Health in Paralympic Female Athletes (Overview and Key Considerations (Paralympic-focused))
INVITED SYMPOSIA

THE CRUCIAL ROLE OF PRIMARY SCHOOL PHYSICAL EDUCATION – CREATING EARLY POSITIVE MOVEMENT EXPERIENCES AND A BROAD MOVEMENT FOUNDATION FOR ALL CHILDREN

Chair: Martin Holzweg (DEU) - EUPEA, Executive Committee Member.

Abstract

School Physical Education plays a major role in providing a sound movement foundation for all children. As several studies show (e.g. Bailey, Holzweg et al., in preparation), children that experienced early positive movement experiences and developed a broad movement foundation will probably be physically more active in their later life than children that did not experience early positive movement experiences or did not develop a broad movement competence. This symposium deals with the crucial role of primary school physical education in children’s development from different perspectives [philosophical perspective, cognition perspective, health perspective, educational perspective, intercultural perspective] in an inter-disciplinary way [sport pedagogy, (neuro) psychology, sport didactics, (neuro)physiology, comparative physical education/sociology].

In order to not only relate to the ICSEMIS 2016 convention topic “Saying yes to diversity in sport” from a content point of view this symposium consists of six academics (three female speakers, two male speakers & one male chair) from three different regions (Europe, Asia & Latin America) and of different age groups.

Speakers:

1. Rose-Marie Repond (CHE) - EUPEA, Past President, Magglingen, Switzerland.

Title Presentation: Values education, equity issues (socio-economic background, gender and inclusion) and early positive movement experiences in primary school physical education
2. Claude Scheuer (LUX) - EUPEA President, Luxembourg, Luxembourg.

Title Presentation: Diverse approaches to improve the quality of primary school physical education - What can we learn from the past and from different regions in the world (Europe, Asia and Latin America)?
INVITED SYMPOSIA

TRADITIONAL AND INDIGENOUS SPORTS AND GAMES

Chair: Wolfgang Baumann (DEU) - Secretary General, TAFISA, Frankfurt, Germany.

Abstract

The key theme of the Symposium extends to the heart of sport: Traditional and Indigenous Sports and Games (TSG). The rise of the international sports movement in the 20th century has caused TSG to fall behind or even disappear. But there is good news: TSG are coming back to life again. The Indigenous games are revitalized in different ways, bringing new identities. This renaissance is due to the significant role TSG and indigenous games can play today as part of our cultural heritage and local identity. On this background the rise of TSG also documents that globalization often creates sociocultural paradoxes. This implies that globalization on the one hand has led to a universal global culture in sports as it is reflected by for example the Football World Cup with its high degree of standardization. But on the other hand globalization strengthens traditional culture as a counterbalance illustrated by the renewed interest in the development of TSG and indigenous games. This is an example of sociocultural paradox of globalization, which has the most direct impact on individuals. It appears that the re-appearance of TSG is a sign for the “survival of the specific” and a chance to enjoy diversity in spite of globalization. The question now is how can we benefit from this new trend to rediscover TSG and indigenous games? Can TSG and indigenous games help us and if yes in which way to bring back physical activity into everyday lives? Can the aged activities of the past be a resource of today to increase sport participation amongst citizens? It is the mission of this Symposium to come up with concrete and practical answers to these and other questions for the future work in the field of indigenous Games and TSG.

Speakers:

1. Maria Beatriz Rocha Ferreira (BRA) - Federal University of Grande Dourados, Mato Grosso do Sul, Brazil.

Title Presentation: Indigenous Games: Identity, Gender and Revitalization Process
2. Wolfgang Baumann (DEU) - Secretary General, TAFISA, Frankfurt, Germany.

**Title Presentation:** Traditional Sports and Games as an example of Sociocultural Paradox of Globalization in Sport

3. Leonard Thadeo (TZA) - TAFISA Vice President Africa, Ministry of Sports, Tanzania.

**Title Presentation:** TraditionalSport and Games: a Bond of Unity and Recreation - The African Perspective

4. Malgorzata Bronikowska (POL) - University of Poznan, Poland.

**Title Presentation:** Bridging the Past and the Future - Traditional Sports and Games from a Historical Perspective
INVITED SYMPOSIA

VALUES-BASED EDUCATION THROUGH SPORT AND PHYSICAL EDUCATION: MYTHS AND REALITY

Chair: Attilio Carraro (ITA) - University of Padua. He is co-head of the Health, Sport and Exercise Sciences Group at the Department of Biomedical Sciences of the University of Padua, Italy. His research focuses on sport pedagogy and healthy behaviours. He is currently the principal investigator of an international project founded by WADA, UNESCO, IOC, IPC, ICSSPE and IFPC aimed to develop a one-resource kit tailored to provide teachers with tools to deliver values-based education.

Abstract

The assertion that sport and Physical Education (PE) develop desirable, positive values is a long-held view. This may be linked to the three unique characteristics of PE and sport: teaching-learning environments, subject matter and caring teacher/coach-student relationships. More recently, there has been a renewed focus on values-based education (VbE) as youth are perceived as being at risk in terms of their behaviours, their health, their affiliations, or their readiness to contribute to the future society. Charging schools and sport clubs/associations with the task of explicitly teaching values raises questions about which values are chosen and how are they taught, learned and assessed. The aim of this symposium is to critically discuss the role and potentialities of sport and PE in educating to values and to showcase a model of VbE which is grounded in a holistic, individual-centred framework. Speakers will discuss the lessons learned from literature and the alternative futures for VbE in sport and PE, the role of sport and PE in valuing diversity and a recent international experience aimed to develop one resource kit designed to help educators deliver VbE.

Throughout their role in schooling, sport and PE have always been considered a site of values education as they sit at the interface of the body, health, morality and citizenship. In many counties, VbE has recently become more explicit in schooling discourses driven, in part, by societal responses to disruptions in social structures and the perceived risks to young people. The opening paper shall provide some background to the place and expectations of VbE in schooling, sport and PE.

Nationally and globally, authorities have looked to school sport and PE programs to provide young citizens with the values and attitudes that underpin a peaceful, productive, healthy and cohesive population for the 21st century. The future of effective VbE lies in a more contemporary view of sport and physical education as a digital ecosystem which will have a highly immersive environment … the emphasis would be on the connectedness of the environment. ‘In class’ is being connected to ‘out of class,’ the physical to the virtual, the student who is in school to someone who is out of school. Literally anything and everything is connected” (D. Oblinger, Harvard Gazette, 2015, n.p).

One of the key-word of VbE is diversity and the focus of sport and PE, when looking to the differences among individuals, should be exploring differentiated possibilities to promote inclusive participation.
The contact with the diversity should be seen as a unique opportunity to educate young citizens, since it supports critical thinking and provides inimitable inclusion experiences. Sport and PE can represent favourable settings to accept diversity by valuing it, to develop innovative solutions to cope with the limitations of each individual, by transforming them into new possibilities, and to promote positive relationships among all participants.

The closing paper will present the strategy adopted to develop a new resource for VbE. Despite different tools to provide VbE through sport and PE have been published in the last years by various international and national organizations, testing the usability and effectiveness of VbE tools remains a complicated issue. In recognizing positive sport potential in social and moral education, the WADA-UNESCO-IOC-IPC-ICSSPE-IFPC-AIESEP project, started in 2014, aimed to develop a toolkit for teachers to promote the overall value of Fairness, articulated in the core values of Inclusion, Respect and Equity. The toolkit has been developed and tested according to a cross-cultural and cross-curricular perspective.

Speakers:

1. Attilio Carraro (ITA) - University of Padua. He is co-head of the Health, Sport and Exercise Sciences Group at the Department of Biomedical Sciences of the University of Padua, Italy. His research focuses on sport pedagogy and healthy behaviours. He is currently the principal investigator of an international project founded by WADA, UNESCO, IOC, IPC, ICSSPE and IFPC aimed to develop a one-resource kit tailored to provide teachers with tools to deliver values-based education.

Title Presentation: Tools for values-based education: pros and cons. The experience of the WADA-UNESCO-IOC-IPC-ICSSPE-IFPC-AIESEP project

2. Fiona Chambers (IRL) - University College Cork. She is the Director for Sports Studies and Physical Education in the School of Education at University College Cork. She is a Senior Lecturer in Education (Sports Studies and Physical Education). Fiona's main research interest is in initial and career-long professional learning for PE teachers and its impact on young people’s learning in PE and sport. Fiona has a particular interest in the role of mentor education in developing the pedagogies that PE teachers need to use sport effectively to promote the health and wellbeing of pupils.

Title Presentation: Alternative futures for values-based education in sport and physical education

3. Marcia Greguol (BRA) - Londrina State University. She obtained her PhD in Sports Science from the University of São Paulo. Since 2006 she is working as professor for Adapted Physical
Activity at the Center of Physical Education and Sport - State University of Londrina (Paraná, Brazil). Since 2014 she is the coordinator of the Sports Science course at State University of Londrina and coordinator of the Group of Studies and Research in Physical Activity and Disability (GEPAFID).

**Title Presentation:** Adapting citizens to live with diversity by valuing diversity

4. Doune Macdonald (AUS) - University of Queensland. She is Pro-Vice-Chancellor (Teaching and Learning) at The University of Queensland, Australia. Prior to this she was Head of the School of Human Movement and Nutrition Sciences and undertook research in Health and Physical Education curriculum design, policy and inclusion.

**Title Presentation:** The lesson learned from literature on values-based-education through sport and PE: a critical perspective
PROPOSED SYMPOSIA

G1 - WHY SYNCHRONIZED SWIMMING SHOULD BE A PARALYMPIC SPORT

Chair: Camila Brandão Lazzarini (BRA) - Physiotherapist, UNICID, São Paulo, Brazil.
Camila is a former Synchronized Swimming athlete, was a member of Brazil's National Team for several years and has more than 20 years of experience with Synchronized Swimming. As a volunteer, Camila worked with Paralympic Swimming and recently, became a classifier of Paralympic Swimming, certified by Brazilian Paralympic Committee – CPB. Combining all the expertise in Synchronized Swimming and her passion for physical therapy, was one of the founders of Synchronized Swimming for athletes with disability (AWD) in Brazil and is the chief manager of Inspara, a national non-profit organization that creates opportunity for people with disabilities to practice synchronized swimming in Brazil.

Abstract

The recent development, acceptance and success of Synchronized Swimming for Athletes with a variety of disabilities in specific countries and the growth of it as a ‘spectator’ sport amongst the disabled and non disabled populations, lends credibility for the eligibility and the inclusion of Synchronized Swimming as a Paralympic Sport.

Last year occurred the 1st International Synchronized Swimming Symposium for Athletes With Disabilities (AWD), involving seven countries to share the knowledge and experiences and to start building up the rules of Synchronized Swimming for AWD, a fundamental step towards the recognition of it as an official sport.

This coming September, Brazil will host the 2nd International Synchronized Swimming Symposium for AWD and we expect to gather at least one representative of the thirteen countries that have developed synchronized swimming for AWD until now. Our main goal is to spread worldwide the diversity that Synchronized Swimming offers, to share knowledge of a new sport for people with disabilities based on scientific evidence and multi-disciplinary discussions.

Our speakers have a huge experience with synchronized swimming for AWD. The first presentation by Tina Boales (USA) will provide the context of the global initiative and engagement of AWD Synchronized Swimming. The second presentation by Katherine Ambos (CAN) will cover competitive AWD program in Canada, goal oriented coaching using the star program and Long term athlete development program for athletes in both the cognitive and physical categories of AWD. The third speaker, Paloma Torres (MEX) will present this qualitative research that shows the progress at the level of higher cognitive functions such as: concentration, attention and memory, as well as better communication at interpersonal relations between people with Down Syndrome and people without disabilities, through the practice of synchronized swimming. The session will be moderated by Camila
Lazzarini (BRA), physiotherapist and chief manager of Inspara, the first non-profit organization for AWD Synchronized Swimming in Brazil.

Speakers:

1. Camila Brandão Lazzarini (BRA) - Physiotherapist, UNICID, São Paulo, Brazil. Camila is a former Synchronized Swimming athlete, was a member of Brazil's National Team for several years and has more than 20 years of experience with Synchronized Swimming. As a volunteer, Camila worked with Paralympic Swimming and recently, became a classifier of Paralympic Swimming, certified by Brazilian Paralympic Committee – CPB. Combining all the expertise in Synchronized Swimming and her passion for physical therapy, was one of the founders of Synchronized Swimming for athletes with disability (AWD) in Brazil and is the chief manager of Inspara, a national non-profit organization that creates opportunity for people with disabilities to practice synchronized swimming in Brazil.

2. Tina Boales (USA) - Bachelor degree from San Jose State University. Communications with an associate degree in administration of justice. Retired from a career of 27 years in law enforcement which included advocacy for victims and change in laws. Her sports background includes speed swimming, track & field, roller hockey. She coached roller hockey for 5 years and synchronized swimming for 3 years. She has judged novice/intermediate synchro competitions and currently is a coach for synchro athletes with disabilities on a new synchronized swim team she developed primarily for disabled youth which is the first of its kind in the United States. She is Co-founder and President of the nonprofit advocacy group, "Synchronized Swimming for Athletes with Disabilities, USA".

Title Presentation: Global initiative and engagement of Athletes with Disabilities in Synchronized Swimming

3. Katherine Ambos (CAN) - Master of Science in Education at Medaille College, Buffalo, New York, USA. Katherine is a special education teacher in Toronto, Canada and has worked with the special needs population both in the community and in schools for close to 20 years. She is passionate about inclusive and adaptive sports and activities and has a background in coaching swimming, synchronized swimming and rugby. Most recently, Katherine has coached the AWD
cognitive category in synchronized swimming and helped to develop one of the top AWD training programs in Canada, located at Variety Village.

**Title Presentation:** Long Term Athlete Development

---

4. **Paloma Torres (MEX)** - Psychologist, Gestalt Institute and Mexico Autonomy University and master degree in Education, Jaen University, Spain. Paloma is a former synchronized swimming athlete and has a long experience in coaching down syndrome athletes in synchronized swimming. In 2009 she founded the first team of synchronized swimming for Down Syndrome athletes in Mexico, Sirenas Especiales, which is the first official synchro team in Latin America and have collected now 4 world medals in the Down Syndrome International Swimming Organization Championship including one Gold medal. Paloma is also publishing a child's history about Sirenas Especiales team and their overcoming history.

**Title Presentation:** Synchronized Swimming for people with Down Syndrome: Benefits in higher cognitive processes and interpersonal relationships
PROPOSED SYMPOSIA

G2 - MAKING A DIFFERENCE FOR GIRLS AND WOMEN IN PHYSICAL EDUCATION, SPORT AND DANCE

Chair: Rosa López de D’Amico (VEN) - Professor at the Universidad Pedagógica Experimental Libertador - Maracay, Venezuela. Coordinator of the Research Center “Estudios en Educación Física, Salud, Deporte, Recreación y Danza” (EDUFISADRED); research focused on physical education, comparative studies in sport, sport policy, literature, culture and gender. Editorial board member of various academic journals. She has more than 65 referee articles, 16 books, 10 proceedings book, and 23 chapters in books. She has participated in conferences and presentations in all five continents. In 2007 received the highest research award given by the Venezuelan Council of Universities. Director of Research and Graduate Studies at UPEL-Maracay (2003 – 2007); State Sport Director (2009 – 2011). Responsibilities at international organizations: President of the International Association of Physical Education and Sport for Girls and Women (IAPESGW 2013 - 2017); Vice President of the International Society for Comparative Studies in Physical Education and Sport (2008 – 2016); Executive and Editorial Board member International Council for Sport Science and Physical Education (ICSSPE) (2013 – 2016); Former President of the Latin America Sport Management Association (ALGEDE 2009 - 2015); Former Secretary for the Latin American Association for Socio Cultural Studies (ALESDE (2008 – 2014). Member of the Scientific Committee ICSEMIS 2012.

Chair: Eliana Ferreira (BRA) - Post-doctorate at the National University of Long Distance Learning - UNED-Spain (2012), sponsored by the Carolina Foundation, and at State University of Campinas - UNICAMP in the area of discourse analysis (2008). Doctoral (2003) and master’s degree (1998) in Physical Education at UNICAMP, undergraduate in Physical Education at Federal University of Uberlandia. Professor at the Faculty of Physical Education (UFJF), coordinator of Accessibility Program and the long distance learning program and the research group of inclusion in the long distance learning NGIME/UFJF, since 2009. Currently has a position of trust in the Department of Continuing Education at the Ministry of Education. Research group leader at the Asociación del Deporte Latinoamericana Sciences, Physical Educación y Danza (ALCIDED), representative of Brazil in the International Association of Physical Education and Sport for Girls and Women (IAPESGW); representative of the International Council of Sport Science and Physical Education (ICSSPE).

Abstract
Speakers:

1. **Anneliese Goslin (ZAF)** - Professor Dr Anneliese Goslin is a nationally and internationally recognized researcher and advocate in recreation and sport. She holds a D Phil and an MBA from the University of Pretoria. She has published more than 50 peer reviewed scholarly articles and contributed to workbooks and textbooks on sport leadership and international sport business management. She has been awarded numerous honors: State President Sport Award for Promotion of Recreation in South Africa; IOC Sport for All Award for sport development in Africa; Austrian Award for her work in Sport for All, National Association for Girls and Women in Sport International Pathfinder Award (USA); South African Association for Sport and Physical Education Research award for continued promotion of recreation science; Catalyst Award from the Global Center for Women and Sport Leadership (USA); Research Award from the Women’s Sports Foundation (USA). Her professional leadership includes: Previous vice President of TAFISA (Trim and Fitness International Sport for All); Review Board for International Comparative Society for Physical Education and Sport and the International Journal of Sport Management; invited reviewer for African Journal of Physical Education, Recreation and Dance and South African Journal for Research in Sport, Physical Education and Recreation; Editorial Board Member of the International Council of Sport Science and Physical Education (ICSSPE): elected member to the ICSSPE Executive Board, elected Vice President of IAPESGW (International Association of Physical Education and Sport for Girls and Women) and appointed Chair of the South African Ministerial Advisory Committee on Recreation.

2. **Maria Beatriz Rocha Ferreira (BRA)** - Ph.D. in Anthropology at the University of Texas at Austin - Department of Anthropology - USA (1987). Master in Physical Education – Faculty of Physical Education at University of São Paulo - Brazil 1981. Professor and researcher in the Faculty of Physical Education at State University of Campinas – UNICAMP (1988-2012) and actually received a grant from CAPES - Brazilian Federal Agency to develop teaching and research in the Faculty of Education at the Federal University of Grande Dourados – UFGD, State of Mato Grosso do Sul. The main topics researches and publications are related with society and culture emphasizing diversity, figuration, power, gender, games and physical activity in different populations, such as indigenous peoples, Bolivians in the city of São Paulo, river dwellers called ‘ribeirinhos’ in Amazonas and in wheelchair dance sport.
3. Darlene A. Kluka (USA) - D Phil, Ph. D., is Dean of the School of Human Performance and Leisure Sciences and Professor of Sport Management at Barry University in Miami Shores, Florida, USA. She has also been an Extraordinary Professor at the University of Pretoria, South Africa and continues to be a member of the sport leadership development team for the Malawi National Sports Council. She is currently a charter member of USA Volleyball Sports Medicine and Performance Commission. As a former Vice President of USA Volleyball, she has served on its board of directors. A Past President of International Association of Physical Education and Sport for Girls and Women (IAPESGW), she continues to serve on its Executive Board. She has also served as a member of the United States Olympic Committee, representing AAHPERD. Additionally, she has published three texts, over 125 articles, and has presented over 100 professional/research papers in five continents. She has been presented with the International Council of Health, Physical Education, Recreation, Sport and Dance (ICHPERSD) Biennial Scholar Award; the International Relations Council (IRC – AAHPERD) International Scholar Award; International Academy of Sports Vision Research Award. She has been a Research Fellow in the International Academy of Sports Vision and is a Research Fellow in SHAPE America. She was also presented with the prestigious International Council of Sport Science and Physical Education (ICSSPE) Philip Noel Baker Research Award (highest award) and received Life Membership in the International Association of Physical Education and Sport for Girls and Women (IAPESGW) (highest honor).

4. Rosa Diketmuller (AUT) - PhD, Assistant Professor at the University of Vienna, Austria. Research and teaching areas focus on sport pedagogy/geragogy, gender studies, and health promotion in different settings (Kindergarten, schools, …). She is lecturer in “Gender training” for coaches and editor of the Austrian journal “Girls in Physical Education”. She is co-founder of the Austrian Platform “Women in sports” and board member of several national and international associations, at the moment e.g. Austrian Association of Sport Science (secretary general), Austrian Women’s Forum Physical Education, International Association of Physical Education and Sport for Girls and Women, etc. Currently she takes the lead of the Austrian Working Group Gender Equality in Sports 2014-2020 to establish the National Action Plan on gender equality in sports in Austria. She is partner of several European projects, e.g. national partner at the Erasmus+ project: “VOICE - Voices for truth and dignity - Combatting sexual violence in European sport through the voices of those affected” or national projects like “ActivEyouth”, “Kindergarten – PA for girls and boys in outdoor areas of Kindergarten”, “schoolyards and gender-relation” or “Let’s get active outdoors”.
PROPOSED SYMPOSIA

G3 - SPORT AND PHYSICAL ACTIVITY AS PSYCHO-SOCIAL SUPPORT FOR CHILDREN AND YOUTH IN CRISIS

Chair: Dean M. Ravizza (USA) - Senior Research Practitioner at the Bosserman Center for Conflict Resolution and faculty member in the Department of Health & Sport Sciences at Salisbury University, Maryland (USA). His work focuses on the intersection of research, fieldwork, and practice to advance the uses of sport for children and youth in armed conflict, former child soldiers, and other vulnerable children with extensive fieldwork in conflict-affected regions in Africa.

Abstract

Crisis affects millions of people worldwide resulting in injury, violence and loss of life, the displacement of populations, mass migration, and extensive damage to societies and economies thus offsetting important development agendas. The use of sport and physical activity in the field of sport for development and as part of psycho-social programs among populations in crisis has increasingly gained recognition as an element of integrated approaches across key sectors Though a relatively new approach, such programs demonstrate benefits to the restoration of psychological health and social well-being through group-focused practices aimed at strengthening psychological health and social well-being through physical activities within the context of local culture, traditions, needs, and resources (IFRC&RCS 2014). In the context of crisis, sport and physical activity provide the time and space for respite from traumatic situations, allowing survivors to shift their attention from their experiences of loss to opportunities of affirming strength and capability (Henley et al. 2007). Additionally, such experiences allow the much-needed relief for caregivers, highlighting the positive impact of sport and play across the different developmental levels of community members.

This session will focus on 1) understanding the role of sport and physical activity as a means of psycho-social support for children and youth in natural and human-made crisis; 2) examining the role of sport to address key issues related to trauma, conflict, and child protection as a result of crisis situations, 3) addressing the needs of people with disabilities in disaster risk reduction, disaster response and sport-based interventions; 4) sport and psycho-social support programs for refugee children and youth; and, 5) providing an overview of an international program in the Philippines offered by sport and non-sporting organizations utilizing sport as a means to build individual capacity to utilize play, physical activities and sport in facilitating individual and community resilience; and 6) Soraj Ghulam Habib will recount the events leading to the loss of his legs in a cluster munitions explosion while growing up surrounded by violence in his native Afghanistan, and the role of sport in building his strength and resilience both in Afghanistan and while starting a new life as a refugee in Australia.
Speakers:

1. Katrin Koenen (DEU) - Director Scientific Affairs at the International Council of Sport Science and Physical Education (ICSSPE), where she is responsible for scientific publications, organization of scientific events and development of publications and event concepts. Her core areas of interest in sport science are Adapted Physical Activity, sport for persons with a disability, Sport for Development and Inclusion, always with a focus on gender issues.

**Title Presentation:** Moving Together! Inclusive Psychosocial Activity Programs

2. Dean M. Ravizza (USA) - Senior Research Practitioner at the Bosserman Center for Conflict Resolution and faculty member in the Department of Health & Sport Sciences at Salisbury University, Maryland (USA). His work focuses on the intersection of research, fieldwork, and practice to advance the uses of sport for children and youth in armed conflict, former child soldiers, and other vulnerable children with extensive fieldwork in conflict-affected regions in Africa.

**Title Presentation:** Promoting Social Inclusion through Sport for Children and Youth in Armed Conflict

3. Maria Luisa Guinto-Adviento (PHL) - Faculty member, Research Director, and Sport Psychologist of the Department of Sport Science, College of Human Kinetics at the University of the Philippines. She is a founding member of the Association of Sport and Exercise Psychology of the Philippines, forerunner of the Special Interest Group for Sport and Exercise Psychology at the Psychological Association of the Philippines and Managing Council member of the Asian-South Pacific Association of Sport Psychology.

**Title Presentation:** 3 Rs Re-play, Re-live, Re-create: Community Resilience through Sports

4. Soraj Ghulam Habib (AF/AUS) - Advocate and campaigner against the worldwide use of cluster munitions as a weapon of war after losing his legs to a cluster bomb as a young boy in...
his home country of Afghanistan. Soraj has spoken at high level meetings of the United Nations in Norway, Ireland and New Zealand and is a strong international advocate against cluster munitions and land mines. He was a key spokesperson for landmine survivors at the First Meeting of State Parties to the Convention on Cluster Munitions in Vientiane in Laos and regularly collaborates with organizations regarding wheelchair sport activities and key issues involving disability and development. He hails from the Herat Province of Afghanistan and now resides in Australia.

5. Jackie Lauff (AUS) - Co-founder and CEO of Sport Matters in Australia. Together with co-founder Liesl Tesch, she has delivered sport and development programs in partnership with community organizations in Alice Springs, Timor-Leste and South Africa. Prior to this, she worked with the International Council for Sport Science and Physical Education (ICSSPE) delivering Sport in Post-Disaster Intervention seminars, and as an Inclusion Officer with Basketball Australia creating sporting opportunities for people with disabilities in Australia and for indigenous women in the remote Northern Territory.
PROPOSED SYMPOSIA

G4 - INTERDISCIPLINARY ON AMYOTROPHIC LATERAL SCLEROSIS (ALS)


Abstract

Amyotrophic Lateral Sclerosis (ALS) is a neurodegenerative disease with a high incidence in professional athletes. These athletes might develop the disease due to overuse, which triggers neurotrophic factors and lead to motor neuron injury (Gallo, 2016). This symposium intent to raise awareness about a condition that is very common between athletes, and talk about some cautions that can decelerate its progression and how to cope with it.

The interdisciplinary team will talk about the consequences of physical activity for ALS patients; the physical activity guideline and how to improve the quality of life through respiratory management and use of assistive technology devices.

The main goal of this symposium is not only talk about the clinic of ALS, but also discuss about how to modulate the physical activity intensity and think about ways to integrate people with progressive disease back to sport world.

Speakers:

2. Mariana Callil Voos (BRA) - University of São Paulo.

**Title Presentation:** Causes and effects of physical activity in former athletes with Amyotrophic Lateral Sclerosis

3. Cecília Helena De Moura Campos (BRA) - Social worker in ABrELA (Brazilian Association on ALS).

**Title Presentation:** Guidelines for physical activity and quality of life for Amyotrophic Lateral Sclerosis patients

4. Maria Clariane Berto Hayashi (BRA) - Neuromuscular Department of Federal University of São Paulo.

**Title Presentation:** Clinical training of respiratory rehabilitation for Amyotrophic Lateral Sclerosis patients.

5. Silvia Junko Nakazune (BRA) - Neuromuscular Department of Federal University of São Paulo.

**Title Presentation:** Assistive technology device for Amyotrophic Lateral Sclerosis patients.
PROPOSED SYMPOSIA

G5 - THE DIVERSITY OF CULTURE AND YOUTH EDUCATION IN PROMOTING GLOBAL CITIZENSHIP THROUGH OLYMPIC SPORT DEVELOPMENT

Chair: Hongwei Guan (USA) - Department of Health Promotion and Physical Education, School of Health Sciences and Human Performance, Ithaca College, NY, USA

Abstract

The goal of the Olympic movement is to contribute to building a peaceful and better world by educating youth through sport practiced without discrimination of any kind. In the era of globalization, in addition to general education and professional skills, cultural competence becomes critical for youth to be prepared for this dynamic and ever-changing world. Philosophical, political, economic, and moral values are shaped during the formative years. Physical educators and other professional leaders of sport play an important role in exposing impressionable youth towards achieving their sport-related goals. In Singapore 2010 the International Olympic Committee organized the first summer Youth Olympic Games to facilitate the interaction of young athletes and other participants through sport, culture, and education. By introducing these young athletes, volunteers and local participants to other cultures through this event an opportunity was fostered to promote global citizenship, a highly valued attribute of an Olympic athlete. This symposium will address different perspectives from around the globe in relation to this development with respect to the diversity of culture, sport and youth education.

Speakers:

1. Hongwei Guan (USA) - Department of Health Promotion and Physical Education, School of Health Sciences and Human Performance, Ithaca College, NY, USA.

Title Presentation: Using Sport to Promote Cultural Diversity and Prepare Global Citizens
2. Jinxia Dong (CHN) - Department of Physical Education, Peking University, Beijing, China.

**Title Presentation:** Cultivating Globalized Talents through Olympic Education

3. Scott Pedersen (AUS) - Faculty of Education, University of Tasmania, TAS, Australia

**Title Presentation:** Introducing Diversity in Sport through a Reverse Inclusion Physical Education Strategy
PROPOSED SYMPOSIA

G6 - HOW TO IMPLEMENT RECOMMENDATIONS FOR QUALITY PHYSICAL EDUCATION?

Chair: Marc Cloes (BEL) - University of Liege, Belgium - AIESEP

Abstract

According to the growing of the sedentariness over the world and to its negative resulting consequences for the society, it is now mandatory to act. Following the socioecological model, the solution of this challenge can be found in a multi-sectoral approach involving all pillars of the society. School represents the cornerstone of any project aiming to influence the future. It has been pointed out as a determining element in the impact of projects aiming to promote physical activity in children as well as in adolescents, particularly when combined with other actors such as the community (Biddle et al., 2012; van Sluijs et al., 2007). During school time, several opportunities are available in order to increase the time spent in physically active behavior (Pate et al., 2006). A quality physical education (QPE) plays a central role in such action of the school. In 2015, UNESCO proposed guidelines aiming to promote QPE all around the world (McLennan & Thompson, 2015). In fact, it appears that, in many countries, stakeholders as well as physical educators do not have the resources needed to change the current policies and practices. Moreover, literature does not provide theoretical/practical support that would be necessary to implement new teaching strategies. This symposium will focus on an action research aiming to go from theory to practice on a national level. The study is built on the collaboration between the International Committee of Sport Pedagogy and the ‘Académie Nationale des Sports’ (ANS) of Madagascar. It is designed to reform and modernize physical education and sports organization in this country. The cooperation focused on the improvement of the quality of physical education, school sports, and leisure/competitive sports practice. It is based on a bottom-up process involving 30 communities selected according to their geographical, social, and economical characteristics. The major aim of this process is to identify the priorities of the country in order to improve the quality of physical education in schools, sports clubs and communities emphasizing diversity, accessibility, inclusion and equity. Qualitative and quantitative approaches have been implemented in order to take into account the needs of the people and the available resources. During the symposium, Marc CLOES (Belgium, AIESEP) will describe the design of the study. Michel LOVATIAKO (Madagascar, Ministry of Sports) will present the record of the process as experienced by a local partner. The place of girls and women in the process of reforming the Malagasy physical education program will be developed by Marianne MEIER (Switzerland, IAPESGW) while Claire Boursier (France, IFAPA) will explain how the integration of adapted physical activity has been envisaged in the reformed Malagasy physical education program.
Speakers:

1. Marc Cloes (BEL) - University of Liege, Belgium - AIESEP

2. Lovatiako Michel Ralaivao (MDG) - Administration of Youth and Sport - Madagascar

3. Marianne Meier (CHE) - Terre des Hommes, Switzerland - IAPESGW

4. Claire Boursier (FRA) - Université Paris Ouest Nanterre, France - IFAPA
PROPOSED SYMPOSIA

G7 - SPORTS MEDICINE AND THE OLYMPIC ATHLETE


Chair: José Kawazoe Lazzoli (BRA) - Specialist in Cardiology and Sports Medicine. Associate Professor, Biomedical Institute, Fluminense Federal University, Niterói, RJ – Brazil. Chief, Cardiology Division, Santa Teresa Hospital, Petrópolis – Brazil. Past President, Brazilian Society of Sports and Exercise Medicine (2009-2011). Secretary General, Panamerican Confederation of Sports Medicine (COPAMEDE). Treasurer, International Federation of Sports Medicine (FIMS).

Abstract

Sports and Exercise Medicine is a very comprehensive medical specialty. The Sports and Exercise Physician may conduct a Cardiac and Pulmonary Rehabilitation program, with patients that present a very limited functional capacity, and at the same time may act with the medical care of the high-performance athlete.

In a clinical setting, physical exercise is a hugely valuable tool, that may reduce cardiovascular and general mortality, either as a primary prevention strategy, or as an adjuvant treatment to several cardiac, pulmonary and metabolic conditions. Clinically, Sports and Exercise Medicine present interfaces with many other medical specialties, as Cardiology, Orthopaedics, Endocrinology, Geriatrics, Pediatrics, and Gynecology.

In competitive sports, the specialist in Sports and Exercise Medicine interacts with many others health-related professionals, like Physical Educators, Physiologists, Physiotherapists, Nutritionists, and Chiropractors, in a multidisciplinary team, each contributing in his/her expertise area to a common objective: to assure that the athlete will develop a high-performance, while maintaining good health.

This symposium will present and discuss important topics in four significant areas in competitive athlete’s related Sports and Exercise Medicine: sports cardiology, sports trauma, medical care and follow-up of the athlete, and doping control.
Speakers:


Title Presentation: Clinical preparticipation evaluation in the athlete

2. Arnaldo José Hernandez (BRA) - Specialist in Orthopaedics and Sports Medicine. Ph.D. in Orthopaedics, State University of São Paulo, São Paulo - SP, Brazil. Full Professor, Orthopaedics and Traumatology Institute, State University of São Paulo, São Paulo - SP, Brazil. Director, Sports Medicine Division, School of Medicine Clinical Hospital, State University of São Paulo (FIFA Medical Center of Excellence and FIMS Collaborating Center of Sports Medicine), São Paulo - SP, Brazil.

Title Presentation: Prevention of injuries in the athlete

3. Roberto Nahon Teixeira Marinho (BRA) - Specialist in Orthopaedics and Sports Medicine. Chief Medical Officer of the Brazilian Olympic Committee. Member of the Commission of Paralympic Rowing of the World Rowing Federation (FISA). Medical classifier in FISA and in the International Triathlon Union (ITU).

Title Presentation: Medical care and follow-up of the olympic athlete


Title Presentation: High-volume training for olympic athletes: good for the heart?
PROPOSED SYMPOSIA

G8 - EVIDENCE IN THE TREATMENT OF ANTERIOR CRUCIATE LIGAMENT

Chair: Marcio Oliveira (BRA) - Specialist in Sports and Trauma and Orthopaedic Functional Physiotherapy; Master in Health Sciences; Ph.D. student in Health Evidence-Based; Professor and Coordinator at the University Center of Brasilia - UniCEUB; Physiotherapist of Trauma and Orthopedics Unit of the Base Hospital of the Federal District.

Abstract

The ACL injury is a new stage in an athlete’s career, because after spending months involved with preoperative procedures, surgery, post operative rehabilitation and return to sports, he will still have to spend considerable time to maintain a good condition of joints and muscles to prevent recurrence. Over the last years, new studies have shown different alternatives for treatment phases, especially for the prevention strategies. This event will aim to discuss these scientific evidence in order to allow the participants learn a current and critical view about the evolution of the methods and techniques of intervention and future prospects.

Speakers:

1. Marcio Oliveira (BRA) - Specialist in Sports and Trauma and Orthopaedic Functional Physiotherapy; Master in Health Sciences; Ph.D. student in Health Evidence-Based; Professor and Coordinator at the University Center of Brasilia - UniCEUB; Physiotherapist of Trauma and Orthopedics Unit of the Base Hospital of the Federal District.

Title Presentation: Biomechanical evaluation of the knee

2. Aline Mizusaki Imoto (BRA) - Physiotherapist; Master and PhD in Sciences; Post-doctoral student in Health Evidence-Based; physiotherapist of the Health Department of the Federal
District, the Hospital of Armed Forces; Professor of the Post Graduate Program in Sciences at the College of Health Sciences / ESCS / FEPECS.

**Title Presentation:** Evidence in the rehabilitation of ACL

3. **Pedro Lima (BRA)** - Physiotherapist partner specialist in Sports Physiotherapy; Master of Physiotherapy; Ph.D. in Public Health; Head of the Department of Physiotherapy - Federal University of Ceará, Researcher of Human Movement Analysis Laboratory; President of National Society of Sports Physiotherapy - SONAFE Ceará.

**Title Presentation:** Prevention of ACL injuries
PROPOSED SYMPOSIA

G9 - ADAPTED PHYSICAL ACTIVITY AND INCLUSION - GLOBAL PERSPECTIVES AND COMMITMENTS TO INCLUSION

Chair: Maria Dinold (AUT) - University of Vienna, Austria, VP of IFAPA

Abstract

In November 2015 the United Nations Educational, Scientific, and Cultural Organization (UNESCO) published their revised International Charter of Physical Education and Sport (Charter). The revised Charter specifically recognizes “… inclusive, adapted and safe opportunities to participate in physical education, physical activity and sport must be available to everyone, including persons with disabilities.” As a result, governments around the world will begin promoting legislation and policy to ensure individuals with disabilities are included in physical education and sport, and in many countries, such legislation has existed for many years (Lieberman & Block, 2016). Another international contract, the United Nations Convention on the Rights of Persons with Disabilities (CRPD) and its application and relevance to the global sport community has already become influential on the policies of many states worldwide. The CRPD articulates the scope of the right of persons with disabilities to participate in sport, recreation and leisure, as well as the right of children with disabilities to play, to participate, and to be included in the fullest expression seen to date.

Maria Dinold will provide a brief international history of inclusion in physical education and sport, she will refer to the Charter and to the CRPD. The intentions for inclusive structures in international organizations, such as the International Federation of Adapted Physical Activity (IFAPA) will be outlined, and trends in South America will be mentioned.

Neiza Fumes will analyse the challenges and advances for promoting the sports and physical activity for people with disabilities in the countries where the exclusion and the marginalization are still outstanding. The Brazilian case will be considered more deeply and show the achievements in the Paralympics Games and the demands to universalize the practice of sports and physical activity for people with disabilities in this country.

When people with disabilities are consulted about their physical activity and sport needs their demands are quite specific. These include that opportunities are as local as possible, that activities are promoted based on their activity needs and not upon their impairments. Ken Black will focus on the dissonance between the organisation and funding of elite level disability sport and the huge lack of investment and seeming low value attached to the development of inclusive physical activity and sport for the majority of disabled people around the world.

All three speakers will illustrate the actual situation of inclusive activities, will want to ask questions about the possibilities for improvement, and will raise issues for discussion.
Speakers:

1. Maria Dinold (AUT) - University of Vienna, Austria, VP of IFAPA
   Title Presentation: Development and general as well as specific aspects of inclusion in physical education and sport

2. Neiza Fumes (BRA) - UFAL-Universidade Federal de Alagoas, Brazil
   Title Presentation: Inclusion and/or universalization in (youth) sport in South America

3. Ken Black (GBR) - The Inclusion Club, University of Worcester, UK
   Title Presentation: 'Joining the Dots': bridging the gap between elite disability sport and inclusive physical activity
PROPOSED SYMPOSIA

G10 - QUALITY TEACHER EDUCATION: GLOBAL CHALLENGES FOR QUALITY PHYSICAL EDUCATION

Chair: Mary O'Sullivan (IRL) - is a professor at the University of Limerick (UL), Ireland and a member of the Irish Teaching Council. Mary served as Dean of the Faculty of Education and Health Sciences at UL (2008-2014) and as Associate Dean, College of Education, The Ohio State University USA (1999-2004). Mary's research interests are on the changing policy environment for teaching and teacher education and how these global policy issues impact Physical Education teacher education, teachers and school Physical Education.

Abstract

The pace and intensity of change in modern society has increased the complexity of teaching and placed significant challenges on teachers and those who prepare teachers. This has placed a spotlight on the quality of teacher education and teacher educators (Livingston, 2014) with demands for improvements in teacher education and physical education teacher education. It has been argued that physical education will not change unless the ways in which teachers are educated change. The paradox however is that empirical research on the preparation of physical education teacher teachers is scarce. Questions about what constitutes quality in Physical Education Teacher Education (PETE) programmes receive too little attention. As an example, Palomäki et al (2014) argue that PE teachers’ knowledge of how to promote active lifestyles among pupils is quite limited and they have called for PE-for-health pedagogies as a critical component of physical education teacher education. A second challenge for teacher educators has been to maintain an active research identity while dealing with strategies to best engage pre-service students in learning to teach (Loughran, 2006; Mattsson, Vidar Eilersten, & Rossison, 2011). A third challenge is the global shift from university led to school based teacher education with fewer academic staff choosing to this research career path. These three presentations will address how these global challenges manifest themselves in PETE and how researchers and teacher educators are responding to these challenges. There will be time for discussion of these issues with participants.

Speakers:

1. Doune Macdonald (AUS) - is a professor and Pro Vice-Chancellor (Teaching & Learning) at The University of Queensland, Australia. The past decade has brought a number of changes to the field of health and physical education in the school and tertiary sector. Professor
Macdonald’s research interests have attempted to understand these shifts through the lens of professional socialisation, discourse analysis and identity construction using predominantly qualitative methods. In particular, much of her work has addressed the challenges of curriculum reform and its impact upon teachers and teaching.

2. Bryan McCullick (USA) - Is a Professor in the Department of Kinesiology at The University of Georgia, USA. His research targets issues germane to Teacher/Coach Development and Expertise. He has presented his work to scholarly societies worldwide, is a former Associate Editor and current Editorial Board member for Research Quarterly for Exercise and Sport, a Fellow in the Research Consortium and on the editorial board for JTPE and Sports Coaching Review. Prof McCullick served as a Fulbright Specialist Scholar at the Gaelic Athletic Association (GAA) in 2012.
PROPOSED SYMPOSIA

G11 - IMMUNE SYSTEM AND SPORT PERFORMANCE

Chair: Mauro Walter Vaisberg (BRA) - Federal University of São Paulo (UNIFESP). Physician, is skilled in Sports Medicine. Has the degree of MSc in Immunology and PhD in Rehabilitation. Responsible for the courses: “Sports Medicine in Internal Medicine” and “Exercise Immunology” in the Postgraduate Program in Immunology, and Supervisor of postgraduate in the Department of Otolaryngology and Head and Neck Surgery, UNIFESP, also is the Scientific Coordinator of the Laboratory on Mucosal Immunology of the Department of Otolaryngology, UNIFESP. He is author of three books mooting the relationship between sports and health. Currently is the President of the Brazilian Society of Exercise and Immunology.

Abstract

The practice of sport causes important changes in various systems of the body, so that there is a homeostatic adaptation involving the neuroendocrine and immune systems. Adaptations include cells and soluble factors such as cytokines, which show significant changes during the practice of exercise. However not only sport influences immune responses, but on the other hand the ability of an athlete to practice the sport is influenced by the immune system, both for his performance as in his behavior. In this way we will see how the production of cytokines acting in striated muscle is crucial to set the maximum aerobic capacity and running economy. Another aspect addressed is how cytokines affect the central nervous system as protection for the practice of exhaustive efforts, in addition to the observed changes in the immune system resulting from sport practice, as the activation of the mechanism of apoptosis in triathletes. Moreover in some athletes faults occur in these modulatory mechanisms causing functional changes with serious health risks' as is the case of exercise-induced bronchospasm.

Speakers:

1. Mauro Walter Vaisberg (BRA) - Federal University of São Paulo (UNIFESP). Physician, is skilled in Sports Medicine. Has the degree of MSc in Immunology and PhD in Rehabilitation. Responsible for the courses: “Sports Medicine in Internal Medicine” and “Exercise Immunology” in the Postgraduate Program in Immunology, and Supervisor of postgraduate in the Department of Otolaryngology and Head and Neck Surgery, UNIFESP, also is the Scientific Coordinator of the Laboratory on Mucosal Immunology of the Department of Otolaryngology, UNIFESP. He is author of three books mooting the relationship between sports and health. Currently is the President of the Brazilian Society of Exercise and Immunology.
2. Tania Cristina Pithon-Curi (BRA) - Cruzeiro do Sul University. She is PhD in Human Physiology at the Institute of Biomedical Sciences, University of São Paulo. Currently she is Coordinator of the Interdisciplinary in Health Sciences Post-Graduate Program and Pro-Dean of Research and Post-Graduate Studies at the University Cruzeiro do Sul. She is full professor in the Biological Science Center of Cruzeiro do Sul University and Adjunct Professor of the Institute of Biomedical Sciences, Curtin University, Australia and also responsible for post-doctoral studies in the medical area, the Uniformed Services University of the Health Sciences, Bethesda, United States.

Title Presentation: Neutrophil function and high-intensity exercise

3. Rodolfo P. Vieira (BRA) - Nove de Julho University. He is Associate Professor of the Post-graduation Program in Rehabilitation Sciences and in Medicine of the Nove de Julho University (UNINOVE), head of Laboratory of Pulmonary and Exercise Immunology (LABPEI) and Vice-President of the Brazilian Society of Exercise and Immunology.

Title Presentation: Exercise-induced bronchoconstriction in athletes: immune and genetic basis

4. André Luis Lacerda Bachi (BRA) - Cruzeiro do Sul University. He is Full Professor of the Interdisciplinary Post-Graduate Program at Cruzeiro do Sul University in Sao Paulo, Brazil. He is leader of Exercise and Immunology Research Group at the same university. Currently he is developing researches about the influence of immune response on physical exercise performance.

Title Presentation: Neuro-Immuno-Endocrine Modulation in Marathon Runners
Chair: Thomas Jansen (NLD) - Vrije Universiteit Amsterdam; Center for Adapted Sports Amsterdam | Reade, The Netherlands

Abstract

Sports nutrition and especially the use of supplements to enhance exercise performance has gained increasing interest within the elite sports community not only in Olympic but also in Paralympic Sports. However, it seems not advisable to transfer recommendations for able-bodied athletes into wheelchair sports due to the fact that e.g. a spinal cord injury leads to several physiological changes including resting and sport specific energy expenditure, metabolism and body composition, which might affect nutrition and supplement use. During the course of this invited symposium, different aspects of nutrition and supplement use in wheelchair sports will be elucidated. The first speaker, Prof. Thomas Janssen (Vrije Universiteit Amsterdam, The Netherlands), will provide a general overview of the consequences of a spinal cord injury from a nutritional point of view, whereas Prof. Vicky Goosey-Tolfrey (Loughborough University, UK) will give some insights into nutritional supplement habits and perceptions in wheelchair sports. Finally, Dr. Joëlle Flück (Swiss Paraplegic Centre Nottwil, Switzerland) will focus on supplement use and exercise performance in elite wheelchair sports. The symposium aims to address to a broad audience interested in nutrition and supplementation in general but especially in Paralympic sports.

Speakers:

1. Thomas Jansen (NLD) - Vrije Universiteit Amsterdam; Center for Adapted Sports Amsterdam | Reade, The Nether-lands

Title Presentation: Nutritional consequences of a spinal cord injury: an overview
2. **Vicky Goosey-Tolfrey (GBR)** - Peter Harrison Centre for Disability Sport, Loughborough University, Loughborough, UK.

**Title Presentation:** Nutritional supplement habits and perceptions in wheelchair sports

3. **Joëlle Flück (CHE)** - Swiss Paraplegic Centre Nottwil, Switzerland

**Title Presentation:** To use or not to use? - Supplements and wheelchair exercise performance
PROPOSED SYMPOSIA

G13 - LEISURE, TOURISM AND SPORTS AS AN INTERDISCIPLINARY APPROACH OF THE OLYMPIC LEGACY

Chair: Ricardo R. Uvinha (BRA) - University of Sao Paulo. He is Associate Professor of the Graduate Program in Physical Activity Sciences and Graduate Program in Tourism, School of Arts, Sciences and Humanities, University of Sao Paulo, Brazil. He is currently leader of the Interdisciplinary Group of Leisure Studies/University of Sao Paulo, president of the Brazilian Association of Leisure Studies and vice-chair of the World Leisure Organization/United Nations.

Abstract

Brazil has recently gained attention in the world where special thought is given on how the country will hold the so-called "sports megaevents of the decade" and the potential impact of them in terms of legacies to several sectors. The current data fostered by the Brazilian Federal Government in the post-World Cup 2014 period, point numbers that suggest overcoming the initial expectations: the foreign visitors’ expenses were higher than US$ 1.5 billion during the World Cup, from an incredible mark of over 1 million international tourists who came to Brazil, with 61% of them visiting the country for the first time. The average expenditure of such public was US$ 2,099.00 and their average stay of 15 days. The project Rio2016 seeks synergy between holding the Cup in 2014 and the Rio2016 Games, with regard to the construction and renovation of stadiums; investment in airports, urban transport infrastructure and hotel accommodations; investment in safety; and training of public and private agents with experience in sports megaevents. Even though the organizers hold expertise of previous editions, such events have their inherent peculiarity for each host city and country present considerably different characteristics that directly influence the organization of the Games: territory, government, culture and languages. The legacy was born as an opportunity to discuss investments and where they would be applied - before, during and after the event, as well as benefiting the lives of the inhabitants in the host cities. The Symposia will promote an interdisciplinary approach of the Olympic Legacy discussing its implications on leisure, tourism and sports sectors.

Speakers:

1. Ricardo R. Uvinha (BRA) - University of Sao Paulo. He is Associate Professor of the Graduate Program in Physical Activity Sciences and Graduate Program in Tourism, School of Arts, Sciences and Humanities, University of Sao Paulo, Brazil. He is currently leader of the Interdisciplinary

Title Presentation: Olympic Games in Brazil: legacies to the leisure and tourism sectors

2. Silvia Cristina F. Amaral (BRA) - University of Campinas

She is Associate Professor of the Undergraduate and Graduate Program in Physical Education, College of Physical Education, University of Campinas. She is leader of Leisure and Sport Public Policies Research Group at the same university. She is currently developing a research about public policies to sports megaevents in Brazil regarding the impacts and legacies. She has several publications about leisure and sport public policies.

Title Presentation: Olympic Games come to Brazil: interinstitucional management and legacies to public policies to sport and leisure

3. Nara Rejane C. Oliveira (BRA) - Federal University of Sao Paulo.

She is Associate Professor and Co-Head of the Human Movement Science Department, Federal University of Sao Paulo. She is currently leader of the Research Centre on Sport Policy and Leisure at Sao Paulo State, funded by the Ministry of Sport.

Title Presentation: The Olympic Legacy in the context of sport and leisure policies in Brazil: a great challenge

4. Fernando Mezzadri (BRA) - Federal University of Paraná.

He is a Professor of Public Policy for Sport in the Department of Physical Education, and Vice Director of the Faculty of Biological Sciences at the Federal University of Paraná. He is also a Senior Researcher in the Centre for the Study of Sport, Leisure and Society at the Federal University of Paraná, and is currently a visiting research Professor in the Faculty of Kinesiology and Physical Education at the University of Toronto. He is the author of five books, and is a consultant on sport policy matters for the State of Paraná, Brazil.

Title Presentation: Rio 2016 Olympic Games: the sporting legacy
PROPOSED SYMPOSIA

G15 - STRATEGY AND LEGACY OF THE OLYMPIC AND PARALYMPIC GAMES RIO 2016 FOR THE COUNTRY’S DEVELOPMENT

Chair: Cássia Damiani (BRA) - Master in Education, Professor at the Federal University of Ceará. She is currently Director of the Department of Strategic Planning and Management of the Ministry of Sport, responsible for budget and finance, strategic planning and control of the indicators of the National Sports Policy. Chairwoman of the Steering Committee of the National Sports Diagnostics. Researcher about sports funding, on the National Sports Diagnostics. She is a member of the National Sports Council. Coordinated three National Conference of Sports. She is the Brazilian representative in the Ibero-American Network of Women in Sport at the Ibero-American Council of Sport. Participates in the Global Programme Mentorship on Sport and Women (Global Sports Mentoring Program - GSMP), on the United States Department of State, representing Brazil as an international leader in defense of women's empowerment through sports. Interlocutor of the Ministry of Sport with the Secretariat of Policies for Women Presidency of the Republic - SPM. She is Chairwoman and General Coordinator of the Working Group of the National Sports System.

Abstract

The view of the importance of sport in global society has reinforced Brazilian government’s initiatives in the last fourteen years. Because of this, many governmental initiatives have been taken mainly since the election of Brazil for the 2016 Olympic and Paralympic Games, with this the government has increased the public money significantly for their research in sport. Thus, this Symposium proposes to present the “Strategy and legacy of the Olympic and Paralympic Games Rio 2016 for the Country’s development” as well as three structural researches to the development of sport. 1- "Sport Intelligence: The Development of a High Performance Sport Database in BRAZIL" The project is building a comprehensive database of high performance initiatives and athletes, mostly related to sports that are a part of the Olympic and Paralympic programme, and that are currently practiced in Brazil. Of particular interest is the definition of “high performance” for this project, because it includes also the developmental levels of organized competitive sports. Thus, there are three levels to the database: a) interschool sports (middle and high school), which lead to city, state and national championships, and the athletes involved; b) sports competitions organized at local (club), regional and national levels by the National Sport Organizations in Brazil, and the athletes involved; and c) national team athletes involved in international competitions. 2- "A method to establish the current situation of Elite Sport in Brazil" The aim of this study was to develop a method of establishing the current situation of elite sport in Brazil, with a focus on Olympic and Paralympic Sport. The justification for such a study is that sport policy makers in Brazil have no precise information to formulate policy and take decisions about elite sport. The study took as a reference point the SPLISS (Sports Policy factors Leading to International Sporting Success) theoretical framework. For the pillars proposed by SPLISS, specific instruments for
data collection and analysis were developed to attend to Brazilian needs and characteristics. 3- “Diagnosis of Brazilian sport” This research investigates the level of sports development in Brazil, and consolidating regular data for the sport, which allow international comparisons. The research has four variables: a) Profile of practicing and not practicing sport and physical activity (the data were consolidated by the international method COMPASS), b) public and private financing of sport, c) federal, state and municipal sports law and d) Mapping of sport facilities in the country.

Speakers:

1. Cássia Damiani (BRA) - Master in Education, Professor at the Federal University of Ceará. She is currently Director of the Department of Strategic Planning and Management of the Ministry of Sport, responsible for budget and finance, strategic planning and control of the indicators of the National Sports Policy, Chairwoman of the Steering Committee of the National Sports Diagnostics. Researcher about sports funding, on the National Sports Diagnostics. She is a member of the National Sports Council. Coordinated three National Conference of Sports. She is the Brazilian representative in the Ibero-American Network of Women in Sport at the Ibero-American Council of Sport. Participates in the Global Programme Mentorship on Sport and Women (Global Sports Mentoring Program - GSMP), on the United States Department of State, representing Brazil as an international leader in defense of women's empowerment through sports. Interlocutor of the Ministry of Sport with the Secretariat of Policies for Women Presidency of the Republic - SPM. She is Chairwoman and General Coordinator of the Working Group of the National Sports System.

Title Presentation: The National Sport Diagnosis of Brazil

2. Alberto Reinaldo Reppold Filho (BRA) - PhD in Education from the University of Leeds, England (2000), MsC in Education from the Federal University of Rio Grande do Sul (1988), Specialist in Sports Collectives from the State University of Santa Catarina (1985) and a degree in Physical Education from the Federal University of Rio Grande do Sul (1983). He is currently associate professor and director of the School of Physical Education, Federal University of Rio Grande do Sul. At the same university, works as a professor in the Graduate in Human Movement Science Program and coordinates the Olympic Studies Centre. He is Coordinator of the Project References and member of the Brazilian Olympic Academy and visiting professor at the International Olympic Academy (Greece). He has experience in Physical Education and Sport, working mainly in the area of the Olympic Studies. Studies the high performance sports policies and the impact of mega sporting events.

Title Presentation: High Performance Sports References in Brazil
3. Fernando Marinho Mezzadri (BRA) - Professor of Public Policy for Sport in the Department of Physical Education, and Vice Director of the Faculty of Biological Sciences at the Federal University of Paraná [Universidade Federal do Paraná] in Curitiba, Brazil. He is also a Senior Researcher in the Centre for the Study of Sport, Leisure and Society at the Federal University of Paraná, and is currently a visiting research Professor in the Faculty of Kinesiology and Physical Education at the University of Toronto. Professor Mezzadri is the author of five books, and is a consultant on sport policy matters for the State of Paraná, BRAZIL.

Title Presentation: Sports Intelligence of a High Performance in Brazil

4. Ricardo Leyser Gonçalves (BRA)
PROPOSED SYMPOSIA

G16 - SALIVARY CORTISOL AS A TOOL FOR MONITORING PERFORMANCE IN SPORTS

Chair: Regina Celia Spadari (BRA) - Full Professor at the Federal University of Sao Paulo, Director of the Campus Baixada Santista (2011-2015), leader of CNPq research group for the Study of Stress Biology. She investigates several aspects of the stress effects on peripheral systems, mostly the cardiac response to catecholamines and adrenergic signaling. The group also investigates the effects of stress hormones on behavior and on athletes performance. She has published 58 scientific articles, supervised 34 master's degree thesis and 15 PhD thesis. She is a biologist (Paulista State University Júlio de Mesquita Filho, 1974), master in Biological Sciences / Physiology by the State University of Campinas (1978), PhD in Human Physiology by the University of São Paulo (1985) and free docent by the State University of Campinas (1996).

Abstract

Salivary cortisol has been increasingly used as stress biomarker in sports and it is considered as the bad guy, since high cortisol levels are frequently related to bad performance. However, as a catabolic hormone, cortisol plays a key role mobilizing energetic substrates and cortisol levels have proven to be positively correlated with improved performance in some sports modality. So, the relation of cortisol and performance will be discussed and some new evidence will be presented.

Speakers:

1. Regina Celia Spadari (BRA) - Full Professor at the Federal University of Sao Paulo, Director of the Campus Baixada Santista (2011-2015), leader of CNPq research group for the Study of Stress Biology. She investigates several aspects of the stress effects on peripheral systems, mostly the cardiac response to catecholamines and adrenergic signaling. The group also investigates the effects of stress hormones on behavior and on athletes performance. She has published 58 scientific articles, supervised 34 master's degree thesis and 15 PhD thesis. She is a biologist (Paulista State University Júlio de Mesquita Filho, 1974), master in Biological Sciences / Physiology by the State University of Campinas (1978), PhD in Human Physiology by the University of São Paulo (1985) and free docent by the State University of Campinas (1996).

Title Presentation: High cortisol: is it good or bad?
2. **Marcia C. Garcia (BRA)** - PhD in Physiology at Unicamp and Unifesp, São Paulo, Brazil. She is a researcher and has worked with stress hormones, as cortisol and corticosterone, and with hormones related to the recover, such as testosterone. She has ten years of experience working with salivary cortisol, mostly the sampling and determination methods protocols in basketball, swimming, football, triathlon athletes.

**Title Presentation:** How to get reliable data of salivary cortisol

3. **Ricardo Luis Guerra (BRA)** - Graduated in Physical Education and Human Movement (University of São Carlos), master and PhD in Physiological Sciences (Federal University of São Carlos) and in Biochemistry of Nutrition (University of California-Berkeley). Associated Professor at the Federal University of São Paulo-UNIFESP-Campus Baixada Santista - Brazil, coordinator of the Sports Science Laboratory, advisor in the graduate programs of Education in Health Sciences and Interdisciplinary in Health Sciences. Tutor in the Tutorial Education Program - Physical Education (PET-EF).

**Title Presentation:** The use of salivary cortisol as a biomarker of competition stress in sport.
PROPOSED SYMPOSIA

G17/G18 - GIRLS, WOMEN AND PHYSICAL ACTIVITY: RELIGION, CULTURE, TRADITION AND NATIONAL POLICIES AROUND THE WORLD

Chair: Gudrun Doll-Tepper (DEU) - Vice-President of the German Olympic Sports Confederation.

Abstract

A Symposium in Memory of Margaret Talbot

This symposium is supported by NIKE Inc. in memory of Professor Margaret Talbot, President of ICSSPE and co-author of Designed to Move

Margaret Talbot was a lifelong advocate and activist for equity in sport, physical activity and physical education. She was President of ICSSPE from 2009 until her death in December 2014. Before that, she was Vice-President of ICSSPE, as well as holding a number of key positions for sport advocacy, including President of the International Association of Physical Education and Sport for Girls and Women, Chief Executive of the Central Council for Physical Recreation and the Association for Physical Education, both in the UK. Margaret Talbot was a Professor and a visionary leader. This symposium seeks to recognize a life dedicated to ensuring sport and physical activity for everyone.

The Symposium

The ambition of this event is to bring together a group of experienced leaders from the sport movement to share and discuss solutions to a perennial challenge in sport: promoting girls’ and women’s engagement with physical activity. This was one of the dominant themes throughout Margaret Talbot’s career, and it continues to be a topic of considerable importance. It is known, for example, that in almost every country in the world girls’ and women’s levels of physical activity are lower than those of boys and men. This has proven to be a difficult problem to solve.

Together, presenters will offer insights into a cluster of questions that are fundamental to understanding and addressing the challenge of fair and equitable sport for all:

• What roles do religion, culture and tradition play in promoting or inhibiting girls’ and women’s sport and physical activity?
• How can we understand the interactions between sport, gender and social practice?
• What are the drivers and barriers for girls’ and women’s sport and physical activity?
• How can we move towards a better appreciation of girl- and women-friendly sport and physical activity?
By discussing the vital roles of religion, culture, tradition and policies in girls’ and women’s lives, by Challenging assumptions, and by offering symposium participants the opportunity to discuss and reflect on their own experiences, the symposium aims to generate new ways forward in one of sport’s toughest challenges.

Speakers:

1. Tansin Benn (GBR) - University of Plymouth, UK.
   
   **Title Presentation:** Building bridges: Reflections on improving inclusion in sport across religious and cultural boundaries

2. Jorid Hovden (NOR) - Norwegian University of Science and Technology, Norway
   
   **Title Presentation:** Powerful women as change agents in Scandinavian sport

3. Pablo Scharagrodsky (ARG) - Universidad Nacional de Quilmes, Argentina.
   
   **Title Presentation:** Girls, women and physical activity in Argentina. Past and present

4. Claudia Bokel (DEU) - Former Chair of the IOC Athletes’ Commission, Germany.
   
   **Title Presentation:** Girls, women and sport: Athletes’ perspectives

5. Richard Bailey (DEU) - ICSSPE, Germany
   
   **Title Presentation:** Girls, women and physical activity: The limits of choice and opportunity
PROPOSED SYMPOSIA

G19 - EXERCISE TRAINING AND CARDIOPULMONARY SYSTEMS

Chair: Maria Fernanda Cury-Boaventura (BRA) - Cruzeiro do Sul University. BSc in Nutrition (2001). PhD and post-doctoral fellow in Human Physiology at the Department of Physiology and Biophysics, University of Sao Paulo (2007). She is professor at Institute of Physical Activity and Sport Sciences at Cruzeiro do Sul University since 2007.

Abstract

The endurance exercise promotes the release of inflammatory and markers of myocardial injury. Exacerbated inflammatory and/or injury process can affect cardiopulmonary system. Researchers have been investigating if myocardial injury after chronic endurance exercise is a physiological or pathological process of adaptation. The cardiopulmonary response after endurance exercise is influenced by training, genetic and epigenetic factors. The brief of cardiopulmonary fatigue after long-distance exercise will be presented by Ana Paula Rennó Sierra and Dra. Maria Fernanda will discuss the role of genotypes and inflammatory markers on cardiopulmonary changes induced by long-distance exercise. Dr. Bruno Moreira Silva will present results from studies that has been suggesting that the Ischemic preconditioning (IPC) can enhance exercise performance in some circumstances. IPC consists of brief cycles of ischemia followed by reperfusion, and is well-known to induce protection against ischemia/reperfusion injury. This protection has been attributed, in part, to beneficial effects of IPC on mitochondrial function and blood vessels, which, consequently, has driven the hypothesis that IPC could also enhance endurance exercise performance. Finally, Dra Edilamar M. Oliveira will elucidate the molecular/cellular mechanisms including the role of cardiac microRNA (miRNA) in physiological hypertrophy which influence genes associated with the heart remodeling and angiogenesis. There is a potential role of the miRNAs in promoting cardioprotective effects on physiological growth.

Speakers:

1. Ana Paula Rennó Sierra (BRA) - University of Sao Paulo. MSc in School of Physical Education and Sport, University of São Paulo (2015). Post-graduate student at School of Physical Education and Sport.

Title Presentation: Cardiopulmonary fatigue after long-distance exercise
2. Bruno Moreira Silva (BRA) - Federal University of Sao Paulo. BSc in Physical Therapy (2000-2004). MSc in Exercise Physiology (2006). PhD in Clinical and Experimental Pathophysiology (2010). Research fellow in Human Physiology at the Department of Anesthesiology, Mayo Clinic, USA (2009-2010). Post-doctoral fellow in Exercise Physiology at the Department of Physiology, Federal Fluminense University, Brazil (2012). Since 2012 has been working as Assistant Professor in the Department of Physiology at the Federal University of Sao Paulo.

**Title Presentation:** Effect of ischemic preconditioning on physiological responses to exercise and exercise performance

3. Maria Fernanda Cury-Boaventura (BRA) - Cruzeiro do Sul University. BSc in Nutrition (2001). PhD and post-doctoral fellow in Human Physiology at the Department of Physiology and Biophysics, University of Sao Paulo (2007). She is professor at Institute of Physical Activity and Sport Sciences at Cruzeiro do Sul University since 2007.

**Title Presentation:** Inflammatory markers of myocardial injury after endurance exercise

4. Edilamar Menezes de Oliveira (BRA) - University of Sao Paulo. BSc in Pharmacy and Biochemistry (1986), Santa Maria Federal University. MSc in Biochemistry, Federal University of Rio Grande do Sul (1993). PhD in Molecular Biology, Heart Institute at the University of Sao Paulo at the Medical School of Sao Paulo and UFRGS. She is Associated Professor and Director of the Laboratory of Biochemistry Applied to Exercise at the School of Physical Education and Sport at the University of São Paulo. She was a postdoctoral fellow at the Stem Cells Laboratory at the Keck Graduate Institute at the Claremont University in the USA. She researches the Effects of Exercise Training on Cardiovascular System with focus on molecular mechanisms.

**Title Presentation:** Aerobic Exercise Training Promotes Physiological Cardiac Remodeling Involving a Set of MicroRNAs
ORAL PRESENTATION

2-Dimensional Strain Echocardiography (2DSE) Technology for Evaluation of Myocardial Strain in Swimming Athletes after High-Intensity Exercise

Sport medicine and injury prevention

"Chen Liang, Yun Ma"
"China national institute of sports medicine, China national institute of sports medicine"
"CN, CN"

Background: The 2DSE technology is also called speckle tracking technology; it is popular in clinical diagnosis of various cardiovascular diseases. The technology can obtain the parameters of myocardial movement, such as speed, direction, strain, strain rate and the other indices through software analysis. It does not only reflect the deformation movement of the heart in the longitudinal direction, but also reflects the deformation movement of the heart in the radial and circular directions. Many studies focused on understanding the influence of high intensity training on the athletes’ cardiac function. The general finding was that sports training, especially endurance events (e.g. long-distance running, swimming and cycling) and strength events (e.g. weight lifting), can increase the diameter of the heart and the weight of the left ventricle. Recently, an increasing number of studies have proven that intensive training has two effects on the athletes’ cardiovascular system: on the one hand, it can improve cardiovascular function and help it adapt to the physical environment of sports, while on the other hand, it can hurt the cardiovascular system. Excessive training or long-term exhaustive exercise can damage the normal functioning and cause a change in the state of the heart from physiological to pathological. This study deployed two-dimensional speckle tracking imaging analysis, using parameters such as the global systolic strain and the systolic strain rate which reflect left ventricular systolic function, to monitor the change in the left ventricular myocardial strain and the strain rate of swimming athletes before and after high-intensity training. In addition, the study evaluated the influence of high-intensity exercise on the athletes’ myocardial strain capacity.

Methods: Fifteen swimming athletes were selected as research objects. We applied 2DSE technology to track the 2D ultrasound images of the apical four chamber, the apical two chamber and the apical long axis before and after high-intensity, increasing-load exercise. We recorded indices such as the left ventricular global strain (GS), the left ventricular segmental wall peak strain (PS) in 18 systoles, and analyzed the myocardial strain change before and after exercise.

Results: After high-intensity exercise, the overall myocardial strain decreased, especially the strain of the posterior wall, posterior divider, lateral wall, lower wall, and the basal and middle segments of the
anterior wall. The influence of exercise on myocardial strain was greater on the basal and middle segments than on the apical segment.

**Conclusions:** One-time intensive exercise affects the myocardial muscle. This study evaluated whether we can more accurately evaluate the local and overall function using 2DSE technology, and detect myocardial injury. The myocardial muscles in the apical segment and the myocardial wall are more sensitive to intensive exercise. The 2DSE technology can more precisely position the motion-sensitive areas, and help locate myocardial injury."
ORAL PRESENTATION

A Method to Establish the Current Situation of Elite Sport in Brazil

Governance and policy

"Alberto Reinaldo Reppold Filho, Selda Engelman, Alan Ferreira"

"Federal University of Rio Grande do Sul, Federal University of Rio Grande do Sul, Federal University of Rio Grande do Sul"

"BR, BR, BR"

"Background:

The aim of this study was to develop a method of establishing the current situation of elite sport in Brazil, with a focus on Olympic and Paralympic Sport. The justification for such a study is that sport policy makers in Brazil have no precise information to formulate policy and take decisions about elite sport. The study took as a reference point the SPLISS (Sports Policy factors Leading to International Sporting Success) theoretical framework.

Methods:

For the nine pillars proposed by SPLISS: financial support; governance, organization and structure of sport policies; foundation and participation; talent identification and development system; athletic and post-career support; training facilities; coaching provision and development; inter and national completion; and scientific research and innovation, specific instruments for data collection and analysis were developed to attend to Brazilian needs and characteristics.

Results:

A guide to the collection of basic information in different Brazilian databases about the sources and destinations of financial resources was developed. In respect to governance, organization and structure of sport policies a questionnaire was develop for members of the government and sport federations. The study also included a documentary analysis of the Brazilian sport legislation, since organization and structure of sport policies in Brazil are in great deal established in Federal, State and City laws. For participation, a questionnaire was constructed to survey the level of participation of the Brazilian population in sport. In relation to talent identification and development system, athletic and post-career support, and coaching provision and development, questionnaires were formulated for athletes, coaches and sport federations. For sport facilities, a questionnaire was constructed for sport federations, with questions related to quantity and quality of training and other sport facilities, as well the characteristics of all sport equipment used by them. In this part of the study, computerized processing of georeferenced data were also used, which enabled the association of the location
information of sports facilities to other information available in the project databases. In relation to the participation and performance of Brazilian athletes in national and international competitions, instruments for documentary analysis in electronic and non-electronic archives of Brazilian federations were developed. For sport science and innovation, a guide to the collection of basic information in Brazilian databases on science and technology was elaborated, and questionnaires to coaches, athletes, sport federations, and sport scientists were constructed.

Conclusions:
A method of establishing the current situation of elite sport in Brazil was constructed. Whilst SPLISS proved to be an important theoretical reference, it was insufficient to deal with some peculiarities of the Brazilian sport system. The main difficulty was related to the important role played by legislation in the Brazilian sport context, which made it necessary to develop a very specific method to deal with such a situation."
ACURAL PRESENTATION

A Novel LC-MS/MS Method to Quantify Glycerol and Mannitol Concentrations in Human Urine for Sports Drug Testing

Sport medicine and injury prevention

"Ying Dong, Yanhua Ma, Kuan Yan"

"China Anti-Doping Agency, China Anti-Doping Agency, China Anti-Doping Agency"

"CN, CN, CN"

"Background:
Glycerol and mannitol could be abused by athletes for its capability to keep under control their haematocrit or haemoglobin values, following illicit stimulation of erythropoiesis. As a consequence, glycerol was added to the WADA prohibited list in January 2010 and all forms of glycerol administration are prohibited in sports. In addition, the intravenously administered of mannitol has been covered in the WADA prohibited list since early 2009. In this study, a novel analytical method is described and validated for the determination of urinary glycerol and mannitol levels using LC-MS/MS with simple sample preparation. This method also makes the separation of different stereoisomers (allitol, altritol, galactitol, iditol, mannitol, sorbitol) possible and thus enables the quantification of mannitol accurately.

"Methods:
An Agilent 1290 Series HPLC coupled to an Agilent triple-quadrupole 6460C mass spectrometer equipped with an ESI source and multiple reaction monitoring (MRM) were employed. This method made use of derivatization of glycerol and mannitol by benzoyl chloride in aqueous solution at 50oC for 1 hour followed by analysis via LC-MS/MS within 7 min on an Eclipse XDB-C18 column (2.1 mm × 100 mm, 3.5 μm) in an initial testing procedure. For confirmation, all possible hexitols that can occur in human urine were baseline separated with mannitol and identified on a Poroshell 120 PFP (2.1 mm × 150 mm, 2.7 μm) column within 20 min.

"Results:
The method for qualitative and quantitative analysis of glycerol and mannitol in human urine was developed and fully validated in this study. The limits of detection (LODs) for glycerol and mannitol were 0.3 and 0.1 μg/mL seperately. The limits of quantification (LOQs) were 1.0 and 0.3 μg/mL respectively. The assay was linear from 1.0 to 1000 for glycerol and 0.3 to 1000 μg/mL for mannitol independently in human urine. The coefficients of variation of all inter- and intra-assay determinations at three concentration levels (3, 500, 900 μg/mL) were less than 13% for glycerol and 15% for mannitol. The method also afforded satisfactory results in terms of accuracy (82-87, 97-111 and 94-109% for...
glycerol, 104-118, 96-105 and 95-103% for mannitol at three concentrations), derivatization yield (92, 96 and 92% for glycerol, 55, 61 and 65% for mannitol at three concentrations), extraction recovery (91, 90 and 94% for glycerol, 66, 75 and 84% for mannitol at three concentrations), matrix effect (18, 5 and 2% for glycerol, 18, 6 and 3% for mannitol at three concentrations) and specificity for both substances.

Conclusions:
The LC-MS/MS assay described is a suitable procedure for separation, detection and quantification of glycerol and mannitol in human urines. It has proven to be selective, linear, accurate and precise for the two prohibited substances. In comparison to previously published papers, this approach displayed significant improvements in throughput and ease of use. This method has been found to be applicable for doping-control purpose and applied to our routine sample analysis. 
A potential anti-doping method detecting autologous blood transfusion

Elite performance
"Timon Cheng-Yi Liu, Yi-Fei Liu, Mian Tang, Li Jia, Quan-Guang Zhang"
"South China Normal University, South China Normal University, South China Normal University, South China Normal University, South China Normal University"
"CN, CN, CN, CN, CN"

**Background:** For many decades, blood doping has been a hallmark for athletes that manipulate their blood to increase oxygen supply to muscles, so as to gain a competitive advantage, particularly in endurance sports. This includes the use of homologous (HBT) and autologous blood transfusions (ABT). A robust flow cytometric test for HBT was developed and has been implemented successfully since the 2004 Athens Olympic Games. Unlike HBT, detection of ABT has been much more challenging. Williams et al (1981) in Med Sci Sports Exerc have investigate the effect the infusion of 920 ml equivalent of autologous blood would have upon 5-mile time and both local and cardiovascular-respiratory ratings of perceived exertion. They found the infusion of 920 ml equivalent autologous blood increased performance capacity in an athletic event characterized by high levels of aerobic energy expenditure, but the difference with both local and cardiovascular-respiratory ratings of perceived exertion was of no value in detecting ABT. The physiological and biochemical data was reanalyzed by introducing golden ratio in this paper.

**Methods:** The golden ratio, \[\sqrt{5} - 1\]/2, about 0.61803, is a natural constant of difference between two numbers. The golden logarithm (GL) was defined as the logarithm to the golden ratio. The GL of the ratio of two numbers was used to redefined the ratio so that the absolute value of its GL is smaller than 1. For example, the GL of the ratio of red blood cell (RBC) (10(6)) and hematocrit (Hct) (%) for the pre-saline group after running was 4.62, and 0.61803(4.7) \approx 0.1042 so that we calculate the GL of the ratio of 0.1024 Hct and RBC.

**Results:** (1) The GL of the ratio of RBC and hemoglobin (Hbm) (g 100 ml-1) was a constant at about 2.36 for all the groups. (2) The GL of the ratio of 0.1024 Hct and RBC was 0.0767, 0.0948, 0.0491 and 0.153 for pre-saline, post-saline, pre-blood and post-blood after running. (3) The GL of the ratio of 3.173 2, 3-diphosphoglycerate (DPG) (umol/ml whole blood) and RBC was 0.167, 0.189, 0.217 and 0.320 for pre-saline, post-saline, pre-blood and post-blood after running. (4) The GL of the ratio of Hct and 3.025Hbm was 0.02814, 0.03498, 0.02257 and 0.08555 for pre-saline, post-saline, pre-blood and post-
blood after running. (5) The GL of the ratio of 10.07 DPG and Hbm was 0.1174, 0.1280, 0.1892 and 0.2387 for pre-saline, post-saline, pre-blood and post-blood after running.

**Conclusions:** The GL of 0.1024 Hct and RBC, 3.173DPG and RBC, Hct and 3.025Hbm, 10.07 DPG and Hbm may be used to detect ABT."
ORAL PRESENTATION

A Qualitative Research to Accomplish the IPC Athletes´ Classification Code in Cerebral Palsy Football

Sport eligibility and inclusion

"Raul Reina, Samantha A. Cammidge, Vicente Beltrán-Carrillo"

"Miguel Hernández University, Miguel Hernández University, Miguel Hernández University"

"ES, ES, ES"

“Background: CP-Football is a para-sport for athletes with Cerebral Palsy and related neurological conditions. Actually, it is governed by the International Federation of Cerebral Palsy Football (IFCPF) and practiced by 40 countries in 5 continents. A non-valid classification poses a significant threat in athlete’s competitive achievements, as soon as the athlete believes to be in a wrong class. Therefore, if the classification system is perceived as unfair process this will lead to a decrease in the participation among people with disability (Tweedey et al. 2014). Thus, the International Paralympic Committee (IPC) approved a newer IPC Athlete´s Classification Code (July 2015), aiming to provide a clear statement of the purpose of Athlete Classification, as well as a framework of policies and procedures that will uphold confidence in Classification systems across the Paralympic Movement

Methods: Head Coaches (47.1±7.2 yr; 10.1±7.1 yr of experience) from the 15 national teams of the 2015 CP-Football World Championships, 2 players per team (n=30; 28.5±6.9 yr; 9.6.1±5.4 yr of experience), 3 senior classifiers (44.9±10.7 yr; 9.7±8.1 yr of experience), and 3 IFCPF Board members (57.4±3.4 yr; 21.7±7.6 yr of experience) took part in this study.

A semi-structured interview was used to allow participants some degree of flexibility to express their opinions, ideas, feelings and attitudes. While allowing the interviewer to follow a pre-established order addressing the questions and issues required (Sparkes, 2013). The interview questions cover a wide range of themes related with classification and its different processes, with duration between 40 and 120 minutes. The content was transcribed the content analysis was conducted by Nvivo software, using a combination of both conventional (inductive) and directed (deductive) content analysis (Hsieh & Shannon, 2005) and rigor criteria.

Results: Favorable opinions to include in the teams one more player of classes FT5 or FT6 was 84.9%; consideration if classes FT5 or FT6 are low classes had favourable opinions from 33% to 100%; the inclusion of more athletes of the class FT8 was supported only by the head coaches with 13.3%; the idea of opening the sport to other eligible impairments were not highly supported (24.5%). Not many responses were obtained about the development of a new classification system, with a preference of a
3 classes system by the board, or a point system by the classifiers (66.7%). It was obtained a high percentage of responses advocating for a sport where players’ impairment be more visible (75%).

Conclusions: This study involved all stakeholders in a dialogue on the current classification system of CP football, in order to help in the decision making, if at any time it is decided that certain changes are needed, in order to return sport at the Paralympics in 2024."
A Research on the Application of Near Infrared Spectroscopy in Short Track Speed Skaters’ Aerobic Training

Technology in sports

"Ming Yang, Jingchao Liang, Jizu Shi"
"JiLin Sport University, JiLin Sport University, JiLin Sport University"
"CN, CN, CN"

“Background: By using the Near Infrared Spectroscopy technology, the phenomenon can be found that the content of oxyhemoglobin will decrease rapidly during the increasing load to exhaustion. The dropping point is called the ‘break point’ by some scholars and it has been proved by experiment that the break point is highly correlated with anaerobic threshold. Therefore, the break point can be used to replace the individual lactate threshold test method which is cumbersome and invasive, and to evaluate the individual aerobic capacity and the effect of sports training. However, there are few reports dealing with the applications of the near infrared spectroscopy technology in sports training. The author applied the experimental method to short track speed skaters’ aerobic training, at the same time provided reference to the application of near infrared spectroscopy in sports training.

Methods: The author selected 10 short track speed skaters as the research subject, applied Monark 839E power to their bicycling incremental test to exhaustion, at the same time used PortaLite real-time wireless blood oxygen monitoring system which fixed on test subjects athletes’ right vastus lateralis muscles, to find muscle blood oxygen parameters and heart rates during exercise. After the increasing load test, the experimental data were analyzed to find out the corresponding heart rate of the break point, and the heart rate was corresponding to the individual lactate threshold. Then we took lactate threshold intensity trainings twice a week in the next month, the total training time was 60 minutes once and it was divided into two groups. Heart rate was controlled in the individual lactate threshold. 4 weeks later, repeat the incremental load test under the same conditions, to measure the ascension of test subjects athletes’ aerobic capacity.

Results: After 4 weeks of lactate threshold intensity training, the time when the content of oxyhemoglobin decreased rapidly, was delayed, during the period of increasing load to exhaustion, the delay time was (2.2 ± 0.6) minutes. There was a significant difference in the time before and after the experiment (P<0.05); the immediate heart rate corresponding to this point was also increased and the increased number of times is 5.5 ± 1.2. There was also a significant difference in heart rates before and after the experiment (P<0.05).
Conclusions: By applying near infrared spectroscopy in short track speed skaters’ aerobic training, the author achieved non-destructive determination of athlete individual lactate threshold. After 4 weeks of lactate threshold intensity training, athletes’ aerobic capacity has been improved significantly, and it provided basis to the application of near infrared spectrum technology in sports training.”
ORAL PRESENTATION

A Statistical Analysis of Teenager Campus Football Development in China

Sport sociology

"Mei Yang, Zhihui Tian"

"Wuhan Sports University, Wuhan Sports University"

"CN, CN"

“Key words: campus football; development; statistical analysis

Background:
In 2013, China’s Ministry of Education (MOE) launched its 20-point plan to develop football among teenagers with the purpose of raising the national proficiency in 2020. This initiative was in line with the issuing of The Overall Reform and Development Plan of Chinese Football by the General Office of the State Council which aims to build China into a football powerhouse as part of the Chinese dream. A special institution entitled “Teenager Campus Football Leading Group” was established by MOE and five other departments to ensure the thriving of football in schools through promulgating laws and policies, outlining annual plans, and reviewing rules and budgets for promoting the sport among the nation’s students and youth.

Methods:
A statistical analysis was made with regard to the points included in the plan to see what has been done at each level of the state and to expatiate on whether the goal of the plan can be fulfilled.

Results:
1. Laws and policies at different levels have been promulgated with annual plans for promoting sports among China’s students and youth.
2. In 2015, 8651 schools 39 cities or areas were selected to promote football, exceeding the planned 6000 and 10. World renowned football clubs or stars have started their co-operation in building football schools. Football is becoming a compulsory part of physical education classes and part of the students’ overall quality assessment with the purpose of reforming the country’s physical education system in the long run.
3. Football tournaments in primary, junior and high schools as well as colleges were started. Enrollment policies were made for recruiting talented footballer.

Conclusions:
Politics yields powerful effects on sports in China. Cultural pressures and government laws have made a huge impact on the development of football. However, many schools still experience problems with
basics such as finding qualified football teachers and referees. Moreover, whether sufficient supervision of the resources can be provided to the schools is in question considering that the most of the football schools established in China in the 1990s have been closed."
ORAL PRESENTATION

A Study of Eating Disorder Tendency Related with Activity Energy Expenditure among University Female Students

Sport psychology
Shan-Shan MAO
Beijing Sport University
CN

“Background:” The purpose of this study was to evaluate the prevalence of eating disorder (ED) tendency and potential risks related with activity energy expenditure (AEE) among university female students of both athlete and non-athlete. (1) Compare the means of Eating Disorder Inventory -3 (EDI-3) subscales of university athlete and non-athlete students to determine if there was a difference between the two groups at the Beijing sport university. (2) Identify the athlete or non-athletes who are at risk for ED related risk factor. (3) Measure the daily AEE for a selected group with high ED tendency, and determine if there was a difference between athlete and non-athlete groups.

Methods: A total of 200 athletes (20.33 yrs) and 161 non-athletes (21.67 yrs) was involved in this study. EDI-3 was adopted to estimate the risk of ED. Two self-designed questionnaires were also utilized to acquire the demographic characteristics, weight history, and menstrual status. Fifteen randomly selected persons with high ED tendency in each group were requested to wear accelerometers (Actigraph GT3X) for consecutive 7 days at least 10~14 hours a day to record daily physical activities (PA).

Results: Main results include: (1) 26.3% of the athletes showed a high tendency of ED, which was significantly lower than that of non-athletes (49%, P < 0.01). Moreover, the athletes differed significantly on all EDI-3 subscales from non-athletes. In addition the athletes scored significantly lower mean value on the Drive for Thinness (DT) and Body Dissatisfaction (BD) subscales. (2) Body mass index, previous weight loss, BD and the difference between actual weight and ideal weight were potential risk factors in developing ED. (3) The prevalence of menstrual irregularities (MI) among athletes was significantly higher than that among non-athletes (33.4% and 13.1%, respectively, P < 0.01). (4) The averaged AEE of athlete was 931.2 kcal/day, significantly higher than the amount of non-athlete, 530.2 kcal/day (P < 0.05). Moreover, averaged total time in MVPA (moderate to vigorous PA) of athlete was 105.5 min/day, significantly more than the amount of non-athlete, 57.9 kcal/day (P < 0.01).

Conclusions: (1) Non-athletic undergraduate students displayed a higher tendency of ED compared with athletes. So non-athletic students would be more prone to get risk of ED. (2) In contrast, athletic...
students displayed more MI compared with non-athletes, which implied that ED and MI might not appear together. (3) Daily AEE in non-athletic students was not high, possibly due to long-time light PA. This suggested that non-athletic ED tendency resulted from inadequate dietary intake other than insufficient energy availability because of heavy activity (Acknowledgment: This work was supported by Project BSU 2015YB001).
ORAL PRESENTATION

A study of the correlation between myocardial resilience after high-intensity exercise and markers of myocardial injury in swimmers

Sport medicine and injury prevention

"YUN MA, CHEN LIANG"

"China national institute of sports medicine, China national institute of sports medicine"

"CN, CN"

“Background: High-intensity exercise can induce cardiac stress, manifested in both structure function and physiological status. Several studies have indicated that overtraining or exhaustive exercise can greatly increase the production of cardiomyocyte radicals, increase cardiomyocyte apoptosis, and impact the endocrine function of the heart. In this study, 15 swimmers were selected for high-intensity exercise, and blood samples were collected and 2D echocardiogram images were taken before and after exercise. The influence of high-intensity exercise on the athletes’ myocardium was analyzed, as well as the correlation between strains in different parts of the myocardium and markers of myocardial injury."

Methods: Fifteen swimmers participated in high-intensity exercises. Cardiac ultrasound was performed on each before and after exercise and left ventricular general strain (GS), systolic general strain rate (GSR), and the differences between them (ΔGS and ΔGSR, respectively), before and after exercise were analyzed. Blood was collected after fasting overnight and after exercise to test for cardiac enzyme indicators so that a correlation between myocardial resilience and markers of myocardial injury could be determined.

Results: Most cardiac enzymes concentrations increase after exercise; cardiac troponin I is only slightly influenced but is positively correlated with the degree of deformation of the posterior wall basal segment ΔS, the deformation speed ΔSR, deformation degree of the posterior wall middle segment, and deformation degree of the front interval middle segment ΔS. Changes in creatine kinase MB are positively correlated with the degree of deformation of the front wall middle segment ΔS, degree of deformation of the posterior wall apical segment ΔS, and overall strain change ΔGS.

Conclusions: After high-intensity exercise, the changes in of creatine kinase MB and cardiac troponin T concentrations are positively correlated with two-dimensional (2-D) ultrasound deformation indices; therefore, these indices can be used to diagnose myocardial injuries. The apical segment has a relatively high sensitivity to motor stimulation, and the injury can be diagnosed in the early stages through 2-D strain ultrasound technology. After high-intensity exercise, changes in these two enzymes are positively correlated with 2-D deformation indices.”
ORAL PRESENTATION

A study on the influence of the Wuhan Open tennis tournament on the city brand

Sport sociology

"YanYan Li, ZiLi Lan"

"Hubei University of Economics, Hubei University of Economics"

"CN, CN"

"Background:

A city needs marketized and internationalized brands, which could efficiently be made by hosting large scale sporting events. For instance, the successful operation of Wuhan Open provides Wuhan with a good opportunity to build an international metropolis. In this paper, the strategic influence upon Wuhan in building a new city brand by hosting Wuhan Open, are thoroughly analyzed through the following three major aspects, namely, the optimization to its political system, the development of its tertiary industry and the shape of its city culture. It is attempted to propose reasonable and feasible solutions to build city brand by developing high-quality sports events.

Methods:

The issue concerning Wuhan Open is elaborated by employing such methods as documentary data, expert interview, questionnaire survey and logic analysis etc. Through a comprehensive analysis of the above-mentioned three major aspects, it is attempted to propose reasonable and feasible solutions to build city brand by developing high-quality sporting events.

Results:

To begin with, Wuhan Open may serve as a contributing factor to the development of the political system in Wuhan. The marketing operation of sports event is bound to start the optimization of the political system in Wuhan which would motivate the building of city brand. Secondly, Wuhan Open may promote the development of tertiary industry in Wuhan. By hosting the Wuhan Open, transportation, telecommunication, banking and insurance, real estate, tourism and sporting events output RMB 1.1 billion in 2014 and 3700 new jobs. Thirdly, Wuhan Open may shape the city brand. The successful operation of Wuhan Open brings advantages to the shape and enhancement of Wuhan’s image by its positive influences to the quality of citizens, the cultural environment and the quality of life etc.

Conclusions:

Above all, we need to normalize the marketing operation of sporting events. The social forces, enterprises and media groups should be greatly advocated to undertake responsibilities, take risks and
share benefits. Meanwhile, planning, modifying and operating those events with the regulations would be perfected market economy system.

Secondly, we need to strengthen the development of intermediaries concerning sporting events. A sound training and testing system for sports agents must be established as soon as possible. In addition, the agent organizations concerning sporting events must be established to normalize the intermediary act.

Thirdly, we need to expand the influences of sporting events by utilizing news media, such as radio, TV, websites and newspapers. We should fully utilize press conference, cultural activities, business parties, variety shows and advertisements and get timely and effective report at various levels, stages and locations.

Finally, we need implement flexible ways for tickets promotion. To name a few, there could introduce multiple sorts and discount prices of tickets, or adopt luck draw system with appealing awards. Moreover, distribution channels could be widened through door-to-door service, mail-order and telephone booking etc."
ORAL PRESENTATION

ACTN3 R577X Gene Variant is Associated with Explosive Force of Lower Extremity in elite Chinese Sprint/Power Athletes

Genetics and sport
"Xunzhang Shen, Ruoyu Yang"
"Shanghai Research Institute of Sports Science, Huangpu Guidance Centre of Sport developing, Shanghai"
"CN, CN"

"Background: The ACTN3 R577X polymorphism has been shown to influence athletic performance. The aim of the present study was to examine the association between ACTN3 R577X polymorphism (rs1815739), athletic competition level, and lower-extremity power in elite Chinese sprint/power and endurance athletes.

Methods: We compared the genotype and allele frequencies of the ACTN3 R577X polymorphisms between 59 elite sprint/power (S/P) athletes, 44 elite endurance (E) athletes, and 50 healthy controls (C) from Chinese Han origin. We also compared the lower-extremity power in the athletic cohort.

Results: The genotype distribution of the S/P athletes was significantly different from the elite E athletes (P=0.001) and C group (P<0.001). The frequency of the RR genotype in international-level S/P athletes was significantly higher than that of the national-level athletes (who only compete nationally) (P=0.004), with no XX genotype in the international-level S/P cohort. The RR S/P athlete’s personal best achievement, in both the standing long jump and vertical jump, was better than their RX+XX counterparts (P<0.05 and P<0.01, respectively).

Conclusions: ACTN3 R577X polymorphism is associated with sprint/power athletic status, and lower extremity power, in elite Chinese athletes. Including relevant phenotypes like muscle performance in future studies is important to further understand the relative role of gene variants in athletic performance outcomes."
Aerobic plus resistance exercise training promotes improvement in body composition of obese adults.

Physical activity and health

"João Pedro Novo Fidalgo, Paula Bresciani, Maythe Amaral Nascimento, Leticia Andrade Cerrone, Renata Astride Rebelo, Ricardo Badan Sanches, Stephan Garcia Andrade Silva, Liu Chiao Yi, Danielle Arisa Caranti"


"BR, BR, BR, BR, BR, BR, BR, BR, BR"

**Background:** Obesity is one of the major public health problem, being characterized by the excessive accumulation of adipose tissue. Its major cause is positive energy balance, i.e., the imbalance between energy intake and expenditure. Its common sense that physical exercises improve energy expenditure. However, when the aerobic exercise is performed in isolation, it may lead to lean mass reduction, which is also one of the determining factors for caloric expenditure. This study addresses the effectivity of a short term aerobic plus resistance exercise training (ART) in body composition of obese adults as a therapy model against obesity.

**Methods:** A total of 24 obese volunteers were enrolled in the proposed therapy. They were aged 39.81 ±6.1 years old and had a mean Body Mass Index (BMI) of 34, 75 ±2, 6 Kg/m². The therapy consisted of a 16 weeks of aerobic plus resistance exercise training three times a week. The evaluations were performed on two occasions: before and after the exercise training. There were assessed body weight (kg) and height (m) to calculate the body mass Index (BMI) (kg/m²). It was also assessed the waist perimeter (WP) using a flexible inelastic tape. The body composition was measured by tetrapolar bioelectrical impedance. Paired simple t-tests were used for statistic analysis, and the considered level of significance was 5%.

**Results:** The ART promoted significant reduction in body mass (%Δ -3,6 ±3,1); BMI (%Δ -3,7 ±3,1); WP (%Δ -6,6 ±4,8); Body fat (kg) (%Δ -8,1 ±8,3); and %Body Fat (%Δ -4,8 ±6,4) of the population. ART promoted a significant increase in %Fat Free Mass (%Δ 3,1 ±4,3) of the volunteers.
Conclusions: The ART showed great results in body composition of obese adults. It's promoted both weight loss and an improvement in %Fat Free Mass, which is known to be important to control the obesity pathophysiology.

1. Conflict of Interest: None Disclosed.

2. Funding: Research relating to this abstract was funded by FAPESP (2015/00953-3) and CNPq.

3. Clinical Trail: NCT02573688"
ORAL PRESENTATION

Altered blood SCN5A mRNA level is associated with repetitive strenuous exercise in rats

Sport medicine and injury prevention

"Peng Liao, Xiaodan Zhang, Junfeng Li, Guilei Xing, Feifei Li"

"Tianjin University of Sport, Tianjin University of Sport, Tianjin University of Sport, Tianjin University of Sport, Tianjin University of Sport"

"CN, CN, CN, CN, CN"

Background:
Early detection of severe complications of overstrenous exercise is important for athletes undertaking unaccustomed training. SCN5A gene plays a key role in encoding integral protein and tetrodotoxin-insensitive sodium channel. The blood SCN5A mRNA level, which is sensitive to muscle contraction and metabolism requirements, reflects cell excitability. In this study, the dynamic alterations of blood SCN5A mRNA level was investigated and compared with other biomarkers in response to repetitive unaccustomed exercise.

Methods:
Thirty six male Wistar rats (320±10 g) were divided into the sedentary group (S, n= 6) and the overtraining group (OT, n= 30). Rats ran to exhaustion twice a day for ten consecutive days. Blood samples were collected daily pre-, and post- (1- & 12-h) exercise. Two OT rats were sacrificed 12 hours after running in each day. The S and remaining 10 OT rats were killed after the final session.

Results:
The OT rats showed malaise, poor grooming, rough hair coat, and anorexia. At the end of the training session, the body weight, the weight of perirenal fat pad and the volume of forearm muscle of the OT rats decreased by 22% (P < 0.01), 60% (P < 0.05) and 44% (P < 0.01) respectively, compared with S. The exhaustion time of OT rats declined progressively during the exercise training session (day 2-3 vs. day 1: -40%, P < 0.01; day 10 vs. day 3: -11%, P < 0.05). Histology found focal necrosis in liver and skeletal muscle after 4 days of running. Compared with the pre-exercise state of the 1st day, an increased level of serum alanine aminotransferase was detected on day 1-10(P<0.05), creatine kinase on day 3-10 (P<0.05), cardiac troponin I on day 5(P<0.05), at 12h post-exercise time point respectively. However, blood SCN5A mRNA level decreased on day 1-10 at 12h time point, compared with the pre-exercise state of the 1st day (P < 0.01). Whereas it increased on day 1-8 at 1h post-exercise time point compared with pre-exercise state of the same day (P < 0.01).

Conclusions:
The elevation of SCN5A mRNA in response to acute stressors is important in ensuring more protein expression for assembly sodium channel. As stimulation lasts, SCN5A expression can be inhibited to limit cell excitability. In this study, SCN5A mRNA level was dynamically changed during different training periods reflecting the cell adaptation in response to repetitive unaccustomed exercise. Combined with histology and biochemical measurements, blood SCN5A mRNA level can be used as an early indicator for overtraining monitoring."
Ampelopsin Alleviates D-galactose -Induced Sarcopenia by the Activation of Autophagy

Rehabilitation
"xianjuan kou, jie li, xingran liu, ning chen"
"wuhan sports university, wuhan sports university, wuhan sports university, wuhan sports university"
"CN, CN, CN, CN"

Background: Sarcopenia, the age-related loss of muscle mass and function, imposes a dramatic burden on individuals and society. The development of preventive and therapeutic strategies for sarcopenia is highly desired. Ampelopsin (AMP), as one of the major bioactive components in Rattan tea, exerts a large number of physiological and pharmacological actions such as anti-inflammatory, antioxidant, hepatoprotective and neuroprotective functions. However, its function for the regulation of sarcopenia is rarely reported. The aim of this study is to explore the preventive efficacy of AMP on D-galactose (D-gal)-induced sarcopenia and corresponding mechanisms.

Methods: Forty Sprague-Dawley rats were randomly divided into four groups including control, D-gal induction, and D-gal induction coupled with AMP treatment and AMP treatment alone groups. The model of sarcopenia was established by subcutaneous injection of D-gal at the dose of 200 mg/kg for 42 days in male SD rats. The model rats were treated with AMP at doses of 100 and 200 mg/kg for 28 days after D-gal injection with saline administration as the normal control. After AMP treatment, the ratio between skeletal muscle and body weight, histopathological characteristics and senescence-associated β-galactosidase (SA-β-gal) staining were evaluated. Mitochondrial morphology and autophagic vacuoles in gastrocnemius were observed by transmission electron microscopy. The expression of proteins was detected by Western blotting.

Results: The ratio between gastrocnemius and body weight revealed a significant decrease after 42 days D-gal induction when compared with that from the control. More importantly, AMP treatment could abolish the decrease in muscle-to-body weight ratio and mitigate the damage of the cells in gastrocnemius in a dose-dependent manner. AMP pre-treatment significantly reversed D-gal-induced apoptosis, thereby revealing as enhanced Bax and Caspase-3, and reduced Bcl-2. In addition, the pre-treatment of AMP could result in the declined expression of atrophy markers such as atrogin-1 and MuRF1 in gastrocnemius. Furthermore, the pretreatment with AMP revealed the obvious activation of autophagy due to the increased LC3-II/LC3-I ratio.
**Conclusions:** AMP can delay the formation of sarcopenia by activating autophagy and reduce the apoptosis in gastrocnemius.”
ORAL PRESENTATION

An Assessment on Body Mass Index (BMI) of Students at Primary School Age in Macao – When is the best time for intervention?

Physical activity and health

"Walter King Yan HO, Dilsad AHMED, Chi lan LEONG, Patrick IP, Parrick CHAN, Rudolph Leon Van NIEKERK, Fan HUANG, Beatriz WONG, Jessica CHEN"

"University of Macau, University of Macau, University of Macau, University of Hong Kong, University of Macau, University of Fort Hare, University of Macau, University of Macau, University of Macau"

"MO, MO, MO, HK, MO, ZA, MO, MO, MO"

“Background:

The epidemic problem of physical inactivity and sedentary lifestyle development came to global alert for which worldwide organizations like WHO and UNESCO worked together towards the development of strategies in overcoming this problem in society. The focus of global works went to the next generation as study indicated the importance of childhood’s experiences in physical activity and their habit of participation has tremendous effect to their life development as adolescent, youth and in adulthood. Direccao dos Servicos de Educacao e Junventude (DSEJ) of Macau SAR government also recognized the problem with decision to launch an experimental project of Fitness Award Scheme at 10 primary schools in 2008. The project was later adopted a new title of Active Kid 123 in 2011 and promoted to all primary schools in Macau. The recent development renamed the project to Active 123 (Primary) and Active 123 (Secondary) in early 2015 when the first participated students group reached the high school age. The current investigation followed the same class groups from 10 experimental primary schools since 2008 until 2013. Students’ height and weight, relationship with BMI and discussion on possible strategies in helping students to get move are the focus of concern in this study.

Methods:

The present study collected data on students’ height and weight and their BMI figures through DSEJ’s health project of Active Kid 123 from 2008 to 2013 in Macau. A total of 5369 primary school students (3368 male and 2001 female) at the age of 6 to 11 participated in this study.

Results:

To interpret the calculation descriptive statistics such as mean, standard deviation was used. Further, to compare the data gender and yearwise independent t-test was implemented. Finally, to compute the categories of BMI (such as Underweight Standard, Overweight and Obesity) person Chi square test was used. To know students’ mass of the body in relation to height and weight, their BMI (Body Mass Index)
Index) were measured and categorized under four perspectives of Underweight, Standard Weight, Overweight and Obese in according to the norm as currently used in Taiwan Region. The finding indicated higher BMI level among the male students than the female students across all the age categories (2008 $t = 5.24$, 2009 $t = 88.25$, 2010 $t = 11.32$, 2011 $t = 17.45$, 2012 $t = 19.70$ and 2013 $t = 19.92$ at .05 level of significance) and the age of 8 to 9 seemed to be the disrupted period for raise of overweight and obesity.

**Conclusions:**
The message indicated a trend of higher chance for male students to be overweight and obese with a disrupted period at the age of 8 to 9. Female students are less to be affected with the disrupted period to happen in a latter age. Focused works with suitable intervention activities on different period seem to be important strategy in helping students to get move.

**Keywords:** Height and Weight Measurement, Body Mass Index, Health Development of Children

Yanlling Duan
Wuhan Sports University
CN

“Background:

Methods:
Data were Collected from 245 Sports Goods Enterprises and 64 Senior Managers From Growth-Oriented Firms in the People’s Republic of China. These Firms had a Network Capabilities Focus on Collaborative Innovation within Five Years and Planned for Exploratory or Exploitative Resource Integration through Internal or External Organization. The Paper Presents the Conceptual Model of the Study, Structural Equation Modeling (SEM) is Used to Test the Measurement and Substantive Models.

Results:
The Research Results Indicate that: the Synergic Innovative Network Capabilities have Significant Positive Effects on Innovation Performances of Sports Goods Firms; There are Significant Differences in the Effect of Different Types of Resource Integration on Innovation Performance of Sports Goods Enterprises, the Exploratory Resource Integration has Significant Positive Effect on Innovation Performance, however the Exploitative Resource Integration has no Significant Effect on Innovation Performance; The Effect of Synergic Innovative Network Capabilities on Innovation Performance is mainly Mediated by Exploratory Resource Integration.

Conclusions:
Analysis of Fencing Lunge Performance Based on Coach’s Criteria

Technology in sports

"Sonia Cavalcanti Corrêa, Maria Isabel Veras Orselli, Ana Paula Xavier, Ricardo Salles, Gloria L. Cid, Carla Patrícia Guimarães"

"Universidade Presbiteriana Mackenzie, Centro Universitário Franciscano, Universidade Presbiteriana Mackenzie, Universidade Presbiteriana Mackenzie, Instituto Nacional de Tecnologia, Instituto Nacional de Tecnologia"

"BR, BR, BR, BR, BR, BR"

"Background: In fencing, lunge is the basis of most attacking motions and one of the first movements to be learned. However, it is not a consensus which aspects of lower and upper body kinematic and coordination are determinants for lunge performance, as even high-level fencers can use different strategies. We propose to identify body center of mass (BCM) and lower body kinematic and joint coordination characteristics of good performance based on coach’s criteria.

Methods: We performed a whole body kinematic analysis of a skilled epee’s amateur fencing athlete (right-handed, 11 years old boy, two years fencing practitioner). Optitrack motion capture system (Prime 13, 18 cameras, sampling rate 120Hz) was used to track the motion of retro-reflective markers fixed in the subject’s body and a stick placed in the epee’s tip. The subject performed a lunge attack from a static en garde sixte position, after a warm-up period, in two conditions: a) without the presence of any target to hit b) in the presence of a static opponent (his coach), having the chest as the target. The subject performed 4 trials/condition. The lower limbs joint angles and velocities in the sagittal plane (computed via Euler angles) and the body CM linear displacement and velocity were calculated using the Visual3d software (5.01 version). The athlete’s coach (athlete and children’s fencing teacher for 8 years) was invited to evaluate the recorded performance (balance and posture during lunge) and to identify the best-performed trials, according to his own criteria. We compared the variables, extracted from the temporal series of the selected physical quantities at different phases of the lunge, between the best-performed trials (B) and the others (O) and between the target conditions.

Results: Several aspects of lunge gesture differed between the two target conditions. However, irrespective of the static opponent presence, in B the lunge was performed with: higher ankle dorsiflexion range in the armed side (AS), from lunge initiation (LI) until the beginning of the AS foot elevation (B: 5.4°±0.5°, O: 4.1°±0.3°, z-score: 2.1), and in the non-armed side (NAS) prior to AS foot contact (B: 13°±3°, O: 4°±1°, z-score: 3.1); higher AS knee extension velocity prior to foot contact (B:
259°/s±17°/s, O: 197°/s± 4°/s, z-score: 3.5). In B, we observed less CM vertical oscillation (CM upward displacement from the initial position - B: 0.8±0.2cm, O: 3.0±0.5cm, z-score: 3.0) and a lower CM final position (CM downward displacement form initial position – B: 13.4±0.5cm, O: 11.0±0.6 cm). In addition, lunge was performed with higher downward CM velocity before AS foot contact (B: 15±3cm/s, O: 6±2 cm/s, z-score: 2.9).

Conclusions: Proper ankle range of motion and knee extension velocity may be determinate for lunge stability, particularly, for a more stable and fast movement in the vertical direction. We have already conducted a similar study focused on upper body kinematic that highlighted the importance of unarmed-arm gesture and posture to performance. Following analysis will consider upper and lower body coordination and energy transfer between segments.
Analysis of Selected Psychological Variables in South Indian Male Professional Hockey Teams

Sport psychology
Dr. SAJU.S
"FMN COLLEGE, KOLLAM"

"Background:
Winning modern hockey is more psychological than any other factors. The present study examines flow state and team cohesion of south Indian professional hockey teams. The concept of flow has gained increasing attention by researchers of various disciplines, since its introduction by Csikszentmihalyi (1975). The term “the zone” is frequently used in the sport psychology literature, outlining a state of high intensity, strong focus, superior performance (Young, 2000), and peak experience (Murphy & White, 1995), which is indicated by heightened awareness and intrinsic motivation (Frederick -Recascino & Morris, 2004). There are many group dynamics that take place within a sporting team. One of the most important is cohesion. One always hears about how important it is for a team to “gel” or “bond” or “have good chemistry.” Cohesive teams can achieve dramatic and awesome things.

Methods:
Subjects selected for this study were 57 professional hockey clubs (N=912) from the four South Indian states. All the subjects selected for the present study were male field hockey players. The professional club teams were selected from the major league tournaments of the concerned state and from various open tournaments held in South India. Tools used in the present study were Dispositional flow scale-2 (DFS-2) (Jackson and Eklund, 2004) and The Group environment Questionnaire (GEQ) (Albert V. Carron, Lawrence R. Brawley, W. Neil Widmeyer, 2002). Descriptive statistics and MANOVA were used to analyze the data of this study. Level of significance was set at 05 level. The data was analyzed by using SPSS Version 17.0 (SPSS Inc., Chicago, IL.).

Results:
The result of the present study indicates that the total flow of South Indian professional clubs in DFS-2 was 3.67. The MANOVA results of dispositional flow state (DFS-2) showed statistically significant difference (Wilks’ λ = .923, F = 3.890 and p = .000) between the professional clubs. The flow sub scales showed significant difference between the South Indian States were the Total concentration (F = 3.202, P = .023), Transformation of time (F = 21.526, p = .000) and Autotelic experience (F = 10.165, p = .000).
Descriptive statistics of team cohesion in GEQ among professional clubs showed that a mean scores of 4.1678 in IAGT, 4.323 in IAGS, 6.584 in GIT and 5.6908 in GIS. The MANOVA results of South Indian states showed statistically significant difference (Wilks $\lambda = .980$, $F = 2.447$, $p = .004$) between South Indian states in team cohesion.

**Conclusion:**

Major findings of the present study were:
1. Significant differences were found between the professional clubs of South Indian states in dispositional flow state (DFS-2)
2. Among the South Indian states, Professional clubs from Tamil Nadu had better score in DFS-2
3. The flow subscales showed significant difference between the South Indian States were Total concentration ($F = 3.202$, $P = .023$), Transformation of time ($F = 21.526$, $P = .000$) and Autotelic experience ($F = 10.165$, $P = .000$).
4. Significant difference was found between the professional clubs of South Indian states in team cohesion.
ORAL PRESENTATION

Analysis of the Status of China’s Sports Industry in the National Economy

Sport development
"Maowei Xu, Yongfang Zheng"
"Wuhan Sports University, Wuhan Sports University"
"CN, CN"

“Background:
Since China’s reform and opening up, especially after economic system reform, our National Sports Economy is experiencing a rapid development stage. Also, National Sports Industry has ushered into a golden development period with a huge output. However, in terms of its ratio in national economy, there is a long way to go to catch up with America, British and Japan. In general, the physical fitness and entertainment of sports in foreign countries is mature and professional. Sports game operations are all related to sports intermediary development. While china’s sports intermediary is still exploring its way, which is also a key point in developing china’s sports industry.

Methods:
This study utilizes contrast analysis method, documentary method and data analysis method. According to the data of State General Administration of Sports and State Statistics Bureau figures, we analyze the problem existing in China’s Sports Industry by the documentary and data analysis methods. By comparing other countries’ development of sports industry, some suggestions were achieved on solving the problem.

Results:
There are three significant reasons, which prevent the development of Chinese sports industry. The first, in China, sports exist on the purpose of public benefit, so people don’t have any awareness to sports industry, and the marketization degree is low in Chinese sports market. The second, in China, sports goods industry remains the main status and still in the stage of low self-development, little design capacity and little added value. The third, comparing to other industries, sports industry’s proportion in GDP and its average added value is related small. To develop the sports industry in all direction, we need to make fitness-leisure sector and competition-performance sector as the core, assisting with the development of sports service sector and professional training sector, and supported through goods manufacturing and construction sectors. At the same time, we can drive the sports information development by exhibition, intermediary and media sectors. In different places of China, we have to
make full use of the local resources with combing Opinions under the actual situation of more emphasis are put on competition—performance and fitness-leisure industry.

Conclusions:
Sports industry enjoys a good start in the twelfth five-year plan, but it is still in a small scale with a low level development. To achieve the goal, it sounds statistics system as a basis pilot study is needed for macro analysis. When sports become a kind of lifestyle and fixed consumption, sports industry will enter its prosperous development stage. During the process of comprehensive reforms, the study on sports industry still has a long way to go.

ORAL PRESENTATION

ANALYSIS ON THE PHYSICAL HEALTH CONDITION CHARACTERISTICS OF THE PUPILS IN LESS DEVELOPED AREAS OF CHINA--A RESEARCH REPORT FROM HAINAN PROVINCE

Sport and quality of life for adolescence and aging

"Lili Bai, Xiaolu Feng"
"Tsinghua University, Tsinghua University"
"CN, CN"

“Background: Economic development and improvement of pupils’ physical health condition are not always positively correlated. In China, with the rapid economic development, the physical health condition of pupils in some highly developed cities is getting worse. On the contrary, in some less developed regions, the situation is more optimistic. Based on the evidence, this paper is trying to utilize the detailed survey data to reveal the relation between the level of China's regional economic development and the pupils’ physical health condition.

Methods: In this paper, field survey, data analysis and comparative analysis are mainly used to select 514 (boys n=195, girls n=319) pupils from the underdeveloped areas of the central Hainan Province, and take three aspects of tests in their body shape, physical function, physical quality, and then compare the test results with the national level (boys n = 6445022, girls n = 5763884) in order to identify the differences between them.

Results: For the pupils in Hainan Province, in body shape, the level of weight for height of them was significantly lower than the national average, especially in the high rates of malnutrition and lower body weight rate; In physical function, the level of vital capacity and step test results are remarkably higher than the national average; In physical quality, crook before the seat body, standing long jump and 50 meter race were obviously higher than the national level.

Conclusions: The relatively backward economic development and the relatively low material standard of living are invisible to provide more opportunities for the pupils in Hainan Province to do physical activities. However, in the developed regions, the pupils own more means of entertainment that is taking the place of physical activities, which is an important reason of worse physical health condition of the students nowadays. Therefore, economic development and improvement of pupils’ physical health condition are not always positively correlated."
Anticipatory Postural Adjustments in upper limb of recurve archery

Elite performance

"Nadjila Tejo Machado, Fernando Carvalheiro Reiser, Elder de Sousa Palha Santos, Tuany Toribio Valtner, Ulysses Fernandes Ervilha, Marcelo Saldanha Aoki, Fernando Henrique Magalhães, Luis Mochizuki"

"University of São Paulo, University of São Paulo, University of São Paulo, University of São Paulo, University of São Paulo, University of São Paulo, University of São Paulo, University of São Paulo"

"BR, BR, BR, BR, BR, BR, BR, BR"

"Background: Archery needs static balance, trunk and upper limb strength and coordinate agonist and antagonist muscles of the forearm to shoot the arrows. Postural adjustments stabilize posture during task by means of Anticipatory Postural Adjustments (APAs), this control the position of the center of mass of the body by activating of muscles before a disturbance of body, minimizing the risk of losing balance. Consistency in posture is very important for hit the target. The sequence of activation of postural muscles is task-depend. The objective of this study is to analyze the temporal pattern of electromyographic (EMG) activity of archers in Olympic simulation.

Methods: 11 archers participated into this study (age: 21.1±1.4, experience: 6.8±1.5years). The surface electromyography of several muscles (Extensor Digitorum, Flexor Digitorum, Biceps Brachial, Triceps Brachial) were recorded, filtered, demeaned and rectified. Sampling frequency was 2 kHz. Twelve 6-arrows groups (72 arrows) were shot by each archer to target 70 m away. Processed EMG signal divided in 50 ms pre and post clicker to period of APA. Data of mean values and standard deviation correspond of EMG signal during the APA.

Results: Extensor Digitorum (0.04±0.04), Flexor Digitorum (0.04±0.06), Biceps Brachial (0.02±0.02), Triceps Brachial (0.07±0.11). In literature, until then use 2 forms for analyze archers: 3 periods of 1 second each, 2 periods of 1 second. Archer beginner toe extension in 25ms before shoot, and there are two techniques for shoot: relax the Flexor Digitorum or toe extension. Strategy of correct muscular contraction hope by hit the target, there are many options for execute a task.

Conclusions: Extensor Digitorum and Biceps Brachial have similar differences in EMG when compare standard deviation. Triceps Brachial and Flexor Digitorum present more variability because standard deviation is bigger than mean for EMG."
Application of an Optical Tracking-System for Analysing Performance in Goalball

Elite performance
"Daniel Link, Christoph Weber"
"TU Munich, TU Munich"
"DE, DE"

"Goalball, a Paralympic sport since 1976 in Toronto, is designed for visually impaired athletes. The goal is that two opposing teams, each consisting of three players try to score goals by rolling the ball into the oppositions’ net. The court dimensions are the same as a standard volleyball court besides the lines of the court are tactile and are made by placing thick tape over cords. Players wear blindfolds to guarantee equal impairments. The ball contains bells allowing players to echolocate movements. Alternating between offense and defence Goalball shows a very structured game play. Offensively, the ball cannot be thrown until the referee calls “play”. The team has 10 seconds to throw the ball. If the player throws before the call or the ball doesn’t contact the landing area and the neutral area, a penalty is incurred. Defensively, players listen for the ball and try to block it with their bodies. If unsuccessful, the opposing team wins a point. Once the players gain possession, it’s their turn on offense.

The purpose of this study was to light up the relationship between ball speed and performance in Goalball. Therefore we developed an optical tracking system (GoalTrack) which uses computer vision methods like background subtraction and shape recognition in order to detect the ball in video frames. Following a localization of ground contact points of the ball (minimum of pixel coordinates) plus a projection of ball position to ground level at these times. According to Cohen, intrerrater-reliability between manual and automatically notation of sectors is high (kappa = .807)A result of this, is the regression line of the ball through floor contact points. Bland and Altman analysis demonstrate a high level of agreement between this GoalTrack and manual annotation. For the 95% confidence intervals a lower and higher limit of 1.3 m/s were detected.

Our results from performance analysis based on a sample of 8397 shots of the last paralympic tournament, Statistical analysis shows a correlation between scoring rate and ball speed, where speed seems to be more important in womens goalball (Men: r = .65; Women: r = .90). The average speed of the ball did not decreased during the match. This leads to the conclusion that a training of explosiv strength abilities should be prefered compared to endurance training"
ORAL PRESENTATION

Assessing Basic Motor Competencies in Primary School – an International Comparative Study in Europe

Sport pedagogy

"Claude Scheuer, Erin Gerlach, Christian Herrmann"

"University of Luxembourg, University of Potsdam, University of Basel"

"LU, DE, CH"

"Background:"

A central aim of primary physical education (PE) is the promotion of physical competencies as a necessary condition of developing a physically active lifestyle and to be able to participate in the Olympic community. We defined basic motor competencies as physical performance dispositions, which evolved from task-specific requirements in the culture of sports and exercise. They are supposed to be learnable, based on previous experiences and can be improved through practice. Potential evaluations of effects in PE need to consider situation-specific and context-dependent characteristics of PE as well as prior experiences of pupils. Therefore, a design for test items, which are closely related to PE and vary in difficulty depending on the age of the pupils, is necessary.

"Methods:"

For this purpose, we developed the MOBAK-1 test instrument for the assessment of basic motor competencies in first graders. It allows teachers to identify groups in need of special support, and initiate these support measures to reduce inequalities. The first study took place in Zurich (Switzerland) and focused on construct validity (e.g., the factorial validity of the instrument).

Between spring 2015 and spring 2016, the MOBAK-1 test instrument was and will be implemented in further countries in Europe. At this time, we have four samples of four different countries:

- Switzerland (Zurich) (N = 317; girls = 55%; age: M = 7.04 years [SD = .37]; BMI = 16.08 [SD = 2.25]) assessed by University of Basel (Dr. Christian Herrmann)
- Germany (Frankfurt) (N = 1061; girls = 45%; age: M = 6.80 years [SD = .89]; BMI = 16.30 [SD = 2.37]) assessed by University of Frankfurt (Prof. Dr. Christopher Heim)
- Lithuania (Kaunas) (N = 120; girls = 48%; age: M = 7.76 years [SD = .33]; BMI = 16.14 [SD = 2.30]) assessed by Lithuanian Sports University (Assoc. Prof. Dr. Arunas Emeljanovas)
- Italy (Foggia) (N = 85; girls = 45%; age: M = 7.24 years [SD = .30]; BMI = 17.53 [SD = 3.04]) assessed by University of Foggia (Prof. Dr. Dario Colella)

Further samples are currently on the way to be completed in four other countries:
• Luxembourg (Luxembourg) (N = 280) assessed by University of Luxembourg (Claude Scheuer)
• Slovakia (Trnava) (N = 240) assessed by University of Trnava (Dr. Dana Masarykova)
• Czech Republic (Brno) (N = 600) assessed by University of Brno (Dr. Petr Vlcek)
• Belgium (Liège) (N = 450) assessed by University of Liège (Prof. Dr. Marc Cloes and Dr. Boris Jidovtseff)

Results:
In the initial validation study in Switzerland, two factors consisting of four items each were found. The related EFA (Study 1: CFI=.98; RMSEA=.024) and CFA (Study 2: CFI =.95; RMSEA=.044) revealed good model fit indices. The first factor “Locomotion” represents body movements (e.g., balancing), the second factor “Object-control” represents ball control (e.g., catching).

Conclusions:
The developed MOBAK test instrument meets psychometric validity demands based on the Swiss data. The presentation will show the results of the validation studies in further European countries and the results of the comparative study."
Association of ACSL4 gene Polymorphisms and Elite Endurance Athletes Performance

Genetics and sport

"Wu Jian, Zheng Xiaohong, HuYang, Yan Shoufu, WuHao"

“Capital University of Physical Education and Sports, Capital University of Physical Education and Sports, Beijing Sports University, Capital University of Physical Education and Sports, Capital University of Physical Education and Sports”

“CN, CN, CN, CN, CN”

“Background:

Long chain acyl-CoA synthetases (ACSLs) are encoded by a multi-gene family. Synthesis of acyl-CoA catalyzed by acyl-CoA synthetase (ACS) is the first step in mammalian response to the use of fatty acids, so ACSL in fat metabolism plays a major role. The ACSL family members include five different ACSL isoforms, each encoded by a separate gene and have multiple spliced variants. A finding suggests that the ACSL1 gene polymorphism rs6552828 is marginally associated with male elite endurance status in Chinese (Han) population yet such association was not found in Chinese females. This research is to explore the association of polymorphisms in ACSL4 gene with the performance of the elite endurance athlete.

Methods:

A total of 122 elite runners and 125 healthy non-athletes in the population of Han nationality from northern China were used in this study. The SNP sites rs5943427 and rs1324805 in the ACSL4 gene were analyzed with MassArray high-throughput DNA analyzer with matrix-assisted laser desorption/ionization time-of-flight (MALDI-TOF) mass spectrometry. A series of statistical methods were carried out to investigate the correlation between the SNP and the elite endurance capacity.

Results:

In male endurance athletes, the frequencies of the GG genotype (P=0.001) and G allele (0.019) in rs5943427 were significantly higher than their controls. The TT genotype (P=0.008) and T allele (P=0.000) in rs1324805 were significantly higher than controls. The two SNPs GT haplotype is significantly higher than controls (P=0.001). Such associations were not found in female endurance athletes.

Conclusions:
The gene polymorphisms rs5943427 and rs1324805 in the ACSL4 gene is associated with the performance of elite male endurance athletes in Han population from northern China. Our findings exemplify the need for further genetic association studies in the field of sport sciences.”
Association of Obesity with Postural Balance and Occurrence of Falls in Asymptomatic Adults

Physical activity and health

“Thatiane Lopes Valentim Di Paschoale Ostolin, Matheus Oliveira de Jesus, Bárbara Borges Gonze, Evandro Fornias Sperandio, Victor Zuniga Dourado”

“Universidade Federal de São Paulo, Universidade Federal de São Paulo, Universidade Federal de São Paulo, Universidade Federal de São Paulo, Universidade Federal de São Paulo”

“BR, BR, BR, BR, BR”

“Background:

Weight gain changes the body shape and leads to mechanical constraints that can compromise daily living activities. Thus, it has been suggested that body weight is a strong predictor for postural balance (PB). However, it seems controversial since studies reported no difference between obese and control group regarding the position of the center of pressure (COP) in static PB. Therefore, the aim of this study was to evaluate the association of obesity with poor static PB in asymptomatic adults as well as with occurrence of falls in a subsample of middle-aged and older adults.

Methods:

We conducted a cross-sectional study with 624 participants from the EPIMOV Study (Epidemiological Study of Human Movement and Hypokinetic Diseases). They were questioned about previous health problems and history of falls. Then, we measured height, body mass, and circumferences of hip and waist. Cardiorespiratory fitness was obtained from the cardiopulmonary exercise testing. We assessed the level of physical activity in daily life using triaxial accelerometers. Body composition was obtained through bioelectrical impedance. Muscle function was measured by using an isokinetic dynamometer. We evaluated postural balance using the kinetic displacement of the COP on a force platform. Initially, the whole sample was stratified according to the quartiles of body mass index (BMI), waist-to-hip ratio, waist-to-height ratio and percentage of fat body mass (FBM). We performed the MANOVA to compare which variables of the PB were different between quartiles. As for the associations with the occurrence of falls, we carried out a logistic regression analysis adjusted for main confounders. The history of falls was considered as the outcome and the categorized aforementioned variables as the main predictors.

Results:

The fourth quartile of BMI has the greater values for all variables, except for peak torque of the knee extension and peak V’O2, which indicates lower physical fitness in the most severe obesity. Our results demonstrate differences between first and fourth quartiles, especially for body sway on the lateral-
lateral direction in more challenging tasks (e.g., eyes closed and semi-tandem stance). When established PB and body weight association, the most clinically relevant variable was the percentage of FBM. Thus, the use of body composition variables, measured by bioelectrical impedance, might be more suitable for identifying obesity-related PB changes. Despite the association of greater severity of obesity and higher central obesity with worse PB, obesity was not related to the occurrence of falls as shown by logistic regression analysis.

**Conclusions:**
Obesity influences PB only in more severe cases and in situations with greater instability. Besides these aforementioned findings, body weight alone has little association with PB and the occurrence of falls, after adjustment for the main confounders. We conclude that obesity per se presents little influence on the maintenance of static PB as well as to the occurrence of falls among subjects aged 40 years and above."
Athletes’ Food Choices in Different Food Culture Contexts: Challenges and Strategies

Sport nutrition
Claudia Ridel Juzwiak
Federal University of São Paulo
BR

“Background: Nutrition plays an important role in athletic performance and athletes should adopt specific strategies according to their sport characteristics before a competition. Among which, to avoid unknown foods and to apply previously tested nutrition strategies.

Methods: Aiming to understand how athletes cope with their food choices in different food culture contexts, in this cross-sectional study, nine athletes (six Spaniards and four Brazilians) with international experience, from different sports (four gymnasts, three martial arts athletes and two water polo players), were interviewed about their food experiences when competing abroad.

Results: Brazilian athletes reported experiences in Bulgaria, Chile, and Uzbekistan while Spanish athletes in Finland, Ukraine, Romania, Russia, and Turkey. All athletes reported difficulties in choosing food in these countries and additional stress regarding the search for 'adequate food'. There was a lack of food choices which respected their cultural background. Athletes did not recognize foods, or did not like the flavors available. Athletes’ strategies were adopted when they were responsible for their own food or when a food service was available by the competition organization: a) when responsible for their own meals, athletes looked for buffet style restaurants or known/preferred cuisines; b) to buy food locally: this strategy leads to other challenges, such as the identification of unknown products, reading labels in another language and additional expenses. Moreover, it is not always possible for the athlete to go shopping or to find places close by. A solid knowledge on food composition and nutritional equivalence is necessary; c) to take food and supplements: this practice is limited by customs legislation, and weight of bags; c) adaptation to what is offered: to eat what is acceptable/possible, often leads to changes in habitual dietary pattern. There is a greater possibility that intake falls short of energy and nutrients regarding pre-competition demands; d) to eat unfamiliar foods: increased risk of developing gastrointestinal symptoms; e) request to modify menu: not always the food service available is able or allowed to change menus.

Conclusions: Modifications in pre-competition nutrition strategies due to the difficulty in finding habitual, planned, preferred, suitable, safe and within budget foods increases stress before competition and may have other important consequences for sports performance. Athletes have to be prepared to
make the best food choices when faced with a new cultural environment: learning beforehand about local food choices and label interpretation, testing different food strategies approaches and having a good knowledge on food composition can help athletes achieve their pre-competition nutrition goals in foreign countries. Food services should be motivated to offer wider options of food, respecting athletes’ cultural background. Nutritionists should be part of the professional team working with athletes."
ORAL PRESENTATION

Basal Metabolic Rate of Junior National Weightlifters in India: Development and Validation of Prediction Models

Sport nutrition

"Keren Susan Cherian, Ashok S, Faaiza Shahkar, Balakrishna N, Venkataramana Y"
"National Institute of Nutrition (Indian Council of Medical Research), National Institute of Nutrition (Indian Council of Medical Research), National Institute of Nutrition (Indian Council of Medical Research), National Institute of Nutrition (Indian Council of Medical Research)"

"IN, IN, IN, IN, IN"

Background:

Weightlifting is a power sport with intense strength and resistance training to enhance muscle mass and quality. To achieve this proper nutrition is essential. However, there is a void of scientific information pertaining to Basal metabolic rate (BMR), which is useful in deriving energy needs of this unique event, particularly in junior weightlifters. Therefore, our study aimed to measure the BMR of junior weightlifters and its relation with anthropometric variables. Further, to develop BMR models and validate prevailing models to predict BMR for periodic evaluation to attain optimal body size & composition and performance.

Methods:

Junior national weightlifters (Boys-9 and Girls-12) in the age group of 10-17 years, undergoing training for a minimum of 4 hours a day for 3 years, were recruited from sports school, Sports Authority of Telangana State. In this cross-sectional observation design, body composition was measured using skinfold technique and BMR using indirect calorimetry (oxycon mobile). Stepwise regression analysis was employed to develop BMR models. Prevailing BMR equations on children and adult athletes were selected and compared with the measured BMR using paired-samples t-test.

Results:

Across gender, the age and body mass were similar, while, body composition was significantly different, wherein, Boys had higher fat-free mass (FFM) and girls had higher fat mass. The measured 24-hour BMR showed significant difference (P<0.001) between gender (Boys-1675 ± 111.7; Girls-1425 ± 93.4), however, relative values of BMR per unit FFM were similar (P=0.868) across gender, but not BMR per unit body mass. The best-fit model for predicting BMR was using FFM (414+27.2×FFM; R-
squared.0.778; SEE.77.9). Out of 10 existing BMR prediction equations selected, the body mass based equation of ten Haaf & Weijs was most suitable for predicting BMR in both genders.

**Conclusions:**

FFM caused variation in BMR across gender and was utilized to predict BMR. The BMR equations developed is a simple and convenient tool to monitor the junior weightlifter’s physical adaptability, physiological efficiency and derive energy requirements from time to time.”
ORAL PRESENTATION

Battery of Test for Evidence Classification in Cerebral Palsy Football: Reliability and Cut-Points

Sport eligibility and inclusion
"Raul Reina, María Campayo-Piernas"
"Miguel Hernández University, Miguel Hernández University"
"ES, ES"

“Background: CP-Football is a para-sport for athletes with Cerebral Palsy and related neurological conditions, governed by the International Federation of Cerebral Palsy Football (IFCPF). In Paralympic Sports, impairments that impact on the sport should be identified to determine eligibility (IPC, 2015), and identifying which activities are essential to perform specific football skills will help to promote and develop evidence based classification systems (Reina, 2014). The aim of this study is to examine the reliability of a battery test to assess the activity limitation required to be eligible for CP Football (Football-7-a-side at the Paralympic Games) and to assist in the decision-making between the four current classes (FT5, FT6, FT7 and FT8: cut-points)

Methods: Depending on the test, a range of 53 to 129 CP Football players (CPFP) (26.3±7.1 yr; 175.6±7.1 cm; 70.1±9.0 kg; 11.4±7.1 yr playing) and 12-36 non-impaired football players (NE) (19.4±3.3 yr; 178.0±5.9 cm; 72.6±7.8 kg; 9.8±5.2 yr playing) were evaluated. Both groups had similar performance status, measured by training hours per week and games per month. CPFP data collection occurred at the 2013 CPISRA Intercontinental Cup; the NE control data was collected during training. Eighteen tests were performed and classified as: coordination (heel-toe placement, split jump, running in place, side stepping, hexagon and skip 10m), sprint (40m and 40m with ball), range of movement (back step lunge), agility (mat, Illinois, Illinois with ball and turning and dribbling) and power (standing broad jump, counter movement jump, 4 bounds for distance, triple hop, dynamometry). The teams were measured in two hour blocks, where 2-3 players were test in each station simultaneously, performing each test twice, while rotating in the same direction, in order to randomize the data and to complete the station test at the end of the two hours. One way Anova, Cohen’s d and within-session standard Error of Measurement (SEM) and Interclass Correlation (ICC) were calculated.

Results: For coordination, CODA and balance, all performed test showed significant differences (p < .001) with d values among 0.71-2.01, 1.48-2.42 and 0.09-4.05 respectively. For power test, four of the five evaluated test presented significant differences with d values among 1.46-3.05. On the other hand, fifteen of the sixteen variables obtained on the sprint tests showed significant differences with d values among 0.55-2.29.
**Discussion:** Regarding ICC, the high reliability founded indicates that the battery of test allows players’ ranking. Therefore, they can be applied as assessment tools for CP football players, as well as the classification process of CP football. Furthermore, the low variability observed in the SEM values states that these tests are reliable between different measures, being unexpected different results among different evaluations. The tests applied tests were able to identify the activity limitation of CP football players, therefore, has the potential to be used for eligibility in this para-sport, and also, to decide among some of the current cut-points: FT5vFT8, FT6vFT8, FT7vFT8, and FT8vNE."
ORAL PRESENTATION

BIOMECHANICAL ANALYSIS OF SPINAL CORD INJURED WHEELCHAIR RUGBY PLAYERS

Elite performance
“Jerusa P. R. Lara, Afonsa J. Silva, António Pietro Veloso, Ricardo Machado Leite de Barros”
“Faculty of Physical Education, Faculty of Physical Education, Faculdade de Motricidade Humana, Faculty of Physical Education”
“BR, BR, PT, BR”

**Background:** The biomechanical analysis can provide useful information to better understand the human motion patterns, in particular, in Olympic and Paralympic sport context. Thus, a kinematical analysis of WR athletes with different classification performing an fundamental skill of the game can provide a quantitative and detailed description of its execution, so the purpose of this study was to biomechanical analyze of movements injured spinal cord wheelchair rugby practitioners.

**Methods:** Seven wheelchair rugby male athletes volunteered to constitute the Spinal Cord Group and five male subjects Control Group. The protocol for biomechanical analysis of spinal cord injured was proposed, evaluated and displayed the applicability. The biomechanical model used to represent the athlete’s body was developed and consisted of sixteen linked rigid body segments: head, trunk, arms, scapulae, forearms, hands, thighs, legs and feet (right and left) and ball; and seven joints: right and left shoulder, elbow, wrist, and neck. To track the motion during pass, a marker set constituted by 62 anatomical retro-reflective markers were associated to the biomechanical model and used to locate and orient each local coordinated system related to limbs. Trunk was positioned in relation to the global coordinate system. The 3D kinematic analyses system DVideo was used to obtain the 3D coordinates of markers. The system used six Basler cameras (100 Hz). The inverse kinematic procedure was applied to calculate the joint angles. In study was tested: a) the accuracy of the kinematics analysis system; b) the modeling of the wheelchair and the ball; c) calculations the contribution of the auxiliary wheels of the specific wheelchair for the modality practice in the application of the ground reaction force; d) analyze the motion pattern; e) calculate the interjoint, bilateral and asymmetry of spinal cord injured rugby wheelchair players and; f) proposed and evaluated the use of the force platform was for analysis and characterization of the spinal cord injured movement. The protocol allowed the collection of kinematic and dynamic data of a specific movement of rugby wheelchair.

**Results:** The protocol proved sensible to detect asymmetries and bilateral and interjoint coordinations. The analysis of the motion pattern showed differences between the groups in the phase of ball throw affecting the shoulder, elbow and wrist joints. It was possible to identify compensatory strategies of the
spinal cord group to execute the chest pass. The spinal cord subjects are coordinated but bilaterally asymmetrical during the chest pass. The evaluation of the proposed force platform to characterize the spinal cord movement showed that the model is promising to yield important information to the objective evaluation of the kinetics of the movement in sport modality

**Conclusion:** We conclude that this study looked at the proposed objective and enabled further studies with the same population. The proposed protocol it allows to characterize other types of sports movements of spinal cord injuries and assist in the of training and treatment of these individuals."
Biomechanical parameters of impaired athletes in the long jump

Elite performance

“Miguel Angel Torralba, Josep María Padullés, Helena Olsson, María Luisa de Fuentes, Xavier Padullés, Adrian García-Fresneda, José Luis López, Apostolos Theodorou”

“Barcelona University, INEFC-UB (Barcelona, Spain), Barcelona University, Barcelona University, INEFC-UB (Barcelona, Spain), INEFC-UB (Barcelona, Spain), SPARG-UV (Vic, Spain), SEFAA-NKUA (Athens, Greece)”

“ES, ES, ES, ES, ES, ES, ES, GR”

“Background:
Numerous biomechanical studies have been conducted to determine optimal performance techniques that long jump athletes without physical limitations use to produce maximal horizontal jumps. However, the biomechanical research available for athletes with physical limitations, regarding optimal long jump performance techniques and the underlying biomechanics is limited (Nolan and Lees 2007; Theodorou et al., 2011). The purpose of this study was to analyze the mechanical characteristics of the approach run and duration of the take-off phase in the men’s long jump final of the London 2012 Paralympic Games.

Methods:
The study investigated 77 males participating at the long jump finals at the categories of visual impairment (VI F11-13, n=26), intellectual impairment (I F20, n=10), athletes with athetosis, ataxia and/or hypertonia (CP F36-37/38, n=19) and athletes with limb deficiencies (PD F42-44-46, n=22). White markers were placed at 1m intervals parallel to the runway’s lines. The approach phase of each jump was recorded using 4 Casio EX-F1 cameras, operating at 300Hz. The velocity was measured with Stalker ATS II radar (Applied Concepts Inc., USA) at 30Hz frequency. The best jump was analysed and processed with kinovea v.0.8.

Results:
Official distance (m): VIF11 5.80±0.45; VIF13 6.09±0.49; IF20 6.10±1.06; CPF36 4.94±0.25; CPF37/38 5.92±0.47; FDF42 5.28±1.03; FDF44 6.30±0.58; FDF46 6.16±0.86
Step length (m) for 3rd, 2nd and last: VIF11 2.11±0.24, 2.28±0.28, 2.12±0.14; VIF13 2.13±0.18, 2.22±0.17, 2.09±0.17; IF20 2.18±0.26, 2.34±0.25, 2.14±0.20; CPF36 1.99±0.23, 2.10±0.26, 1.95±0.24; CPF37/38 1.98±0.16, 2.06±0.14, 2.00±0.24; PDF42 1.74±0.16, 2.07±0.36, 1.78±0.22; PDF44 1.86±0.13, 2.10±0.12, 1.88±0.04; PDF46 2.13±0.22, 2.28±0.34, 1.96±0.19.
Step 1 frequency (Hz) 3rd, 2nd and last: VIF11 3.93±0.37, 4.00±0.32, 4.53±0.34; VIF13 4.24±0.36, 4.14±0.34, 4.40±0.64; IF20 4.18±0.43, 4.00±0.38, 4.75±0.58; CPF36 3.96±0.34, 3.66±0.47, 4.43±0.38; CPF37/38 4.37±0.47, 4.30±0.33, 5.23±0.83; PDF42 4.51±0.96, 3.69±0.82, 5.04±0.76; PDF44 4.54±0.53, 4.07±0.45, 5.40±0.23; PD46 4.45±0.50, 4.04±0.50, 5.34±0.56.
Horizontal velocity (m/s). VIF11 8.44±0.33; VIF13 9.01±0.49; IF20 8.96±0.68; CPF36 7.74±0.33; CPF37 9.04±0.28; PDF42 7.81±0.81; PDF44 8.83±0.53; PDF46 9.00±0.41.
Take-off contact time (s). VIF11 0.134±0.01; VIF13 0.140±0.01; IF20 0.125±0.014; CPF36 0.147±0.016; CPF37 0.139±0.014; PDF42 0.133±0.018; PDF44 0.123±0.013; PDF46 0.130±0.016.

Conclusions:
The jump distances achieved by amputee athletes F44-46 were longer than those achieved by the others athletes. The length pattern (medium-long-short) of the last steps is in accordance with elite athletes without disabilities. Horizontal velocity during the last three steps before take-off had a high correlation with the official jump distance. Take off Time at the long jump of F44-20-46 correlated with the best performances. When measuring Paralympic athletes, using the same biomechanical parameters as in non-impaired high-level athletes, a wide range of similarities can be found in the patterns used and correlations with jumping distances.
ORAL PRESENTATION

Black Friends’ Basketball Practice Use Case: Stimulating A Lifelong And Inclusive Education Journey In A Community In The City Of São Paulo

Sport eligibility and inclusion

Jorge Ferreira Franco
PMSP
BR

“Background:

Friendship and basketball have stimulated a lifelong inclusive and educational journey in a community in the city of São Paulo. This Journey is related an ordinary community group called “Black Friends”, composed by young black men from the suburbs of the city. Inspired by important basketball teams from United States of America and Brazil, the Black Friends practiced basketball in the decades of 1980, 1990, and 2000 as a way of doing sports and informally as well as formally integrating themselves in the society. For instance, through playing basketball for diverse city clubs and some of them getting a university’s scholarship, which would bring about stimulating individuals’ lifelong learning and knowledge sharing attitudes.

Methods:

In this work, it is presented a use case related to the Black Friends’ activities features referent to friendship, sports practice and implementation of a growing philosophy referent to spreading informal reflective, interactive, transdisciplinary knowledge based development talks and collaborative actions.

Results:

Across the years, Black Friends’ talks, reflective thinking and actions have brought about a legacy related to inspiring young people from the suburbs of the city to become basketball practitioners. Fortunately, this legacy has gone beyond that. Due to informal and formal interactive knowledge spreading, similar to some of the eighties, nineties and twenties Black Friends’ trajectories, new generations of young people have become lifelong learners and professionals in diverse fields such as education, information technology and public services ones. The current actuation of the Black Friends as volunteers’ citizens for developing and supporting informal sports and educational projects and as professionals in the field of education has enhanced both philosophy and legacy.

Conclusions:
Therefore, impacts of Black Friends' acts in society have supported the idea of keeping an informal, however, inclusive work to secure public engagement by young people and ordinary members of our communities. This kind of inclusive and engaging work can contribute to inspire policy makers thinking about how to addressing lifelong educational projects related to using better cities’ public spaces resources such as school courts and yards, including parks. It is thought that through joining appropriate public and private sectors human and technical resources public spaces can be used to present and engage young children in diverse sports, bring about a culture of stimulating future adult citizens to be able to take care of their lives and the city spaces with much more care.”
ORAL PRESENTATION

Body composition and somatotype profile of Spanish athletes with disabilities

Physical activity and health

"Marcelo Braz Vieira, Máximo Nikic, Miguel Angel Torralba, José Luis López, Joan Vives, Victoria Pons"
"Barcelona University, Barcelona University, Barcelona University, Vic University, General Secretary of Sport of Catalonia, GIRSANE CAR, Sant Cugat del Vallès"
"ES, ES, ES, ES, ES, ES"

“Background:
The advantage of Paralympic sport requires the realization of anthropometrical and physiological tests. In this study, the results of the tests carried out in Catalonia / Spain presented are a significant sample of federated athletes with physical and visual disabilities. The purpose of this study was to verify Body Composition (BC) and Somatotyping (S) characteristics of the participants athletes of the nine different sport in Catalonia Federations.

Methods:
The subjects of the study were 41 athletes [10 men with physical disabilities (PD) and 18 men and 13 women with visual impairment (VI)]. Anthropometric variables to evaluate the somatotype were collected using the Heath and Carter Method. The variables collected were: anthropometric and body composition measurements (BC) [body mass (BM), height (H), Body-Mass-Index (BMI), body fat (BF), body fat percentage (BF%), somatotype Heath and Carter (ENDO, MESO, ECTO) somatochart (X, Y), lean body mass (LBM) and lean body mass percentage (LBM%). The evaluation was done by Health and Sport Unit, General Secretary of Sport of Catalonia, and High Performance Center of Barcelona (CAR-Sant Cugat).

Results:
The results are presented in different categories gender (M-men, W-Women) and disability (PD, VI).

M-PD n=10 Age24, 1±4, 98 BM63, 87±8, 73 ST174, 76±8, 11 BM20, 94±2, 89 ENDO2, 38±1, 18 MESO3, 52±1, 35 ECTO3, 56±1, 45 X1, 17±2, 4 Y1, 1±3, 48 BF7, 59±3, 11 BF%11, 67±3, 09 LBM29, 83±3, 47 LBM%47, 21±6, 77

M-VI n=18 Age28, 33±6, 05 BM71, 25±5, 9 ST176, 84±5, 36 BMI22, 78±1, 57 ENDO2, 44±1, 01 MESO3, 86±2, 77 ECTO2, 68±0, 82 X0, 24±1, 73 Y2, 6±5, 37 BF8, 55±2, 43 BF%11, 92±2, 79 LBM36, 57±7, 52 LBM%51, 25±9, 03
Conclusions:
The study showed that the PD athletes present an average somatotype of Meso-Ectormophy, that means having a linear muscle development and low-fat, Men VI Mesomophy-balanced having a moderate muscle development and low-fat, and the Women VI Endormophy-balanced with moderate relative adiposity and low muscle development. The LBM% and BF% studies that are presented for all athletes are similar to other disabilities and studies with subjects without disabilities. BMI of these athletes are classified into normal (18.5-24.99), according to the scales of the WHO to general population, which suggests that they have a good physical condition."
ORAL PRESENTATION

Body Dimensions and Physique of Prepubertal and Pubertal Handball Player Girls

Sport and quality of life for adolescence and aging

"Anna Ilona Farkas, Gábor Szőts, Márta Szmodis"

"University of Physical Education, Budapest, University of Physical Education, Budapest, University of Physical Education, Budapest"

"HU, HU, HU"

Background:
The bodily growth and development are always based on multifactorial influence, as a result of coexisting either genetic, social and/or economical issues. Among them one of the most important is the regular physical activity, generating favourable changes and supporting the spontaneous growth process. To learn more about the stage/level of the growth and development could help in planning of adequate workload and in evaluating the performance of young athletes.

Methods:
In our present report the physique of handball player young girls was studied (N=118). Their calendar age ranged between 10 to 15 years. By their menarcheal status they were classified into pre-menarcheal (prepubertal, n1=70) and postmenarcheal (pubertal, n2=48) groups. Menarcheal age was calculated by retrospective data.

For characterising the physique altogether 24 body dimensions were measured by the suggestions of the International Biological Programme. The body height and body mass, width-, circumference- and skinfold measurements were taken. Among the calculated parameters metric and plastic indices of Conrad's growth type, somatotype components (endomorphy, mesomorphy, ectomorphy) were used to describe the physique. Body composition was assessed by the Drinkwater and Ross body fractionation technique and body fat content was also estimated. Biological age was calculated by the morphological age assessment method.

Basic statistics, interrelationships and Student t-test were used by Statistica Statsoft Version 12 computer programme. Differences of the respective subgroup means were tested by Tukey's post-hoc tests at the level of 5% random error.

Results:
The mean menarcheal age of the pubertal group was 11, 86 yrs, significantly lower than that of the Hungarian reference value (12, 79 yrs), and lower than that of the athletic girls, in general. By this fact,
pubertal girls of the sample seemed to belong to the early maturers. Even estimated biological age of the prepubertal girls were somewhat ahead of their calendar age. Prepubertal girls proved to be more linear with a less developed muscle-bone system, though they had even higher mean values when compared to that of the non-athletic reference values. The skinfold thicknesses in prepubertal girls were consequently lower than in pubertal ones. The non-significant difference - within one percent body fat- could be owned to the high variability within the sample.

Conclusions:
Based on the status of the secondary sex characteristics numerous girls were presumably near to their menarche so that the obvious, potential difference in body measurements and in their developmental level of the subgroups could not be actually manifested. In a larger sample of athletic girls we could gain even more precise information on the real bodily differences through the developmental process, in respect of the pubertal status."
ORAL PRESENTATION

Caffeine and its influence on performance, heart rate variability, blood pressure and tidal volume in paraplegic and tetraplegic individuals compared to able-bodied controls

Sport nutrition

"Joelle Leonie Flueck, Fabienne Schaufelberger, Martina Lienert, Claudio Perret"
"Swiss Paraplegic Centre Nottwil, ETH Zurich, ETH Zurich, Swiss Paraplegic Centre Nottwil"
"CH, CH, CH, CH"

Background:
Caffeine (CAF) ingestion leads to ergogenic effects in high-intensity and endurance exercise in able-bodied (AB) athletes. To date, it is unclear whether such an effect could be detected in wheelchair athletes as well due to impaired sympathetic nervous system activation.

The study investigated the effects of CAF on upper body performance in para-(P) and tetraplegic (T) compared to AB participants. Additionally, heart rate variability (HRV), blood pressure (BP) and tidal volume (VT) were assessed to gain more information about sympathetic activation.

Methods:
17 AB (median [minimum; maximum]; VO2peak 39.9ml/min/kg [23.6; 57.6]), 10 P (VO2peak 34.4ml/min/kg [19.5; 48.8]) and 7 T participants (VO2peak 13.6ml/min/kg [8.6; 16.3]) participated in this double-blind, placebo-controlled and randomized study. Participants performed twice a 3min all-out arm crank test 1 hour after the ingestion of either 6mg/kg CAF or placebo (PLC). Plasma CAF, epinephrine (EPI) and norepinephrine (NOR) concentrations were analyzed pre- and post-ingestion. Pre- and 40min post-ingestion, HRV, VT during HRV measurement and BP were assessed.

Results:
There was no significant increase in peak and mean power over 3min after the ingestion of CAF compared to PLC in the three groups. The median for peak power showed an increase of 46W (AB), 21W (P) and 2W (T) after CAF ingestion compared to PLC. Performance in the first 30s and 60s of the test after CAF ingestion was significantly enhanced in P (p=0.028) but not in the other groups (AB: p=0.44, T: p=0.61).

Plasma CAF concentration significantly increased in all three groups (AB: p=0.005; P: p=0.008; T: p = 0.018) post CAF ingestion. A significant increase from pre to post CAF ingestion in EPI was found in AB (p=0.002) and in P (p=0.032) but not in T (p=0.63). Most HRV parameters did not change post CAF ingestion compared to PLC, whereas LF/HF ratio was significantly reduced in P (p=0.028) and total power significantly increased in AB (p=0.023). VT significantly increased post CAF ingestion in AB
(p=0.021) and P (p=0.036) but not in T (p=0.34). Systolic and diastolic BP increased significantly post CAF ingestion in the AB (SBP: p=0.003; DBP: p=0.021) and T (SBP: p=0.043; DBP: p=0.042) but not in P (SBP: p=0.09; DBP: p=0.33).

**Conclusions:**
CAF seemed to enhance performance between 30 and 60s in P but not in AB and T. However, a clinically relevant increase in peak power occurred in AB and P. VT increased from pre to post CAF ingestion in AB and P possibly due to an increase in plasma EPI. Furthermore, CAF ingestion seems to elevate blood pressure in all three groups."
Can organized youth sport involvement predict health related outcomes in early adulthood?

**Sport development**

"Stefan Wagnsson, Göran Patriksson"

"Karlstad University, University of Gothenburg"

"SE, SE"

**Background:**
In many aspects organized sport is considered to be one of the most important health promoting activities in young people’s life. Furthermore, there are commonly held expectations that organized sport leads to a healthy lifestyle also in adulthood. A lot of studies have been conducted on youth sport from different perspectives (1, 2), but less research has focused on investigating the longitudinal relationships between youth sports and health related states and habits later in life.

**Objective:**
To investigate longitudinal relationships between involvement in organized youth sport and health related outcomes (HRO) in adult age (20-28 years; M=24.6 years).

**Methods:**
Using a questionnaire, retrospective-, cross-sectional- and longitudinal data from 1212 boys and girls (M=13.9 years) were collected at three waves (T1-T3, 2005-2007), of which 300 (25%) were followed up eight years later (T4, 2015). In order to consider the dimensions of breadth (number of organized sports), intensity (hours spent in organized sports per normal week) and duration (total number of years spent in organized sports), a sport involvement index (SI) was calculated. Controlling for sex, ethnicity, subjective socioeconomic status and economic situation at T4, a series of multiple hierarchical regression analyses were used to test the longitudinal effects of SI at T3 on series of HRO at T4. The different dimensions of HRO (self-esteem, athletic competence, social competence, psychosomatic symptoms, general health, alcohol, smoking, physical activity and sedentariness) were measured by using validated instruments.

**Results:**
Results showed that SI at T3, significantly predicted athletic competence ($\beta=.32$, $p<.001$, ES=.10), social competence ($\beta=.14; p=.021$, ES=.02), smoking ($\beta= -.12; p=.006$, ES=.02), physical activity ($\beta=.22; p<.001; ES=.05$) and sedentariness ($\beta=.12; p=.041$, ES=.01) at T4.

**Discussion:**
No apparent health related effects (i.e., general health, psychosomatic symptoms) were observed. However, results indicated that there are small indirect health related effects in adulthood, which can be tracked to involvement in youth sport eight years earlier. Considering the rather small effect sizes (3) shown in this study the findings highlight the importance of presenting a nuanced picture of the role youth sports play in health related issues in early adulthood.

References:
Can the Perceived Exertion Slope Predict the VO2 Peak and the Power Output Peak?

**Physical activity and health**

"Cayque Brietzke Barreto, Paulo Estevão Franco Alvarenga, Felipe De Russi de Lima, Fabiano Aparecido Pinheiro, Fernando Lopes e Silva Júnior, Ricardo Yukio Asano, Flávio de Oliveira Pires"

"School of Arts, Sciences and Humanities, University of São Paulo, School of Arts, Sciences and Humanities, University of São Paulo, School of Arts, Sciences and Humanities, University of São Paulo, School of Arts, Sciences and Humanities, University of São Paulo, Federal University of Piauí, School of Arts, Sciences and Humanities, University of São Paulo, School of Arts, Sciences and Humanities, University of São Paulo"

"BR, BR, BR, BR, BR, BR, BR"

"**Background:** The Ratings of Perceived Exertion (RPE) are Used to Quantify the Perceived Effort Over a Given Maximal or Submaximal Exercise Bout. For Example, RPE is Frequently Applied in Maximal Incremental Test (MIT) in Order to Ensure that Individuals Achieve Maximal Effort. in this Regard, the Lower Rate of Increase in RPE the Greater MIT Performance as Measured by Peak Power Output (WPEAK), as it is Expected that Individuals With Improved Physical Fitness may better Tolerate the MIT Exercises Until Exhaustion, Thus Reflecting in Lower RPE Slope and Greater WPEAK. However, if this Association Between RPE Slope and WPEAK could also be Observed With VO2 Peak (VO2PEAK) Requires Confirmation. Hence, the Aim of Study was to Determine whether the Rate of Increase in RPE (RPESLOPE) may Play as a Factor to Predict VO2PEAK and WPEAK.

**Methods:** Nineteen Physically Active Males (25.1 ± 4.9 Years, 175.7 ± 5.7 Cm, 77.8±5.7 Kg, and 11.4±4.5% of Body Fat), Participated in this Study. Participants were Positioned on the Bicycle for a 3min Baseline Period, which was Followed by a 5min Self-Paced Warm-Up Period. Immediately After the Warm-Up, They Began a Traditional MIT, With Initial Workload Set at 100W and Pedal Cadence at ~80 Rpm. the Workload was Increased 25W•Min-1 Until Exhaustion. the Exhaustion was Defined as the Incapacity to Maintain the Pedal Cadence at ~80 Rpm (Despite Strong Verbal Encouragements). Gaseous Exchange (VE and VO2), Heart Rate (HR) were Obtained Continuously, and RPE Every 60s. the VO2PEAK was Determined as the Average of the Three Highest VO2 Values Obtained During the Last of 60s of the Test. the W Peak was Defined as the Highest Power Output Achieved During the Test. Moreover, RpeSLOPE was also Calculated to Indicate How Fast The RPE Increased Throughout the MIT.
Results: Values (Mean±SD) of RPESLOPE, VO2PEAK and Wpeak were 1.03±0.28a.u, 48.25±5.89 ml kg min-1, and 341.14±36.93 W, Respectively. Moderate Correlations were Observed between RPESLOPE and WPEAK (R = -0.517, P < 0.05), but Not Between RPESLOPE and VO2PEAK (R = 0.211, P > 0.05).

Conclusions: These Results Suggest that the Lower RPESLOPE, the Greater WPEAK During the MIT, thus Reflecting an Improved Physical Fitness. However, the Absence of Association between VO2PEAK and Rpeslope may Suggests that VO2PEAK does Not Depend on the Better Exercise Tolerance (Physical Fitness) During MIT Exercises."
Can the Photobiostimulation on Quadriceps Femoral Muscle Improve the Pain, Muscle Strength and Functional Performance in Patients with Knee Osteoarthritis? Randomized Clinical Trial.

Rehabilitation

"André Cabral Sardim, Carlos Eduardo Pinfield"

"Federal University of São Paulo, Federal University of São Paulo"

"BR, BR"

**Background:** Osteoarthritis (OA) is one of the most prevalent rheumatic diseases in the elderly and is associated with pain, stiffness, deformity and progressive loss of function. Physical therapy through therapeutic exercise, proprioceptive exercises and phototherapy can improve symptoms related to OA.

**Methods:** The study included 16 patients clinically diagnosed with knee OA, unilateral or bilateral, according to the American College of Rheumatology criteria through x-ray image. Patients were randomly divided into Group 1: undergo an exercise treatment program associated with application of placebo, and Group 2: the same exercise program associated with phototherapy. The groups were treated for 12 weeks with a frequency of 3 times per week. All patients underwent pre- and post-treatment with SF-36 (Short Form 36), Womac questionnaire, Berg Scale, VAS (Visual Analog Scale pain), ROM (range of motion) and strength assessment through hand dynamometer. For the application of phototherapy was used a cluster containing 7 red diodes (630nm) and 7 infrared diodes (850nm), each diode power of 100mW, the energy of each diode was 4J, energy per area 56J, for a total 168J of energy per member. The irradiation time was 40 seconds per area, with a total time of 120 seconds per member. The application sites were in three areas of the belly of the quadriceps femoris muscles bilaterally.

**Results:** No significant differences were found for the quality of life ratings, functionality, balance, pain, flexibility and muscle strength in the analyzes between groups with (p> 0.05), however, there was significant improvement in both groups over time in the intra-group evaluation (p<0.05).

**Conclusions:** The treatment protocols showed no differences in functional performance evaluations, pain and muscle strength with each other. However, there is significant improvement in both groups: submitted to the rehabilitation protocol, as the group associated with phototherapy on the quadriceps muscle."
ORAL PRESENTATION

Canadian Parasport Coaches and Social Learning

Sport pedagogy
"Tiago F. D. Duarte, Diane Culver, Michel Milistetd, Pierre Trudel"
"University of Ottawa, University of Ottawa, Federal University of Santa Catarina, University of Ottawa"
"CA, CA, BR, CA"

Background:
Over the past two decades the disability sport movement has been growing steadily. One of the most impressive examples relates to the London 2012 Paralympic Games. The Games exceeded the local committee expectations, selling 2.7 million tickets, surpassing by 900,000 the previous Games in Beijing. To provide a sense of the progression, the 2004 Paralympic Games in Athens sold 850,000 tickets. Moreover, for the first time in the history of the Paralympic Games the tickets sold out even before the start of the Games. These numbers elevated the Paralympic Games to the third sporting event in the world behind the Olympic Games and the FIFA World Cup of soccer.

Case presentation:
Despite the exciting evolution of the Paralympic movement as it relates to high performance Parasport, there are concerning statistics regarding the grass roots. Within Canada, a 2012 Standing Senate Committee on Human Rights report indicated 37 percent of children and youth with disabilities never take part in organized physical activities compared to 10 percent amongst those without disabilities. These alarming numbers are linked to the many barriers prohibiting individuals with a disability from participating in sport. The lack of specialized coaches is one of these barriers.

Discussion:
In able-bodied sport, the number of participants is such that we can often draw typical profiles of coaches working at the recreational, developmental, or elite level. In Parasport, it is common to see a coach training athletes ranging from children to adults and recreational to elite levels, all in the same session. To add to the complexity of the Parasport coach’s role, the wide range of disabilities within the same sport (or event) requires coaches working with these athletes to not only acquire sport specific and general coaching knowledge common to all coaches, but also to understand each athlete’s specific disability and its influence on development and/or performance.

Researchers who sought to understand how coaches learned to become coaches found idiosyncratic pathways in which the coaches learned from: experience (i.e., as coaches and/or former athletes), coach education (i.e., coaching courses and clinics), and especially social learning (mentors, peer...
coaches, integrated support teams, athletes, and other stakeholders). Based on the studies published and on studies being conducted by Canadian's scholars, the purpose of this presentation is to introduce the delegates to the Canadian disability sport coaching situation and to Parasport coach development from the perspectives of coaches working in this country.

**Acknowledgements:** Funding from the Social Sciences and Humanities Research Council of Canada, Ontario Graduate Scholarship and Sport Canada Research Initiative."
ORAL PRESENTATION

Case Report of an Open Educational Resource (OER) Initiative in Sport Psychology for Developing Countries

Sport psychology

“Peter C. Terry, Neil Martin, MARIA LUISA GUINTO-ADVIENTO,PhD”

“University of Southern Queensland, University of Southern Queensland, University of the Philippines”

“AU, AU, PH”

“Background: The Asian-South Pacific Association of Sport Psychology (ASPASP) exists to facilitate the development of sport psychology throughout the Asian-South Pacific region. Since its inception in 1989, ASPASP has grown steadily and now has more than 4,500 affiliated members from 22 countries. ASPASP has embraced the OER concept to bring free, online content related to sport psychology to large numbers of people in developing nations, who might otherwise be denied access on the grounds of cost and/or accessibility.

Methods: An open textbook entitled Secrets of Asian Sport Psychology (Terry, Zhang, Kim, Morris, & Hanrahan, 2014; see http://peterterry.wix.com/books) was launched in August 2014 by the Asian-South Pacific Association of Sport Psychology. The book chronicles how several Olympic and World champions have utilized sport psychology techniques to assist their success, linking countries in the Asian-South Pacific region to sports at which they excel, including Archery in Korea, Boxing in the Philippines, Diving in China, Judo in Japan, Rugby in New Zealand, Shooting in India, Wrestling in Iran, and so on. Written by experienced applied practitioners working at the front line of elite sport, Secrets of Asian Sport Psychology is the world’s first textbook on sport psychology published under a creative commons licence. The second OER initiative developed by ASPASP came in the form of a free, online course launched in October 2015, entitled, “Elite Sports Performance: Psychological Perspectives” (Terry & Martin, 2015; see http://www.elitesportpsy.org.au/). The course introduces learners to the psychology of high performance sport, covering the topics of motivation, anxiety, mood and emotion, self-confidence, concentration, imagery, music, and group dynamics. Those who complete the course and submit an assignment to design a mental training program for a hypothetical elite athlete receive an ASPASP-endorsed certificate of achievement.

Results: To date, the open textbook, “Secrets of Asian Sport Psychology” has received nearly 5,000 downloads from 103 countries. After only six months from launch date, the free online course on Sport Psychology, has nearly 1,000 registrants from 107 countries and over 65,000 page views.
Conclusions: Secrets of Asian Sport Psychology is the world’s first textbook on sport psychology published under a creative commons licence. The nearly 5,000 downloads across 103 countries shows the reach of the educational resource. The provision of free, open and online educational content is a relatively new phenomenon with little research conducted on how to best design and deliver such courses. Using self-determination theory as a frame of reference, the engagement characteristics and learning experiences of those participating in free online course, “Elite Sports Performance: Psychological Perspectives” were evaluated using measures of basic psychological needs satisfaction and engagement metrics derived from web analytics. Additionally, intention and general causality orientation measures were taken to assess the extent to which they predicted engagement with the course."
CENTRAL AND PERIPHERAL EFFECTS OF EXERCISE WITHOUT WEIGHT REDUCTION IN OBESE AND LEAN MICE

Physical activity and health

"Francine Pereira de Carvalho, Izabelle Dias Benfato, Thais Ludmilla Moretto, Marcela Barthichoto, Camila Aparecida Machado de Oliveira"

"Federal University of São Paulo, Federal University of São Paulo, Federal University of São Paulo, Federal University of São Paulo, Federal University of São Paulo"

"BR, BR, BR, BR, BR"

"Exercise is one of the most used strategies to fight obesity, but the results are not rare disappointing. On the other hand, sedentary behavior increases the risk for metabolic and cardiovascular disease. Thus, despite the reduction in body weight is a desirable outcome a shift in focus from weight loss to improvements in exercise and also diet has been proposed to manage obesity. Wheel running is frequently used to study the effects of exercise in mice and usually is accompanied by no change in body weight. We took advantage of this to investigate the central and peripheral effects of exercise (free access to wheel running 5 days/week) on insulin and leptin sensitivity and glucose homeostasis in mice fed a high fat diet for 10 weeks. Male C57BL/6 mice were divided into Control (C), Control Exercise (CE), High-fat (H) or High-fat Exercise (HE) groups. Glucose, insulin and leptin tolerance, hypothalamic and liver protein expression of components of the insulin and leptin signaling pathway (by western blotting), plasma leptin, insulin and adiponectin (by ELISA) and body composition were evaluated at the end of the study. Results were analyzed by two-way ANOVA. High fat diet increased body weight gain with no effect of exercise (H and HE > C and CE). High fat diet also increased perigonadal and retroperitoneal fat depots weight. However, exercise reduced the weight of both fat depots and decreased the lipid/protein carcass ratio. Although high-fat diet induced glucose intolerance (higher AUC of blood glucose during ipGTT in H and HE compared to C and CE) without effect of exercise, insulin sensitivity was reduced only in the H group (higher AUC of blood glucose during ipITT in H compared to the other groups). Wheel running increased liver p-Akt expression (CE and HE > C and H), indicating the insulin action in this organ key to glucose homeostasis was improved by exercise. Consistent with the improved body composition, plasma leptin was higher in the H and HE compared to C and CE groups, but it was reduced in the exercised (CE and HE) compared to the non-exercised (C and H) groups. The concentration of adiponectin was higher in CE and HE compared to C and H, with no effect of high fat diet. Plasma insulin was higher in the H and HE groups compared to C and
CE groups, with no effect of exercise. This result indicate insulin sensitivity was not fully restored by exercise. The inhibitory effect of leptin on food intake during the leptin tolerance test was similar among the groups. Accordingly, hypothalamic expressions of total Stat3 and p-Stat3 were affected neither by diet nor by exercise. Expression of total Akt, p-Akt, p-IKK and BDNF in hypothalamus was also similar among the groups. We conclude that despite no change in body weight exercise has important beneficial effects as it improved body composition, insulin sensitivity and decreased the concentration of a pro-inflammatory hormone (leptin) at the same time it increased the concentration of an anti-inflammatory hormone (adiponectin). Thus, despite reducing body weight can bring additional benefits, the effects of exercise must not be overlooked when body weight reduction is not achieved."
**ORAL PRESENTATION**

Changes in throwing sports rules: implications about the performance of Paralympic athletes.

Elite performance

“Gilberto Martins Freire, Milena Pedro de Morais, Danilo Sales Bocalini, Graciele Massoli Rodrigues”

“UTFPR/USJT, USJT, USJT, USJT”

“BR, BR, BR, BR”

**Background:** The objective of this study was to identify statutory changes in throwing sports occurred in 2014 and how they interfere with the Brazilian athletes’ performance.

**Methods:** The research is characterized as descriptive, documentary and quantitative. Rules were consulted in the archives from the International Paralympic Committee and the Brazilian Paralympic Committee as well as 177 results from competitions between 2013 and 2014. Student’s t-test (paired) was used during statistical analysis with a 5% significance level.

**Results:** Results show a significant difference in throwing competitors’ performance following the statutory changes. The functional classification F58 and F57 revealed a decrease in performance in 2014. Athletes with higher functional capabilities had worse performance compared to the results of those who are less functionally capable.

**Conclusions:** The results of this investigation show that the changes in rules had direct consequences in results during the years analyzed, thus suggesting athletes have yet to assimilate and adapt to them.”
ORAL PRESENTATION

Comparative Study of Chinese and Japanese Preschool Physical Education
Sport and quality of life for adolescence and aging
Cheng Jinyu
Wuhan Sports University
CN

“Background: Preschool education is the beginning stage of education, which plays an important role for children's growth and future development. Preschool physical education plays a fundamental role in preschool education, Japanese preschool education has not only a long history, but also the world-class level, this paper aims to make a comparative study of Chinese and Japanese preschool physical education, and to explore the direction for the improvement of preschool physical education in China.

Methods: The methods of literature consultation, questionnaire investigation, mathematical statistics, and on-the-spot investigation are adopted in the paper.

Results: 1) Social consciousness: Both the Chinese and Japanese preschool physical education are deeply influenced by the social consciousness: the Japanese emphasis on scientific and challenging physical education; while the Chinese preschool physical education emphasis more on safety education, there are more restrictions for children.
2) Laws and regulations: Japan attaches great importance to preschool education legislation, and the implementation of scientific management in accordance with laws and regulations; while in China, the relevant legal system is not perfect, and the legal efficiency is not high.
3) Sports facilities: Japanese preschool education emphasizes the natural environment and facilities, and the materials are simple; while the China education focuses on games under full protection of instrument, mostly taking a fix-designed pattern and repetitive movements.
4) Financial inputs: Japanese preschool education financial inputs is higher than that of China; and there are huge regional differences in financial investment in China.

Conclusions: Chinese government should continue providing policy and economic support for preschool physical education, and improve the preschool physical education system; the kindergarten should attach great importance to children’s preschool physical education fundamentally, and make innovations in teaching contents and teaching forms.”
ORAL PRESENTATION

Comparative Study on Regulation of Sports Social Organizations between China and USA

Sport sociology
"CongNingli, ChenCongkan"
"Chengdu Sport University, Southwestern University of Finance and Economics"
"CN, CN"

“Background: Sports social organizations grow fast in both China and USA, and becomes an important part of the society with a great function. While developing, regulation becomes important and necessary. Especially in China, development of sports social organizations brought sorts of problems, we need to deal with them. China and USA both have their own ways and characteristics on regulation. Compared with USA, China can learn a lot of experience about how to regulate in order to improve the regulation of sports social organizations.

Methods: Literature Review, Comparative study, field survey are the main methods in the study.

Results: The characteristics of sports social organizations regulation in USA are as follows: (1) Styles of regulation are various. Such as government auditing, supervising and disclosing different kinds of information of sports social organizations; Lots of people participate in the regulation through media, which has a great impact; Establish third-party organizations in order to do the regulation; (2) Regulation according to Law. Guarantee the right and the freedom for association; Keep the independence of sports social organizations. The characteristics of sports social organizations regulation in China includes: (1) Legal system in China is not perfect. Especially for regulation, it is hard to find a way to regulate sports social organizations in accordance with law; (2) There is no clear border between sports social organization and sports administration department, they are the same mechanism with different names, such as China Basketball Association etc. It is difficult to regulate.

Conclusions: Compared to USA, we can get some enlightenment as follows: (1) Attach importance to regulation, not only to registration. Registration for sports social organizations is relatively sound in China, we need to shift the focus on regulation; (2) Implement categorized regulation, to regulate different types of sports social organizations separately, such as sports foundations, people-run non-enterprise units of sports and sports social groups, regulation on them should follow different standards; (3) Establish specialized third-party organizations. Third-party organization is non-governmental, it helps to overcome the difficulty in failures from government regulation; (4) Strengthen mutual regulation between different sports social organizations. Try to create more opportunities for them to communicate.
together, so that they can own a same stage for knowing, understanding and regulating each other better."
ORAL PRESENTATION

Contrasting global reality of the Paralympics with Brazilian athletes with disability

The athlete’s career

"Eliane Mauerberg-deCastro, Carolina Paioli Tavares, Debra Frances Campbell"
"São Paulo State University, State University of Ponta Grossa, São Paulo State University"
"BR, BR, BR"

“Background: Since 1940, people with disabilities have been using sport as a therapeutic tool. Simply surviving the challenges of everyday life has helped to prepare athletes with disabilities to face the sometimes daunting challenges in the world of sports. Such challenges include restricted access to high-tech sports, limited media coverage and lack of sponsorships, ethical issues and doping, sports injuries, and retirement. Another challenge is lack of access to many of the elite sports practiced by their peers without disabilities.

Case presentation: The purpose of this study was to briefly illustrate some of these challenges and the realities of national and international Paralympic sports.

Discussion: The disabled elite athlete paradigm is still unknown in the world of competition. Disabled elite athletes with successful results are still restricted to a few countries, including the U.S., Canada, Germany, China, and Australia, who have gained between 9% and 29% of all medals for all events. Brazil won 2.8% of the Paralympic sports medals in its best campaign in London, against China’s 15.2%, the country with the highest number of medals. In short, the distribution of disability sport continues to show elitism. This reflects global problems of social vulnerability in accessibility (e.g., in dismantling of the stigma of disability), political vulnerability (e.g., priorities outside of the claim of “sport for all” by the representative organizations of sports for the disabled), and economic vulnerability (e.g., lack of opportunities for training and adapted sports technology, and sponsorships). The elite Brazilian Paralympic athletes that have achieved success are veterans. Of the 181 athletes who went to London, 22% were athletes who had participated in the previous game, and 7% had participated in more than two games. In the 1984 Paralympics, although with fewer athletes, Brazilian participation marked the beginning of a new generation of athletes that continue to return to the games (16%). In 2008 and 2012, a total of 28% were veterans. Although this picture reveals longevity of athletes in the sport—which is unusual when compared to non-disabled athletes—there are many limitations in sports opportunities, largely because of geographical centralization of opportunities in large urban centers. Yet, today, the world of the Paralympic sport has transformed the concept to spectacular sports, thanks to access by some exceptional athletes, and thanks to the technology of mass communication, and (partially) to the
support of society. These sport stars offer the “ordinary world” their unique visibility and new concepts of ability. While the podium has helped to highlight these heroes, future Brazilian athletes are still waiting for their opportunity. Young blind individuals, those in wheelchairs, amputees, or simply the uncoordinated, are spread across Brazilian cities and expect, above all, to play, run, swim, and take part in the model of “sport for all.” Sports opportunities are expected by all to be a part of daily life practice, an option for rehabilitation, for the preservation of health, and as a right."
ORAL PRESENTATION

Cortisol and Melatonin Salivary Concentration of Basketball Players in a Competition.

Sport nutrition


"Universidade Federal de São Paulo, Universidade Federal de São Paulo, Universidade Federal de São Paulo, Universidade Federal de São Paulo, Universidade Federal de São Paulo, Universidade Federal de São Paulo"

"BR, BR, BR, BR, BR, BR"

“Background: Both melatonin and cortisol are hormones with a circadian rhythm secretion associated with sleep regulation, while cortisol has been associated with stress response, factors which play an important role in athletes’ preparation for a competition.

Methods: Aiming to characterize athletes’ melatonin and cortisol concentration pre competition and to evaluate if there was correlation between them, in this cross-sectional study, nine basketball male athletes were assessed. Saliva samples were collected with salivettes® on the night before a competition basketball game (before dinner-BD, and before sleep-BS) and in the subsequent morning, before the game (immediately after awakening-AA, and after 30 minutes, before breakfast-BB). Cortisol was analyzed in the four moments, while melatonin was analyzed at BD, BS, and AA. Analysis was conducted using the ELISA method (Salimetrics®, USA and IBL® International GMBH, Germany, respectively for cortisol and melatonin). Data are presented as mean±standard deviation. The Friedman test, followed by Dunn's post hoc for multiple comparisons were applied to compare values between moments, and the Spearman correlation to identify association between cortisol and melatonin. Differences were considered significant when p≤0.05.

Results: Athletes characteristics were: 18.4±0.7 years old; 90.7±10.9 kg; 1.93±0.1 m; 24.4±1.5 kg/m2 of Body Mass Index; and 10.4±3.2% of body fat percentage. Salivary cortisol concentration was 2.4±1.7 nmol/L BD; 0.6±0.5 nmol/L BS; 8.5±4.1 nmol/L AA, and 11.5±4.2 nmol/L BB. Statistical differences were observed between BD and BB (p<0.05), and BS was different from AA and BB (p<0.01). The salivary cortisol concentrations observed are normal with low concentration at night and high concentration at morning. In relation to salivary melatonin concentration, the results were 0.1±0.1 pg/mL BD; 0.2±0.2 pg/ml BS; and 3.0±2.3 pg/mL AA. Significant differences were observed between BD and AA (p<0.01), and BS and AA (p<0.01). Melatonin results at the three collected moments were lower than the published values for health adults. Exposure to ambient light at the sleeping quarters
could not be controlled and may have affected melatonin values. There were no correlations between salivary cortisol and melatonin in the evaluated moments.

**Conclusions:** Salivary cortisol pattern was similar to the recommended values for health adults or what was observed in other athletes, while salivary melatonin profile was lower than published values. More studies are necessary to know and compare the evaluated parameters in athletes.

**FINANCIAL SUPPORT:** FAPESP (2014/14276-0) and CAPES."
ORAL PRESENTATION

Courage as a virtue for life in the narratives by Brazilian Olympic athletes

Sport ethics and integrity

"Carlos Rey Perez, Katia Rubio"

"University of São Paulo, University of São Paulo"

"BR, BR"

“Background: People’s character is formed by virtue among which can be found courage. The importance of virtues is probably in the fact that they provide evaluative reading in themselves and the others, and they compose a reference framework of which each human being is understood. In sports, the athlete represents courage, because of his willingness to face the challenges of preparing to manifest publicly at the time of competition. Courage is regarded as one of the Olympic values, along with friendship, excellence, respect, determination, inspiration and equality. The objective of this paper is to discuss the concept of the virtue of courage as presented in the biographical narratives of Brazilian Olympic athletes.

Methods: 10 Brazilian Olympic athletes who participated in the Olympic Games of Moscow (1980), Seoul (1988), Barcelona (1992), Atlanta (1996) and Beijing (2008), whose narratives spontaneously expressed this virtue.

Results: These overcame the challenges of competition, social and family obstacles and as well, honored the confidence that has been deposited in them. Those were the elements identified with concept of courage.

Conclusions: The virtue of courage found in the narratives of athletes favors the understanding of the human being inserted in their social context and form reference framework organized according to moral and ethical values, and in each person for him to be virtuous, it is not just doing well, but what is good."
Depressed Antioxidant Actions in Skeletal Muscles of Nrf2 Knockout Mice Induced by 4-week Aerobic Exercise

Physical activity and health

"Ying Zhang, SY He"

"Beijing Sport University, Beijing Sport University"

"CN, CN"

"Background: There Are Strong Evidences to Suggest that Nuclear Factor-Erythroid2 p45-Related Factor 2 (Nrf2) Is a Master Transcriptional Factor that Modulates a Series of Cellular Antioxidant Enzymes, such as Superoxide Dismutase (SOD), NAD(P)H-Quinoneoxidase-1 (NQO1), Hemoxygenase-1(Ho-1), Etc. It Has Been Demonstrated that Aerobic Exercise Could Reduce Oxidative Stress in Skeletal Muscle, but There Are Few Studies about the Role of Nrf2 Involved. In This Study, We Investigated Effects of Nrf2 in Mouse Skeletal Muscles on the Adaptation of Oxidative Stress Evoked by Aerobic Exercise.

Methods: Two Months Old Wild-Type Mice (C67BL/6J) and Nrf2 Knockout Mice Were Divided into Control and Exercise Groups Separately (n=8-10/Group). The Exercise Groups Were Trained on a Treadmill for 6 Days Per Week (60 min/Day, Running at a Speed of 12m/min) for Four Weeks. Measurements of Nrf2 mRNA Expression, Nrf2-Mediated Antioxidant Proteins (SOD, NQO-1, HO-1, γ-Gutamy l Cysteine Ligase-Catalytic (GCLC), Glutathione Peroxydase(GPX), Glutathione Reductase (GR), and Catalase (CAT)) Expressions, Reactive Oxygen Species (ROS), Glutathione Redox Ratio (GSH/GSSG) and Maximal Oxygen Uptake(VO2max) levels, Were Carried out after Four Weeks of Interventions.

Results: There Were No Significant Changes in ROS, GSH/GSSG and Most of the Antioxidative Proteins in Skeletal Muscles and Their VO2max in Both Nrf2 Knockout and Wild-Type Mice at the Baseline. After Four Weeks of Aerobic Exercise Training, Nrf2 Knockout Mice Presented Significant Lower ROS, GSH/GSSG, the Expressions of Antioxidative Proteins(CAT, NQO1-1, GCLC, HO-1, SOD2) and VO2max than Those of the Wild-Type Mice.

Conclusions: It Was Suggested that Aerobic Exercise Training Could Reduce Oxidative Stress via the Nrf2-Mediated Antioxidant Actions in Mouse Skeletal Muscle."
**ORAL PRESENTATION**

**Determinants of Participation in Physical Activity among School Going Adolescents with Disabilities in Kakamega County, Kenya**

Physical activity and health

"Edinah Sabiri Mogaka, Peter Wisiuba Bukhala (PhD)"

"Masinde Muliro University of Science and Technology, Masinde Muliro University of Science and Technology"

"KE, KE"

**Background:** Physical activity (PA) is widely accepted as being beneficial to the health of a person and has been used to boost cardiovascular functioning, rehabilitation from an injury or a disability and management of chronic diseases. The benefits can be enjoyed by persons across all ages, with or without disability. Among children and young people more so those with disability, PA participation is thought to be related to the optimal development and functioning of many physical, physiological, social and psychological processes. It is also widely believed that regular physical activity participation in childhood and adolescence may facilitate participation in an active lifestyle in adulthood, and that physical activity in childhood and adolescence may help to reduce the risk of chronic diseases in adulthood. Review of literature reveals that even with the documented benefit of PA, there is a decline of PA as children progress from childhood to adolescent with more decline for adolescents with disabilities. Effective intervention strategies aimed at increasing participation in PA depends on a good understanding of factors that influence participation. The study therefore aimed at investigating PA participation and its determinants among school going adolescents with disabilities.

**Methods:** The study used descriptive survey research design to seek information on the current PA participation status and determinants of participation for adolescents with disabilities. Through stratified random sampling, 200 learners (130 boys and 70 girls) were selected from special and integrated primary and secondary school in Kakamega County, Kenya. Their ages ranged from 14 and 24 years (M=18; SD 11.1). For Validity 50 games teachers were surveyed and data collected through semi-structured questionnaire for students and teachers to determine individual and environmental (social and physical) factors that influence participation. Multiple Regression was used to analyze the determinants.

**Results:** The results showed that 64% of the adolescents with disabilities did not meet the WHO recommendation of ‘at least 60 minutes of moderate to vigorous-intensity physical activity daily’; girls reported lower levels than boys. Adolescents with hearing impairment were the most active with 43%,
physically handicapped 35.2% and visually impaired 21%. Most adolescents engaged in PA during games time (officially scheduled in the curriculum). From the study, barriers to participation in PA as perceived by the adolescents included uneven playground, inadequate and inappropriate equipment, cultural beliefs, little support from family/teachers and fear to get hurt. The teachers cited lack of proper training in adapting activities for the learners as an additional barrier. Factors that facilitated participation were; self-confidence, availability of time, making new friends and having fun.

**Conclusions:** To achieve higher participation, the findings highlighted that there is need to improve school environment by adapting facilities, train teachers and care givers on how to adapt programs and provide for more structured, disability specific competitive sports.
Differences Between Able-bodied Sports and Para-sports: An Organisational Perspective

Governance and policy

"Jacqueline Martins Patatas, Veerle De Bosscher, David Legg"

"Vrije Universiteit Brussel (VUB), Brussels/Belgium, Vrije Universiteit Brussel (VUB), Brussels/Belgium, Mount Royal University, Calgary/Canada"

"BE, BE, CA"

“Background: The Paralympic Games is currently the second largest multi-sport event in the world, where athletes with disabilities demonstrate their athletic abilities and performances as elite competitors (Legg & Steadward, 2011). The organization of para-sport, however, is not as well understood as the able bodied system, meanwhile faces important challenges, such as the lack of disability-specific knowledge, limited coaching expertise and coach education pathway, higher cost of equipment, the integration within mainstream sports, and the level of awareness and recognition in society (Radke & Doll-Tepper, 2011). The purpose of this study is to identify from an organisational perspective, how able-bodied elite sports differ from para-sports in regard to developing their athletic careers. The long term goal is then to develop a benchmark for further exploration.

Methods: The SPLISS model (Sport Policy Factors Leading to International Sporting Success (De Bosscher et al., 2006), was used as a theoretical framework to better understand how the Para sport system may differ from the able bodied system. Data were collected from 12 semi-structured in-depth interviews with international Paralympics experts and a literature review. The interviews were composed of 12 questions that addressed the 9 SPLISS pillars.

Results: Through content analysis of the literature review and interviews, 8 topics were identified as the main differences between para-sports and able-bodied sports:

1. Medical/Physiological/Injuries: Due to the different kinds of impairments (congenital or acquired), medical and physiological aspects can differ, as well as the amount and type of injuries.
2. Training Methods: These can be different due to the kind of disability and medical complications of the disability.
3. Athletes Pathways: Paralympic athlete pathways can differ concerning its development and length.
4. Late entry: Paralympic athletes usually have late access to sport, compared to able bodied athletes, due to acquired disability or awareness of opportunity.
5. Coaching: Para-coaches may need extra knowledge to coach athletes with disabilities regarding all different impairments and the implications to training.
6. Classification: Classification may be the main difference between Olympic and Paralympic sports.

7. Number of athletes: In Paralympic sports there are typically few athletes in each category of disability (sports classification) and also few athletes at every level of the pathway.

8. Structure and governance: Able bodied sports are organized by able-bodied international federations; in contrast, Paralympic sports are organized as a mixture of federations depending on sport, federation disability or in some cases as a part of the able-bodied sport federation.

**Conclusions:** The results of the data collected suggest that the above eight elements illustrate the complexity of para-sports organization and development. This will serve as a framework for further examination leading to a stronger understanding of the Para sport system. From this, better strategies and structures can be developed."
ORAL PRESENTATION

Do Functional Factors and Peak of Torque Explain the Glenohumeral Internal Rotation Deficit in Competitive Water Polo Athletes of High School?

Rehabilitation

"Amanda Gomes de Assis Couto, PT, MSc, Anamaria Siriani de Oliveira, PT, PhD"

"Ribeirão Preto Medical School, University of São Paulo, Ribeirão Preto Medical School, University of São Paulo"

"BR, BR"

“Background: Glenohumeral internal rotation deficit (GIRD) is the most frequent biomechanical change in overhead athletes. Several studies have been associated GIRD with the clinical assessment of shoulder in baseball athletes. However, there are no studies, which explain if GIRD is related to the range of motion (ROM), strength evaluation and functional testing in competitive water polo athletes of high school. Therefore, the purpose of this research is to study the factors associated with glenohumeral internal rotation deficit and its correlation with functional assessment of shoulder in competitive water polo athletes of high school.

Methods: Thirty-five high school water polo players of both sexes with an average age of 15 (± 1.6) years old have participated in the study. All participants and their guardians have read and signed a statement of consent and assent (for athletes under 18 years old) before proceeding the study. The Review Board of the University has approved the study protocol. All evaluations have been performed before the athletes’ training sessions and at least 12 hours after the last training session. The assessment of the glenohumeral internal rotation deficit has been accomplished through the ROM measure of glenohumeral rotations with a goniometer. The functional assessment has been consisted of pectoralis minor length index measurement, torque assessment of internal rotators with isokinetic dynamometer, Close Kinetic Chain Upper Extremity Stability (CKCUES) functional testing, and the Shoulder Pain and Disability Index (SPADI - Br) and Athletic Shoulder Outcome Rating Scale (ASORS) questionnaires. The assessment sequence has been drawn at random among the goniometric measurements, CKCUES, pectoralis minor length index measurement and the assessment of self-reported shoulder function. The assessment in isokinetic dynamometer has been scheduled in a different day from the first assessment day, so that the accumulated fatigue due to the set of torque tests could not interfere in the functional assessment. In statistical analysis of data, multiple linear regression has been used to identify factors associated with the glenohumeral internal rotation deficit.
Bilateral Pearson correlation analysis has been used to verify the relationship between the results of internal rotation measures and functional assessment of shoulder.

**Results:** Significant association between internal rotation ROM of dominant member and the total arc of glenohumeral rotational motion has been found in multiple linear regression analysis ($R^2 = 0.77$; $p = 0.001$). The pectoralis minor length index and the peak of torque of internal rotators have not been associated significantly with internal rotation ROM. The functional assessment has not significantly correlated with internal rotation ROM.

**Conclusions:** The only factor that has associated with internal rotation ROM was the total rotation motion of glenohumeral. Internal rotation ROM has not correlated with the functional assessment of shoulder in competitive water polo players of high school."
ORAL PRESENTATION

Does The Duration of the Warm-Up Modifies the Time Limit (tlim) at the Peak Treadmill Speed (Vpeak)?

Sport development

"Victor Hugo Miranda da Cruz, Cecília Segabinazi Peserico, Fabiana Andrade Machado"
"State University of Maringá, State University of Maringa, State University of Maringá"
"BR, BR, BR"

“Background: The Vpeak and its tlim are variables used to prescribe training loads and the intervals durations during interval training, respectively. The aim of this study was to compare three running protocols to determine the tlim at Vpeak with warm-ups of 5, (tlim5), 10 (tlim10) and 15 (tlim15) minutes and the responses of physiological variables (heart rate (HR) and blood lactate) and rating of perceived exertion (RPE) during the tests.

Methods: Fifteen healthy and physically active male were submitted to the following laboratory evaluations: A) anthropometric measurements; B) an incremental exercise test on treadmill running starting with a speed of 8 km·h⁻¹, after a warm-up of walking at 6 km·h⁻¹ for three minutes, and increased by 1 km·h⁻¹ between each successive 3-minute stage until volitional exhaustion to determine Vpeak; at the end of each stage the HR and RPE were registered and earlobe capillary blood samples were collected to determine lactate concentrations pre-test and at the third and fifth minutes post-test; C) three rectangular tests, performed in randomized order, with warm-up durations of 5, 10 and 15 minutes at 60% of Vpeak to determine the tlim5, tlim10 and tlim15; after the warm-up the tests were performed at the speed of the individual Vpeak until volitional exhaustion. At the end of the warm-up and at each minute during the tests the HR and RPE were registered and blood samples were collected pre-test, at the end of the test, 3, 5 and 7 minutes after the tests.

Results: Characteristics of the participants (mean ± SD) were: age 22.7 ± 3.0 years, height 1.8 ± 0.1 m, body mass 80.5 ± 9.5 kg, body mass index 24.9 ± 2.7 kg·m⁻² and body fat 15.7 ± 5.7%. The variables obtained during the maximal incremental test to determine the Vpeak (mean ± SD) were: Vpeak=13.01 ± 1.1 km·h⁻¹, test duration=18.3 ± 3.4 min, maximal HR (HRmax)=192 ± 7.1 bpm, peak RPE (RPEpeak)=19 ± 0.8 and peak lactate (LAPeak)=8.8 ± 3.3 mmol·L⁻¹. It was demonstrated that the duration of the warm-up affected the time test duration (tlim), in which the durations were: 7.7 ± 2.0 min for tlim5, 7.5 ± 1.7 min for tlim10 and 5.9 ± 1.7 min for tlim15; it was found differences between tlim5 and tlim15 and between tlim10 and tlim15; however, the tlim15 and tlim10 did not differ. Additionally, the duration of the warm-up did not influence other variables (HRmax, RPEmax and post lactate...
concentrations). The HR values were significantly different after the warm-up between tlim15 and tlim5 and between tlim10 and tlim5 (P=0.001), which did not occur between tlim15 and tlim10. The RPE values after the warm-up were different between tlim15 and tlim10 and between tlim15 and tlim5.

**Conclusions:** Therefore, it was concluded that the duration of the warm-up in the tlim tests modifies the test duration, in which these differences imply considerations for the use of this variable for training prescription.
Dual Career Sports vs School: What the Autobiographies Shows Us

The athlete’s career

"André Luiz da Costa e Silva, Antonio Jorge Gonçalves Soares"

"National Institute of Deaf Education, Federal University of Rio de Janeiro"

"BR, BR"

Background: This work seeks to understand how young students/athletes reconcile or reconcile school career and the career of the sport. We chose to do it from the autobiographies and biographies authorized of high-level athletes, seeking to understand also how the family contributed and influenced the development of this double process. We analyze the authorized autobiography of tennis Andre Agassi, Rafael Nadal, Gustavo Kuerten and football player Socrates. To guide this work we use the study of Gilberto Velho on individual project and the texts of Norbert Elias about the biography of Mozart.

Methods: We chose the Content Analysis as methodological procedure. We organize the work in three moments: first a pre-analysis of the material. In the second phase, which is to exploit the material, we use qualitative analysis software webQDA data. In conclusion, we made inferences and interpretations also inherent to the method chosen, to fulfill its last phase.

Results: The father of Andre Agassi, an ex-olympic athlete, built a tennis court in back of his house and introduced the son in the sport. Gustavo Kuerten, inspired by the older brother, sought the tennis lessons at the age of 6 years with the encouragement of parents also competed officially. Rafael Nadal started in tennis at the age of 4 years being trained by his uncle, former tennis professional, who is his coach to this day. Another uncle of Rafael was player of Barcelona and Spain national football team. The father of Socrates was amateur soccer athlete, but has not encouraged his son in sports career. Agassi’s father found the school a waste of time, with 14 years Agassi began studying by correspondence to complete elementary school. His mother conducts school activities for the child who completes the course. At the age of 16 years Rafael was enrolled in a distance course, he left soon after. Gustavo Kuerten completed high school without delay and stopped studying. In 1972, as a student at the University of Medicine of USP, Socrates plays his first game as a professional football player.

Conclusions: The parents have success in what they plan as a project of life for the children. The three tennis players have reached number 1 of the ATP ranking. Socrates father has planned for his son the medical career, what of truth never happened. Despite graduating at USP’s school of Medicine,
he developed his professional career in football. The develop career of Socrates shows us that we must consider, noting Elias (1994), that the aspirations of individuals will changing from their life experiences, which fatally modifies projects established at the beginning of life. When you look at the conclusions of this work we can realize that the consequences of this conciliation or the lack of it, do not obey a pattern, which highlights the lack of a regulation that delimit the actions of reconciliation between the two careers."
Early Developmental Environment and Olympic Success: Analysis of an Australian Sporting “Hotspot”

Kristy O'Neill, Wayne Cotton, Donna O’Connor

The University of Sydney, The University of Sydney, The University of Sydney

AU, AU, AU

Background: This study aimed to identify an Australian sporting “hotspot” and gain understanding of factors associated with its production of a greater number of summer Olympic representatives 1984-2012 relative to population size. This period encompasses Australia’s presence at all summer Olympic Games following the 1981 inception of the nation’s first sporting institute. The “birthplace effect” has previously been observed across several countries and sports with correlations noted between community size and athlete development outcomes. This study sought to observe if similar trends exist in Australia amongst a cohort of 1984-2012 summer Olympians.

Methods: The study adopted a mixed-methods approach, with the first stage identifying the “hotspot” using publicly available, biographical data on all known (n=2160) Australian summer Olympians 1984-2012. Data on athletes' hometown, schooling and junior sports clubs were predominantly sourced from official handbooks and web pages for the 1984-2012 Australian summer Olympic teams. Demographic data of the identified “hotspot” was then compared to national averages in order to situate it within an Australian context. A case study approach was used to examine the “hotspot” within the context of Bronfenbrenner’s ‘Ecological Systems Theory’ and ‘Bioecological Model’. Overall, 42 participants from the “hotspot” sporting community were interviewed regarding their views on its occurrence and the perceived influence the broader “hotspot” environment may have had on the Olympians athletic development. This included Olympians (n=11) alongside prospective elite athletes and their parents, high performance coaches, community club committee members and local mayors.

Results: Several demographic, geographic, historical, individual, social and fortuitous factors contributed to the creation of this “hotspot”. Access to built and natural facilities, climate, family influence, schools, strong community clubs, training and competing with older athletes, access to role models, high socioeconomic status and an endemic sports culture were amongst key contributing factors to the development of this “hotspot”. For example, family influence was key for several Olympians who highlighted they came from strict, supportive families with strong values and work ethic. Global high expectations were present and a sense of responsibility encouraged from a young age.
Partially attributable to the high socioeconomic status of the “hotspot”, it was believed Olympians were exposed to high achievers in various fields both within and outside of the family which formed a local culture and expectation of success.

**Conclusions:** Ultimately, a confluence of planned and fortuitous causes unintentionally created a “hotspot” of Australian summer Olympians. Although some factors appear unique to the Perth, Western Australia “hotspot”, others are potentially transferable to other athlete development environments. Factors proximal to Olympians including family, individual psychological characteristics and junior sports environment were perceived by Olympians to have the most decisive influence on their athletic development.”
ORAL PRESENTATION

Effect of Different Power Loads on Athletes With Different Types of Blood Circulation Central Hemodynamic Index

Sport pedagogy
"Zinaida Kuznetsova, PhD, Professor, Chulpan Gizatullina, PhD, Associate Professor, Ilisar Mutaeva, Phd, Professor"

"Povozhskaya State Academy of Physical Culture, Sports and Tourism (College), Povozhskaya State Academy of Physical Culture, Sports and Tourism (College), Povozhskaya State Academy of Physical Culture, Sports and Tourism (College)"

"RU, RU, RU"

“Background: Relevance. Increased heart rate indicates that the heart is working actively and therefore more intensively pumping blood. But too heavy loads can adversely affect the cardiovascular system and the functioning of the organism as a whole. The aim of this work was the study of central hemodynamics at various power loads.

Methods and organization studies. Experimental work was carried out in the period from 2010 to 2012 on the basis of the college. The study involved athletes, training in sprint, 40 (17-22 years).

Results of the study. Heart rate varies proportionally to the muscle work, while achieving moderate physical exercise capacity from 90 to 120 beats/min. Indicators of athletes with normokinetic type blood circulation (control and experimental group) increased from baseline to 51.25 and 48.75 beats/min, respectively. Indicators of athletes with hyperkinetic and hypokinetic blood circulation (control and experimental group) increased from baseline to 48.72 and 45.67 beats/min respectively. Heart rate response of EG athletes to moderate loads is less than of CG and the changes after the experimental procedure are fairly significant (0.05). Hyperkinetic type athletes heart rate in the CG and EG was 121, 00 ± 4, 26 and 112, 06 ± 4, 57 beats/min. In the EG the principle of “minimum ensure of the function integrity” is carried out. When using maximum power load the heart rate in all groups of athletes increased to a reliable value in comparison with moderate load capacity. The greatest heart rate indicators occurred in the hyperkinetic and normokinetic type of CG athletes (49.06 and 50.7 beats/min). When using maximum power load hyperkinetic type athletes (CG and EG) showed a significant increase of heart rate indicators (170, 06 ± 5, 22 and 158, 00 ± 6, 88 beats/min.). The greatest HR indicators increase was also observed in the group normokinetic and hypokinetic type of EG athletes (46 and 53.00 beats/min).
Thus, from the initial level to maximum load capacity athletes heart rate is gradually increasing. The EG athletes reaction to varying load capacity improved significantly after the experimental technique using. A favorable reaction to the load in the EG of hyperkinetic type athletes is created. When using moderate load capacity together with an increase in heart rate stroke volume increase is observed in all groups of athletes at the start and the end of the experiment. In all groups of athletes (CG and EG) two types of stroke volume blood change meets. Increasing the power of load is not accompanied by growth of stroke volume.

In the CG group of hyperkinetic type athletes reduction of stroke volume is observed when heart rate indicators are increased. There is further increase of stroke volume and consequently an increase of the minute volume of blood. After the load there was a minute volume of blood increase especially in normokinetic type athletes. Two mechanisms of moderate power loads affect on the minute volume of blood: increasing stroke blood volume and quickening the heart rate.

ORAL PRESENTATION

Effect of exercise intervention on Learning and memory of Alzheimer’s disease mice

Physical activity and health
"rihui zhang , cheng guo"
"Shenyang sport university, Sports Science Institute of Hebei Province"
"CN, CN"

"Background: Alzheimer’s diseases (AD) etiology and pathogenesis is not very clear. The AD will become the 21st century one of the most serious disease threat to human health. Discuss how to prevent the happening of the symptoms of AD has important social significance. The paper is to research the impact of aerobic exercise on learning and memory ability of AD mice.

Methods: This paper adopts literature review method, analyzed the AD to earlier research and designed exercise intervention study on AD model mice. Chose 20 healthy male Kunming mice for the Experiment (weight 18-22g), obtained the Alzheimer's disease model by D-galactose subcutaneous injection, and chose 10 mice in the running the stage for aerobic exercise (ie, AD exercise group) and the other 10 mice did not exercise (ie, AD quiet group). After 40 days the treadmill aerobic exercise for the AD exercise group mice, there will be a step-down test for both the AD quiet group mice and the AD exercise group mice in order to study learning and memorizing behavior.

Results: Several hypothesis of Alzheimer disease (AD) mechanisms, such as A beta cascade theory (theory of amyloid protein), tau phosphorylation doctrine (microtubule protein tau gene mutation theory), gene mutation theory, acetylcholine neurons damage theory, theory of cytokines, nitric oxide theory, etc. In the learning behavior tests, AD quiet group reaction time significantly increased than the mice AD exercise group (P <0.05); while the AD quiet group showed a trend of decreasing in error frequency than AD exercise group. In the memory retention test, the incubation of AD quiet mice were significantly shorter than the AD exercise group (P <0.05); and the number of errors of the very group is more than the AD exercise group, significant difference (P <0.01). This experiment provides the experimental data for exploring the role of aerobic exercise on the regulation in the development process of Alzheimer’s disease.

Conclusions: The results suggest that the early exercise intervention has positive effect to improve AD. The aerobic exercise can improve test scores in learning and memory behavior of AD exercise model mice."
Effect of physical exercise on stress relaxation and attention of College Students

Sport psychology

Li You

Jiangxi Normal University

CN

“Background: Since 1930s, The human society has been facing the more and more serious environmental problems. College students psychological pressure is in the rapid development of the peak. Long-term psychological stress brought on by bullying could make them vulnerable to sickness. People should pay more and more attention to the research on the psychological pressure. Then how to reduce or control the psychological pressure on students to maintain their physical and mental health of college students life education has became one of the most sensitive issue. While the school physical exercise is an important part of students' life, it plays an important role in promoting the students' Psychological Health.

Methods: The research object will be divided into ten male college students sports group and non sports group, research methods as literature data method and experimental method, experiment of effect index is to relax the EEG biological feedback index (alpha brain waves), attention (SMR EEG) as effect indicators. Using bio feedback instrument to detect the sports group and non physical brain wave amplitude change, embodied as relaxation (alpha brain waves), attention (SMR EEG). The specific method is: college students use the instrument in a quiet state, into the biofeedback therapy system pressure management interface, through the pressure management to adapt to the stress management section, treatment section, stress management the relaxing section the three sections to test subjects. Each test time is 20 minutes.

Results: Biofeedback test data analysis of the major college sports group and the non sporting group left (a) and right (b). This is because the study is a test of physical exercise on stress relaxation and concentration and (b) the right brain is mainly responsible for thinking in images, the representation is based on imaginative thinking; and the left side of the brain (a) is mainly responsible for the logic, computational thinking.

Conclusions: Mainly reflects the alpha wave of relax. By comparing the numerical amplitude in the two groups, indicating relaxation of alpha wave contrast showed significant difference. In our test (m group sports) is less than F group (non sporting group). The reason may be due to the different students learning and living environment, caused by the pressure is not a. Said the attention of SMR wave...
numerical performance is generally are relatively large, the result is group sports (m) is less than F group (non sporting group)."
ORAL PRESENTATION

Effect of Self-Selected Pace vs Race-Model Pace on Performance and Energy Expenditure in 1500m Running

Elite performance

GAO Weifeng
Wuhan Sports University
CN

“Background: Pacing strategy is closely linked with energy expenditure that can lead to different competition performance in time trial events. However, there is a lack of research into how pacing strategy impacts the runner’s performance and energy expenditure, and whether the pacing strategy the medalists adopt in competitions is the best. This study compared the effects of self-selected pace (SP) and race-model pace (RP) on the performance and energy expenditure in 1500m running.

Methods: 21 well-trained male middle-distance runners (Chinese National Standard) performed an incremental load test, eight bouts constant load tests and two 1500m running tests with SP and RP in synthetic track with Cosmed K4b2 measuring equipment. Maximal oxygen uptake and anaerobic threshold were measured in incremental load test. The relative intensities of constant load tests ranged between 75% and 115% AT, then the velocity-oxygen uptake (VO2) equation was established to calculate accumulated oxygen deficit (AOD). Four men’s 1500m running competitions were selected from recent eight international competitions (2 Olympic Games and 6 World Athletic Championships) due to the similarity of the pace adopted by medalists. And RP was designed according to this pace. There were four sectors in RP model, fast start sector (0-100m), plateau sector (100-800m), acceleration sector (800-1300m) and final spurt sector (1300-1500m). Respectively, the normalized velocities of four sectors were 105.98%, 93.44%, 106.33% and 107.55% of the mean velocity. In SP trial, the subjects were instructed to finish in the shortest time possible with self-selected pace. In RP trial, the subjects were asked to finish the 100-1300m with the model pace, but finish the 0-100m and 1300-1500m with the self-selected pace. The aerobic and anaerobic energy expenditure were calculated by measured VO2 and AOD respectively, and the aerobic power, anaerobic power and total power were aerobic, anaerobic and total energy expenditure divided by time.

Results: Compared with the parameters in SP trial, the performance, total power and the aerobic power decreased significantly (P<0.01) in RP trial, but there were no differences in anaerobic power and post test peak blood lactate (P>0.05) between them. Subjects retained 7.84% more anaerobic reserve during plateau sector in RP trial than in SP trial (50.22%±3.96% VS 42.38%±4.45%, P<0.01), but used...
11.03% more anaerobic reserve during acceleration sector (27.60%±2.97% VS 16.57%±7.33%, P<0.01). The time to reach peak VO2 plateau was longer (P<0.05), and the peak VO2 plateau span was shorter (p<0.01) in RP trial than in SP trial. There was no statistical difference in peak VO2 (P>0.05) between two 1500m running tests, but the average VO2 in RP trial was lower than in SP trial (52.15±4.05ml/kg/min VS 53.47±4.69ml/kg/min, P<0.01).

**Conclusions:** The Race-Model pace that athletes adopted for the better race ranking could impair the performance by inhibiting the aerobic energy metabolism rather than the anaerobic energy metabolism."
Effect of Sport Activities on Mental State and Social Support of Middle High School and Primary School Students in Beijing

Sport psychology

Luo Yufeng
China Institute of Sport Science
CN

"Background:

At present, great changes have taken place in China. With rapid economic growth and social development, social contradictions becomes much more common and such bad social mentality as restlessness, violence, coldness, flicker, etc. is becoming more and more obvious, these adverse trends are also reflected in primary and middle school students’ education.

Beijing takes a lead in economic and social development, in scientific and technological development in China. New technology and new methods are common in Beijing’s primary and middle school. Although multimedia technology and network technology, electronic terminal equipment can improve students’ learning effectively, they also reduce face-to-face contacts and interactions and cause adverse effect to student's emotion, so there exists “alienation of technology” problem.

Methods:

In this study, the primary and middle school students' physical activity questionnaire, POMS (Chinese version) and social support rating table (SSRs) are adopted in the investigation on 1782 primary and middle school students from 40 classes of 7 schools in Beijing.

This study is divided into 4 dimensions of survey and multivariate statistical analysis.
1. Information and network technology- high-tech education environment and traditional education environment.
2. Age-high grade primary school age group (10 - 13) and junior (13 - 16).
3. Sport participation- collective sports activities and individual sports activities.
4. School community or interest groups and other social organizations participation- sports societies, art societies, music clubs or non clubs.

Results:

1. TMD (emotional confusion score) of primary and middle school students in high technology equipment environment is higher than that of the traditional teaching environment (P<0.01).
2. There are significant differences among primary and middle school students of different age groups (P<0.01). TMD scores increase by age.

3. Social support levels and TMD score showed no significant differences among team sports and individual sports participation. And there are significant differences in terms of tension, depression and self-esteem (P < 0.01).

4. Social support level of students who participate in the school society is higher than that of ordinary students (P<0.01); there are no significant differences of social support level for participants in sports clubs, art club and music club.

**Conclusions:**

Effect of age on primary and middle school students’ mental state comes both from academic pressure and also teaching environment. Sports activities especially collective sports activities play a very important role in teenager’s socialization and individual self-esteem development. Besides, sports activities can eliminate the adverse effects of technology alienation in network era. Sports activities participation can help to improve students' self-esteem and social support level.
Effectiveness of a Short-term Functional Strength Training Program on Fitness Performance in Girls Aged 15-17 years

Sport and quality of life for adolescence and aging

"Ting Liao, WeiTao Zheng, Gai Li"

"Wuhan Sports University, Wuhan Sports University, Central China Normal University"

"CN, CN, CN"

"Background:

With the prevalence of functional training in competitive sports, it has become a focus to strengthen the function of strength training and serve the physical health youth. Functional strength training of youth, compared with competitive sports whose aim at competition, should emphasis on the maximal development of integrated function of motor system. Based on the characteristics of integrated development of body function of adolescents, we present two developmental key points: the mutual promotion of skill acquisition and strength of skeleton and muscle should be focused on and Comprehensive guide on functional strength training of adolescents should be considered physically and mentally. The purpose of this investigation was to compare the effects of a 8-week training period of functional strength training (FST) with traditional resistant training (TRT) on fitness performance in girls of the high school.

"Methods:

Forty healthy girls (mean age 15.21 ± 1.73, height 162.13 ± 6.22, weight 52.01 ± 9.28) from Guanshan senior high school volunteered to take part in this experiment. The methods and procedures used in this study were approved by the Administration board of Guanshan High School. Experimental students (n=20) performed an group of FST Program (10 elementary functional strength exercises in first 4 weeks and advanced 10 exercises in the following 4 weeks) , while control students (n=20) perform TRT exercise (20 exercises categorized into elementary and advanced applied during different two 4-weeks). The training duration per session for both groups was 45 min. Three times a week. At baseline and after training all girls were tested on the Sit-Ups (SU), Push-Ups (PU), Long Jump (LJ), 15m Shuttle Run (15SR), Sit and Reach (SR).

"Results:

The results of data indicated that applying FST program in girls PF teaching area, instead of applying TRT can significantly increase students’ skill and physical performance (p<0.01). The FST group made
significantly greater improvement than TRT in SU (6.2 vs. 0.9), PU (2.1 vs. 0.2), LJ (0.16 m vs. 0.04 m), 15SR (-0.21 sec vs. -0.01 sec), SR (3.17 cm vs. 0.31 cm) after training periods.

Conclusions:
Incorporate functional strength training into the senior high school’s physical education curriculum is a safe, beneficial fitness means, which was proved to be more effective than traditional resistance training in upper and lower body strength, core strength, agility and flexibility in girls. Interesting style, progressive difficulty level, rich and varied environment is very important in designing functional strength programs. Owing to continuous decline in physical fitness of youth in China and urgent implication needs, further research should be explore long-term and large-scale samples to achieve more confident evident of functional strength training methods."
ORAL PRESENTATION

EFFECTS OF 12 WEEKS URUMI EXERCISE ON CARDIO-VASCULAR ENDURANCE AND BODY COMPOSITION OF YOUNG ADULT WOMEN

Physical activity and health
Kamalakanti Debnath
"HVPM, Amravati"
IN

“Background:
The URUMI - a long sword made of flexible steel, sharp enough to cut into flesh while wielding, also known as ‘chuttuval’ (coild sword)-being practised in Klaripayatta, Kerela, South India. Its blade(s) are typically razor-sharp and bad news for any one standing in the vicinity of the person wielding.

Methods:
The effects of Urumi exercise were investigated on the cardio-vascular fitness and body composition of 46 women aged 20-25 who used to come for practice regularly in Shree H V P Mandal. The experimental group was made up 26 female subjects, and the control group numbered 20 subjects. The experimental programme of the Urumi exercise lasted for a period of 12 weeks, with sixty minute training sessions three times a week. The Urumi exercise part of each workout lasted for 40 min. and involved high, low and moderate impact segments. The cardio-vascular fitness was evaluated by means of the following parameters: resting heart rate, heart rate under strain, systolic arterial blood pressure (mmHg), diastolic arterial blood pressure (mmHg), the absolute value of maximal oxygen uptake (lit/min) and the relative value of maximal O2 uptake (ml/kg/min). Body measurement was evaluated by means of the following measurements: body height (cm), body weight (kg), average thorax volume (cm), girth (cm), back skinfold (mm), abdominal skinfold (mm). The basic descriptive statistics co-efficient were calculated for all the data for initial and final measuring, along with the student t-test and multivariate and univariate covariance analysis (MANCOVA and ANCOVA).

Results:
There is a statistically significant difference in the variables for cardio-vascular fitness and body composition between the initial and final measuring in the experimental groups and between the experimental and control groups at the final measuring.

Conclusions:
This study confirmed significant positive influence of the Urumi exercise trainings on the changes in the cardio-vascular endurance and body composition parameters in young adults women.”
ORAL PRESENTATION

Effects and Mechanisms of Swimming in Postnatal Neuromuscular Junction Development

Neuroscience and sport

NAN AN

CHINA INSTITUTE OF SPORTS MEDICINE
CN

“Background: It is well known that physical training can promote the development of muscle and nerve function in gross motor development period, but the mechanisms of what happened inside the muscle and nerve structures still need to be further revealed. The aim of this study is to evaluate the effects and mechanisms of swimming in postnatal neuromuscular junction (NMJ) development and to provide theoretical evidences for promotion effects of physical training in early stage after birth.

Methods: Neonatal Sprague-Dawley rats were divided into control group (group C) and training group (group T). Rats in group T performed 3 weeks of swimming training (6 days per week, 10mins at the beginning gradually increased to 1h per day) and were fed in the same manner with rats in group C at the rest of the time. At the end of 3-week after birth which is also considered as the end of gross motor development of rats, NMJ endplate area perimeters and square meters in frozen sections of gastrocnemius were observed and measured through α-BTX (α-Bungarotoxin-tetramethylrhodamine) fluorescent staining. Expressions level of γ-, ε- and δ-nAchR (3 main subunits of n-acetylcholine receptors) as well as neuron-derived induced factor Agrin and its receptor Musk, muscle-derived neurotrophic factor NT-3 were measured through fluorogenic quantitative PCR and compared between group T and C. Independent T-test was used to test the significance of difference between groups.

Results: The perimeter and square meter of endplate area in gastrocnemius of group T were significantly larger and complex than that of group C. The expression level of ε-AchR subunit (which is considered as mature type of n-AchR), neuron-derived induced factor Agrin and its receptor Musk were higher in group T than in group C as well. Expression level of other factors showed no significant difference in this experiment.

Conclusions: Swimming can promote the development of NMJ in gastrocnemius both in form and main structural components in early stage after birth which is related to the development of gross motor. The corresponding increased expression level of induced factor Agrin and its receptor Musk in muscle and nerve may act as one of the main mechanisms in this process.”
ORAL PRESENTATION

Effects of ACE I/D Polymorphism and Resistance Training on Endothelial-dependent Functions of Postmenopausal Women

Physical activity and health
"LV Yuan-yuan, XIONG Kai-yu, ZHAO Li"
"Beijing Sport University, Beijing Sport University, Beijing Sport University"
"CN, CN, CN"

“Background: Vascular endothelial function has been impaired by cardiovascular risk factors, and to be related to an increased incidence of arteriosclerosis and the onset of cardiovascular disease. Among multiple cardiovascular risk factors, sedentary lifestyle, lipid abnormalities, and estrogen deficiency have central roles in aging association with endothelial dysfunction. More importantly, endothelial dysfunction can be reversed at the early stage. With angiotensin-converting enzyme (ACE) insertion/deletion (I/D) polymorphism, the deletion variant (DD) is related to higher levels of circulating angiotensin II than I allele carries (II/ID), and the response to various forms of exercise training may be at least partly dependent on the ACE genotype polymorphism (I/D). A healthy lifestyle has a deep impact on cardiovascular risk, and regular physical exercise represents the most effective nonpharmacological intervention for the prevention of cardiovascular disease. We aimed to determine the effect of ACE I/D genotype on the response to resistance training on endothelial functions in Chinese Han postmenopausal women with ACE I/D genotypes.

Methods: Sixty-three (DD=8, II=22, ID=33) sedentary postmenopausal women (mean age, 60± 4y) participated in a 12-week program of resistance training at moderate intensity. Blood total cholesterol (TC), Low density lipoprotein-cholesterol (LDL-C), High density lipoprotein cholesterol (HDL-C), Triglyceride (TG) and Flow-mediated dilation (FMD) were evaluated before and after intervention program. ACE genotype was determined using standard methods.

Results: At baseline, the ACE DD genotype showed significantly higher lipids abnormal rate, mainly in LDL-C and TC level and lower FMD than the ACE II/ID individuals. After resistance training, both subgroups significantly decreased abnormal rates of lipids-plasma levels and FMD (P<0.01 or P<0.05, respectively). Moreover, all the lipids parameters were significantly reduced in the ACE DD participants (P<0.01), whereas the ACE I-allele carriers showed a little decrease.

Conclusions: ACE I/D polymorphism is linked to different blood fat levels and endothelial function, and ACE DD genotype carriers show vulnerable to endothelial-dependent vasodilation due to metabolic
disorders of lipids. The introduction of resistance training positively influences the menopause lipid metabolism and endothelial function changes, independent of ACE I/D genotype."
ORAL PRESENTATION

Effects of Force D-ribose Granules on Athletic Anaerobic Exercise Capacity

Sport medicine and injury prevention

"Jingmin Liu, Chunmei Cao, Junqiang Qiu, Qi Zhang"

"Tsinghua University, Tsinghua University, Beijing Sports University, Tsinghua University"

"CN, CN, CN, CN"

Background:
The purpose of this study was to determine the effects of Force D-ribose Granules (FDG), which contained D-ribose, and natural aldopentose, on athletic anaerobic exercise capacity.

Methods:
Twenty-eight Chinese elite track and field athletes were randomly assigned into two groups: treatment group and control group, and all of participants went through 4-week identical regular athletic training. During the period of training, the treatment group took a daily supplement of 12g of FDG, while the control group took a placebo every day. Before and after 4-week training, all participants were assessed for anaerobic performance in the 30-s cycle ergometer test (Wingate Test) and in the 300m Shuttle Run Test; blood sample was collected by fingerstick for blood lactic acid analysis and heart rate of participants was monitored after the tests.

Results:
(1) The results of 30-s cycle ergometer test indicate that, by the method of self-control before and after 4-week training, the peak power of the men in the treatment group was improved after 4 weeks, and that the fatigue index of the women in the treatment group decreased compared with that 4 weeks before; In comparison with control group, the treatment group had higher lactic acid clearance rate after the 30-s cycle ergometer test; (2) The results of 300m Shuttle Run Test reveals that the men of the treatment group have higher tolerance index, and the women of the treatment group had higher lactic acid clearance rate after 4 weeks.

Conclusions:
(1) The supplement of FDG can enhance athletic anaerobic exercise capacity, and it shows that peak power of the men in the 30-s all-out exercise can be improved, and that the fatigue index of the women declined, which indicates that taking FDG can help women delay fatigue and gain endurance; (2) The supplement of FDG can promote the capacity of lactic acid resistance of the men in the high-intensity interval exercise, and hence improve their tolerance of speed; (3) The supplement of FDG can facilitate lactate metabolism of athletics, accelerate lactic acid clearance and reduce blood lactic acid.
accumulation after exercise; (4) The supplement of FDG can also contribute to recovery of heart rate of athletics, especially promoting the recovery of heart rate of the men after the 30-s cycle ergometer test and 300m Shuttle Run Test."
"Background: Early accelerated motion programs that include continuous passive knee motion or guarded motion immediately after anterior cruciate ligament (ACL) reconstruction are advocated because athletes have a strong desire to quickly return to a pre-injury level of function. However, studies found that accelerated motions after ACL reconstruction with hamstring grafts may result in greater graft-tunnel micromotion, which could increase the bone resorption and inhibit early osteointegration of grafted tendon. As known, the osteointegration of grafted tendon is critical to the ultimate success of ACL reconstruction with hamstring tendons.

Injectable calcium phosphate cement (CPC) has been demonstrated that could aid in the bond of grafted tendon and bone tunnel, and in the osteointegration of grafted tendon. For improving the slow degradation of CPC, we constructed a new porous CPC composite with bone growth factor (CPCXB), which could more effectively enhance osteointegration of grafted tendon than CPC alone. However, little is known about whether CPC or CPCXB could consistently promote the osteointegration of grafted tendon during an accelerated motion after ACL reconstruction. Thus, we designed this study to test that, and we supposed that the application of CPCXB would result in more new bone formation than the application of CPC in the grafted tendon osteointegration process.

Methods: ACL reconstruction was performed bilaterally in 42 rabbits. CPC or CPCXB composite was separately injected into knees. On the basis of clinical rehabilitation programs, an accelerated protocol, including 4-week continuous passive exercise (CPM) and 4-week treadmill exercise, was performed on the 1st day after surgery. After 8-week exercise, the rabbits were sacrificed for micro-CT testing, histological analysis, and mechanical testing.

Results: The micro-CT examination showed that both new bone volume and new bone microarchitecture in the CPC or CPCXB group was superior to that of the control group within CPM plus treadmill motion. What’s more, the micro-CT results in the CPCBX group were significantly better than those in the CPC group. Histological observations also showed there were more new cartilage
and new bone in the interface in the CPCXB group. Biomechanically, the ultimate load to failure of CPC and CPCXB group was higher than that of the control group.

**Conclusions:** Both CPC and CPCXB composite may persistently enhance the osteointegration of grafted tendon with accelerated motion. But the CPCXB achieves a better effect. This study provided more experimental insights for the application of injected CPCXB in ACL reconstruction.”
ORAL PRESENTATION

Effects of Inspiratory Muscle Training in Exercise Performance of Elite Female Soccer Players

Elite performance


“Federal University of São Carlos, Federal University of São Carlos, Federal University of São Carlos, Federal University of São Carlos, Federal University of São Carlos, Federal University of São Carlos, Federal University of São Carlos, Federal University of São Carlos, University of Illinois at Chicago, University of Illinois at Chicago, Federal University of São Carlos”

“BR, BR, BR, BR, BR, BR, BR, BR, US, US, BR”

“Background: Inspiratory muscle training (IMT) has been used as an effective tool to improve sports performance, especially in male endurance athletes. Soccer is a mixed sport modality, with periods of great aerobic and anaerobic demands in a match play. The aim of this study was to investigate the effects of IMT in exercise performance of Brazilian elite female soccer players.

Methods: Eighteen elite female soccer players (age: 21.2 ± 3.8 years; BMI: 21.1 ± 2.3 kg/m², VO2max: 41.4 ± 3.8 mLO2·kg·1·min·1) were recruited and randomized, according to VO2max and player position, in Sham (SG) and Training (TG) groups. Subjects underwent a general evaluation including pulmonary function, strength and endurance of inspiratory muscles, a constant velocity exercise testing (CVT) and a repeated-shuttle-sprint ability testing (RSSA). The IMT protocol applied consisted of 30 inspiratory efforts, twice daily, 5 days per week during 6 weeks. TG and SG trained at 50% and 15% of maximal inspiratory pressure (MIP), respectively, with load adjustments every week. Subsequently, all athletes were reevaluated.

Results: After training program, TG presented greater percentage gain of MIP (p=0.02), improvement in endurance inspiratory muscle testing (p=0.01), increased time to exhaustion in CVT (p=0.001), lower mean performance time (p=0.001) and lower percentage of performance decrease (p=0.008) in RSSA, whereas SG did not show significant differences.

Conclusions: The results of the current study indicate that IMT was an efficient technique to improve exercise performance and tolerance in female athletes of a mixed sport modality as soccer.

ORAL PRESENTATION

Effects of Intensities Different of the Aerobic Exercise Training on the Quality of Life of Obese Adolescents: A Randomized Clinical Trial

Physical activity and health

“Carla Caroliny de Almeida Santana, Camila Rodrigues Menezes de Freitas, Mara Cristina Lofrano-Prado, Priscyla Praxedes Gomes, Camila Tenório Calazans de Lira, Thiago Ricardo dos Santos Tenório, Yara Lucy Fidelix, Daniel Calado Brito, Roberta Costi, Wagner Luiz do Prado”

“University of Pernambuco, University of Pernambuco, Federal University of Pernambuco, University pf Pernambuco, University of Pernamuco, University of Pernambuco, University of Pernambuco, University of Pernambuco, University of Pernambuco, Federal University of São Paulo”

“BR, BR, BR, BR, BR, BR, BR, BR, BR, BR”

“Background: Beyond the deleterious effects of adiposity in the individuals’ physical health, the obesity predisposes to the development of psychological disorders that affect negatively in the perception of quality of life (QOL) of obese patient. It is believed that multidisciplinary interventions are ideal for obesity treatment. However, the exercise intensity to be recommended is still not well established, especially when the objective is improvements in QOL. The objective of this study is verify the effect of different intensities of aerobic exercise training on the quality of life of obese adolescents submitted to short (12 weeks) and long term (24 weeks) multidisciplinary intervention. Methods: The study included pubescent obese adolescents (34.72±4.10 kg) of both sexes, aged 14.85±1.44 years. The adolescents were submitted to 24 weeks of multidisciplinary intervention composed by exercise training (3x per week), nutritional therapy (1x per week), psychological counseling (1x per week) and clinical monitoring (1x per month). After the voluntaries selection, they were allocated in three groups: High Intensity Training Group (HITG) (N=31), Low Intensity Training Group (LITG) (N=31) and Control Group (CG) (45). Measures of body composition were conducted applying absorptiometry technique of dual beam x-ray (DEXA); and QOL was assessed by the Short Form Health Survey (SF-36). The measurements have been made at different times: baseline, 12 and 24 weeks of intervention. Results: Eleven weeks were enough to realize body fat percentage (BF%) reduction (p<0.001) and lean mass (LM) (kg) raise (p<0.001) in the HITG, LITG, and CG. Additionally, there was a decrease in body mass index (BMI) (kg/m²) only in experimental groups (EG) (LITG p<0.001; HITG p=0.049). After 24 weeks of intervention, BM increased only in the CG without changes in the HITG and LITG. For all other variables the changes observed at 12 weeks were maintained at 24 weeks. In relation to the domains of QOL, there is improvement in the perception of Physical Function (PF) in HITG and LITG after 12 weeks.”
weeks without differences between the effect size between groups (HITG d=0.747; LITG d=0.782) when compared to the CG. The HITG also improved in the perception of General Health (GH) (p=0.014) and Media General (p= 0.002) domains with a moderate effect for both (d=0.713, d=0.535, respectively), compared to the CG. When 24 weeks were observed, the adolescents submitted to the multidisciplinary intervention continued to positively realize the PF the same way as in 12 weeks. The analysis of the percentage variation of the QOL domains suggests that more pronounced changes happened in response to the HITG when compared to GC and LITG, and the effects are intensified after 24 weeks of multidisciplinary intervention. **Conclusions:** The multidisciplinary intervention produces positive changes in the body composition, regardless of the intensity of aerobic training. However, the findings suggest that high intensity exercise produces more pronounced effect on the QOL of obese adolescents when compared to low intensity training, and this fact has been associated in more domains of QOL."
ORAL PRESENTATION

Effects of Kinesio and Athletic Taping on Ankle Proprioception in Full Weight-bearing Stance

Sport medicine and injury prevention
"Jia Han, Gordon Waddington, Roger Adams, Judith Anson"
"Shanghai University of Sport, University of Canberra, University of Canberra, University of Canberra"
"CN, AU, AU, AU"

“Background:
Ankle proprioception plays an essential role in sport performance and sport injury (Han et al. 2015a). The effect of different types of taping on ankle proprioception during functional activities is still unclear. This study investigated the effects of kinesio taping (KT) and athletic taping (AT) on ankle proprioception while weight-bearing in a normal stance.

Methods:
Twenty-four healthy university students (12 M, 12F, mean 22 years), without musculoskeletal injury in the previous 6 months, volunteered. The Active Movement Extent Discrimination Apparatus (Han, Waddington, Adams, Anson, & Liu, 2015) was employed to measure ankle proprioception under normal stance conditions. The three testing conditions: barefoot, KT and AT were conducted in random order, with the left or right foot randomly assigned for testing. After the ankle proprioception tests, participants were asked to rate their perceived comfort, support and proprioceptive performance under both taping techniques.

Results:
Mean Area Under the Curve (AUC) discrimination scores (95% CIs) were: Barefoot: .813 (.791-.835), KT: .809 (.788-.830), and AT: .790 (.766-.814). Repeated measures ANOVA showed neither any significant difference associated with taping compared with the barefoot condition (F1, 23=1.11, p=0.30), nor any difference between KT and AT (F1, 23=1.86, p=0.19). For comparison with previous research, the group was then divided according to their barefoot scores into a group of 13 participants with scores below the barefoot mean, and 11 with scores above. A further ANOVA conducted using this grouping structure showed a significant interaction (F1, 22=8.62, p=0.01) indicating that performers who scored above average when barefoot were made worse when taped, whereas below-average performers when barefoot were improved by taping. Type of taping had no significant effect (F1, 22=2.05, p=0.17).

Pearson’s correlations were calculated between participants’ actual proprioceptive performance (AUC scores) and ratings of perceived comfort, support and performance. For both KT and AT, only ratings
of perceived comfort when taped were significantly associated with actual proprioceptive performance (both r>0.44, p<0.03). Ratings of perceived support and perceived performance were significantly correlated (both r>0.42, p<0.04), but neither was significantly correlated with actual performance (both p>0.31).

**Conclusions:**

Taping around the foot and ankle may amplify sensory input in a way that enhances proprioception of poor performers but overloads input that impairs proprioception of those who originally performed well when barefoot. Thus, screening of ankle proprioception under barefoot, weight-bearing conditions may be needed to identify those who would benefit from taping. In addition, clinicians and coaches may use comfort when taped as an indicator to guide the application of taping, as it is significantly correlated with actual proprioceptive performance."
Effects of Placebo perceived as Caffeine on the Perceived Exertion Threshold and Maximal Incremental Exercise Test

Elite performance

"Paulo Estevão Franco Alvarenga, Ricardo Yukio Asano, Felipe de Ruissi Lima, Fabiano Aparecido Pinheiro, Cayque Brietzke Barreto, Felipe Martucci, Carlos Ugrinowitsch, Flávio de Oliveira Pires"

"University of São Paulo, University of São Paulo, University of São Paulo, University of São Paulo, University of São Paulo, University of São Paulo, University of São Paulo, University of São Paulo"

"BR, BR, BR, BR, BR, BR, BR, BR"

“Background: Caffeine (CAF) Has Been Widely Studied as a Potential Ergogenic that Improves Performance and Alter Physiological and Psychological Responses to Exercise, Based on Likely Mechanisms: the Inhibition of Adenosine Effects on the Central Nervous System; the Increase in Intracellular Calcium Mobilization; and the Increased Oxidation of Free Fatty Acids. Alternatively, Placebo when Perceived as Caffeine (PL) may Positively Affect Performance in Physical Tasks, but it is Still Unclear how PL Affects the Ratings of Perceived Exertion (RPE) During Maximum Incremental Tests (MIT). Therefore, the aim of this Study Was to Determine Whether PL Supplementation (Perceived as Caffeine) may alter RPE and Performance Responses During MIT.

Methods: This Study was a Double-Blind Control Design, which Used Experimental Manipulations with PL and CAF Ingestion (6 Mg.Kg-1 Body Weight) 1-H before the MIT, in a Randomized Order. Nine Physically Active Males (Mean ± SD Age: 26.4 ± 4.8 Years, Weight: 77.6 ± 12.1 Kg, Height: 171.7 ± 6.9 Cm and Body Fat Percentage: 13.2 ± 6.0%) underwent Three MIT (Control, PL and CAF) on a Bicycle, after a 6 Minutes Warm Up at 100 W; the Workload Was Increased 25 W .Min-1 Until Exhaustion, while the Pedal Cadence Was Maintained at 80 Rpm. Responses of Ventilation (VE), Oxygen Uptake (VO2máx) and Carbon Dioxide Production (VCO2) were Obtained Throughout the Test, Breath by Breath. The VO2máx Was Determined on The Average of the last Three Higher Values During Testing. The Mechanical Power Peak (WPEAK), Reached in each MIT Was Calculated Through the Highest Value Recorded in the Test with Correction for the Duration of each Stage. Overall (Whole Body) and Local (Muscular) RPE were Obtained Through the 15 Points Borg Scale at the end of each Stage.

Results: VO2máx did not Show Significant Difference Was between Control, CAF and PL Session, but the WPEAK Was in CAF and PL Sessions Had an Average Increase of, 10.3 and 9.4 % in Maximal Load (W) Greater than (P <0.05) Control Session. Absolute RPE Values, as well as the Power Output
at 15-RPE (Overall and Local) were not Significantly Different among Sessions (P > 0.05). Overall RPE/WPEAK Relationship Had a Moderate Effect Size in CAF and PL (Cohen’s D=0, 70 in PL and Cohen’s D=0, 41 in CAF) in Relation to Control Session. Local RPE/WPEAK Relationship Was Large in PL (Cohen’s D=0, 98) and Moderate in CAF (Cohen’s D =0, 50) in Relation to Control Session, Respectively. Nevertheless, no Difference between the PL and CAF Sessions.

**Conclusions:** As CAF did, PL Perceived as Caffeine Improved Performance in MIT Through a Decrease in Overall and Local RPE although this Response Was Unrelated to VO2máx."
ORAL PRESENTATION

Effects of Straight Knee Butterfly Kick in Men’s 50 Meter Butterfly Performance: The Case Study Using the FINA World Record Holder and Asian Record Holder.

Elite performance
"Takahisa Ide, William F. Johnson, Sadafumi Takise, Yutaka Yoshimura, Kohei Kawamoto, Roland M. Schoeman"

"Osaka University of Health and Sport Sciences, University of Southern Mississippi, Osaka University of Health and Sport Sciences, Chuo University, Phoenix Swim Club, Phoenix Swim Club"


"Background: We focused out analysis on the straightness of the knee for the butterfly kick. Our analysis show that the butterfly kick is more efficient when the swimmers body maintains the most horizontal position as possible during the arm stroke. When comparing former World record holders angle of butterfly kick, we found that the extent to the straightness of their butterfly kick improved the performance. We changed this to a straightness knee butterfly kick with less knee-bend. The former World record holder improved 50 meter butterfly time from 2011 through 2013 in FINA (Federation Internationale de Natation Amateur) governing body swim meet. The subject swam 22.05 was, 1st in FINA World ranking 2013 Men’s 50 Butterfly. The subject had result 1st place in 50 meter butterfly prelim in 2013 FINA World Championship in Barcelona, Spain. The results employed all straightness knee butterfly kick are less resistance equal to increase the distance per cycle in the championship meet races.

Methods: The subjects, the Olympic champion, 4 time Olympian, former 50 meter butterfly World record holder, and former Men’s 50 meter butterfly World record holder volunteered to participate in this study. The Race Analyzer analyzed time, split, cycles, tempo, DPC (distance per cycle), velocity, turn time, 15 meter start time, and 15 meter velocity. The subject strokes angle of degree was analyzed with DartTrainer and Kinovea (0.8.15, 1GHz, 256Mo) in regards to the bending of the knee and upper body movement. A Swimming Speed Meter (Vine, VMS-003, AC100V, 1/500sec, 0.2mm/pulse) using a wire attached to the swimmer, exported the analogue signals via an RS232C post to a computer. To compare the mean values of the different variables assessed, Friedman test was used as well as the Wilcoxon signed rank test to assess the differences between them. The level of statistical significance was set at P ≤0.05

Results: Race Analyzer shows the former World record holder distance per cycle improved from 1.79M/C for 2005 to 1.87M/C for 2013 and Asian record holder distance per cycle was 1.89M/C for
2005 to 2.20M/C for 2013 in championship meet. DartTrainer and Kinovea showed the straight knee considered when of >170 degrees knee-bending, former World record holder 57.9% use of straight knee kick for 2013 and 42.6% for 2005, Wilcoxon/Mann-Whitney.: 1.999831, p=0.0455. Asian record holder 55% use of straight knee kick for 2009 and 39% for 2005, Wilcoxon/Mann-Whitney.: 0.919703, p=0.3577 in the one stroke.

**Conclusions:** The aim of this study was based on the above evidence it is clear the most preferred butterfly technique is to use a straight knee kick. In the championship meet, Asian record holder, the distance pre stroke (DPS) results were different resulting in a, 2.204m±0.131 for 2009 and 1.894m±0.062 for 2005 (DPS (m) Wicoxon.: p=0.006061, 1 stroke (velocity) Wicoxon.: p=0.7748). This study analyzed the butterfly kick technique of former world record holder and Asian record holder and found butterfly performance significantly improved to an increase in distance per stroke and reducing resistance compared to a bending knee butterfly kick."
Embracing City Life: Recreational Sports Activities of the New Generation of Migrant Workers in Urban China

Huan Xiong
South China Normal University

"After three decades of contributing to the Chinese economy and society, the first generation of rural-to-urban migrant workers is being replaced by a new generation in the urban labour market. In contrast to their predecessors, these new migrant workers are younger, better educated, less connected to the countryside, and desired to embrace city life, gaining a social identity as a member of the urban citizen (Cheng, 2014). As an important part of urban lifestyle, participation in recreational sports activities became a new approach for the younger migrant workers to assimilate to the modern industrial culture of their present environment. This study draws on original data from interviews of migrant workers in Pearl River Delta of Guangdong province, it tries to find out in which ways the recreational sport activities would hold the ‘urban dream’ of the migrant workers who were from the rural land. According to the findings, first of all, taking part in recreational sport expanded the scale of living spaces of migrant workers, beyond the limit among factories, canteens and dormitories. Secondly, participation in recreational sports contributed to building an solidarity (sport groups or organisations) of migrant workers, through which they can not only share the same values and customs but also show their bondings as newly urban dwellers, and their collective needs for fitness, entertainments and higher quality of life were taken into account by urban planners. Thirdly, recreational sports activities enhanced migrant workers’ self-centered values rather than family-oriented values. This new value would allow them enjoy pastime life, spending more money and time of their own interests. Fourthly, many young migrant workers admitted that through the agency of modern sport, they had developed a sense of belonging to the urban community, with hope to stay in cities. Finally, this research also finds that the involvement in sport has not only impacted on migrant workers’ own self-identity, but also changed the stereotypical image of rural migrant workers of being poor, dirty, vulgar, and uncivilized. In urban society, the cultural, socioeconomic, and psychological differences between migrant workers and urban citizens diminish gradually. In conclusion, for the new generation of migrant workers, taking part in recreational sport has became a new platform to be involved in urban way of life, though there are still
barriers and restriction set up by institutional bodies and sub-culture of social network from the rural sides."
Energy Expenditure Comparison of Overweight Women at the Same Speed Gradient of Walking and Jogging

Physical activity and health
"Peizhen Zhang, Shufang Yue"
"Beijing Sport University, Beijing Sport University"
"CN, CN"

Background: Overweight is one of major risk factor for cardiovascular disease and other chronic disease. At now, more than 1.9 billion adults are overweight in the world. Lack of physical activity is one of the main causes of overweight in adults. Increasing energy expenditure of physical activity is the key to weight control in overweight people. Walking and jogging are two common exercises in overweight people. The relationship between energy expenditure of walking and jogging in overweight people is still not clear. This paper probes into characteristics of energy expenditure and physiology of overweight adult women at the same speed gradient of walking and jogging.

Methods: Twenty three overweight and twenty two normal weight adult women(age: 22.0±1.5 years) participated in the study. Their maximal oxygen uptake was measured by a maximal treadmill exercise test using a modified Bruce protocol. The resting energy expenditure and the energy expenditure of overground walking and jogging were measured by Cortex portable gas metabolism system. The overground walking speed from low to high were 4.0km/h, 4.5km/h, 5.0km/h, 5.5km/h, 6.0km/h, 6.5km/h and 7.0km/h. The overground jogging speed were 6.0km/h, 7.0km/h and 8.0km/h. The duration of each speed was 6 minutes. Net energy expenditure of each speed was calculated as energy expenditure minus resting energy expenditure.

Results: hen the walking speed over 5.5km/h (including 5.5km/h) and jogging speed over 7.0km/h (including 7.0km/h), the energy expenditure, net energy expenditure and heart rate of overweight women were significantly higher than normal weight women(P < 0.05). When walking speed was 6.0km/h, energy expenditure and net energy expenditure of overweight women were significantly lower than jogging at the speed of 6.0km/h(P < 0.01). However, when walking speed was 7.0km/h, energy expenditure, net energy expenditure, heart rate and RPE of overweight women were significantly higher than jogging at the speed of 7.0km/h(P < 0.05).

Conclusions: These results demonstrate that the differences of BMI will result in differentiations of energy consumption and physiological indexes of women when walking and jogging at a certain speed.
When speed reach and exceed 7.0km/h, walking will consume more energy than jogging. As far as the weight control of overweight people is concerned, the effect of walking at this speed is better than that of jogging."
ORAL PRESENTATION

Evaluation of Body Mass index and Blood Pressure of Players of Brazil National Amputees Soccer Team in 2015

Sport medicine and injury prevention

“José Ricardo Auricchio, Presenter Nathalia Bernardes, Marcelo Pereira Cordeiro, Bruno dos Santos Souza, Michael Munhoz de Carvalho, Rene Costa Quintas Oliveira, Marlene Aparecida Moreno”

“University Methodist of Piracicaba, University of Sao Paulo, Mario Schenberg College, Mario Schenberg College, Mario Schenberg College, Only Life Institute, University Methodist of Piracicaba”

“BR, BR, BR, BR, BR, BR, BR”

“Introduction: adapted sport has been used since the end of World War II as a form of physical and social rehabilitation. Among the arrangements the amputee soccer as a sport option, which players should be amputated unilaterally lower extremity and supported by Canadians crutches (YAZICIOGLU, et al., 2007; SIMIM, 2014). Objective: evaluate the body mass index (BMI) and arterial pressure of brazilian soccer players for amputees. Methods: This is a cross-sectional study (BORDALO, 2006), approved by the Research Ethics Committee of the Methodist University of Piracicaba (09/2015). All the participants signed an informed consent term. We selected 16 players, male amputee unilaterally lower extremity, regular practitioners the sport for over three months and have age between 18 and 50 years. The anthropometric assessment was conducted from the measurement of body weight and height. BMI was used body weight/height2. The results was compared with the classification proposed by the WHO (1995). For the measurement of arterial pressure, the players had rest 20 minutes, was used a digital monitor blood pressure. The results were presented in descriptive form. Results: The characterization of players showed that 37.5% had right amputation and 62.5% had left amputation. The transfemural amputation had a higher prevalence (62.5%) compared to transtibial (37.5%). The players had 31±9 years old, the body mass was 68.7±11.4 kg and height was 1.71±0.05 m. The BMI (23.37±3.14 kg/m²) was included in normality index proposed by WHO (1995). The arterial pressure (135/79 mmHg) was the normal range for this population (SBH, 2011). Conclusion: The results suggest that the practice of this sport can be beneficial for adults with acquired physical disabilities, preventing the emergence of risk factors for cardiovascular disease, such as obesity and hypertension.”
ORAL PRESENTATION

Evaluation on Efficiency and Equality in Olympic Games: An Empirical study of Participating Countries in London Olympic Games based on Three-stage DEA Model

Governance and policy

"Tan Hong, Lu Yujia"

"Southwest University of Science and Technology, Southwest University of Science and Technology"

"CN, CN"

“Background:

The efficiency of participated countries and the fairness of medal ranking list in Olympic Games have always been controversial. So far, there is still no such a ranking method recognized universally to solve this issue.

Methods:

On account of this, we consider the evaluation on efficiency of participated countries from the view of economy and convert it into an input-output problem that discusses which country has greatest amount of output at a certain input level. Our research samples come from London Olympic Games which covers 87 different countries (altogether 73 countries after deleting countries with default data). By taking GDP, population and the ratio of public finance expenditure to GDP as input variables, weighted number of gold, silver and bronze medal as output variables, we apply Three-stage Data Envelopment Analysis (DEA) method which removes the influence of environmental variables (such as the degree of economic openness, research expenditure rate on sports and geographical factor) on input variables to study the efficiency of participated countries in 2012 London Olympic Games.

Results:

Our results show that: 1) America, China, France and Germany are the top four countries with effective participating efficiency greater than 1. It is almost consistent with their performance in London Olympic Games. 2) Although Russia ranks 3rd in the medal ranking list, its participating efficiency is lower than France, Germany and Italy. 3) After applying SFA, the efficiency of participated countries has changed differently. Among them, the efficiency of 43 countries increases, 29 decreases. 4) All of these participated countries in research samples have increasing returns to scale except America and China. The research shows Three-stage DEA are proved to be a reasonable method in solving the fairness of ranking problem.

Conclusions:
The results could be used for evaluation of participated countries’ performance and for continuous research purpose. Countries with lower efficiency could increase its sports expenditure for further efficiency improvement.”
Exercise for type 2 diabetes by way of environmental enrichment: An RCT on the role of cytokines

Physical activity and health

“Cai hua Huang, O.G. Meijer, Liang Song, H. Abbasi-Bafghi, Jian mei Liao, Nanayakkara, R.T. Jaspers”

“Xiamen University of Technology, VU University, Xiamen University of Technology, VU University, Xiamen University of Technology, VU University”

“CN, NL, CN, NL, CN, NL”

“Background: Recently, it was argued that low grade inflammation in the medio-basal hypothalamus may drive many diseases, and hypothalamic neuro-inflammation leads to T2DM in ways that are independent of weight. Inflammatory cytokines, leptin and adiponectin, are reported to be crucial for linking the hypothalamus to T2DM. Although it was suggested that a decrease of leptin concentrations and an increase of adiponectin are essential in the treating “metabolic syndrome”, but meta-analyses about exercise effects on them often report heterogeneities. Interestingly, the hypothalamus is known to be sensitive to environmental enrichment, and the hypothesis presents itself that exercise may be more effective in T2DM whenever it contains more elements of environmental enrichment (EE), such as social support, learning and exercise. However, this hypothesis was never tested yet. We herein reported an EE-like exercise program on postmenopausal women by observing insulin sensitivity changes and its relationships with the changes of circulation leptin and adiponectin.

Methods: Chinese postmenopausal women with type 2 diabetes engaged in a 24 week program of 3-4 hours per week aerobic exercise plus resistance training (N = 15), versus no extra physical activity (N = 12). Obesity-related variables were measured, as were lipids, leptin, adiponectin, insulin, and glucose. HOMA insulin resistance was calculated. To enhance compliance, we opted for a relatively simple design. Subjects were all classmates in a senior people school. They underwent an exercise program with their familiar music and learning dance mainly in aerobic manner in a gymnasium. Instructors also encouraged them to organize groups for competitions. The protocol took 24 weeks. In the first four weeks, there were three exercise sessions per week, thereafter four. For each session, beside aerobic exercise, 15min resistance training also performed by using Thera-band. The control group was asked to maintain their current level of physical activity throughout the study.

Results: In the experimental group, participants attended 94% of all sessions. Time and Group interactions in the Repeated Measures ANOVAs suggested that the exercise program had been effective. Majority of variables of the exercise group were improved, but not for WHR and three of the
lipids (triglycerides, total cholesterol, and LDL-C). Obesity decreased, Compared to controls, we found a significant effect of Time in HOMA IR, Group in Lipids in the exercise subjects. Leptin in the experimental group decreased, but with a p-value of 0.026, not enough to reach significance when the Bonferroni correction was used. Adiponectin level increased after exercise training. Moreover, changes of the two cytokines were the best predictor of the increase of insulin sensitivity.

**Conclusions:** It is concluded that exercise led to an improvement of insulin sensitivity with decrease of leptin, and an increase of adiponectin. Orchestration of metabolic homeostasis by the hypothalamus may be of considerable importance, since the hypothalamus is sensitive to environmental enrichment. Thus, exercise, containing of more elements of EE."
Exercise Prevents Increased Functional Coupling of BKCa Channels to Ryanodine Receptors in Cerebral Arterial Smooth Muscle Cells from Spontaneously Hypertensive Rats

Physical activity and health
Lijun Shi
Beijing Sport University
CN

“Background: Regular exercise is an effective non-pharmacological therapy for prevention and control of hypertension. However, the underlying molecular mechanisms remain unresolved. We tested the hypothesis that hypertension would increase the functional coupling of large-conductance Ca2+-activated K+ (BKCa) channels with ryanodine receptors (RyRs) in spontaneously hypertensive rats (SHR) as a compensatory response to an increase in intracellular Ca2+ concentration in cerebral arterial smooth muscle cells (CASMCs). We also hypothesized that exercise training would prevent this increase in functional coupling.

Methods: Male SHRs and Wistar-Kyoto rats (WKYs), 12 weeks age, were separated into sedentary groups (SHR-SED and WKY-SED) and exercise groups (SHR-EX and WKY-EX) at random. Rats in exercise group were subjected to a treadmill training protocol: 18~20 m/min (about 55-65% of maximal aerobic velocity), 0% grade, 60 min/d, 5 d/wk for 8 weeks.

Results: Cerebral myocytes displayed spontaneous transient outward currents (STOCs) at membrane potentials more positive than -40 mV. STOC amplitude in SHR-SED was higher than that in WKY-SED at the same holding potential. The amplitude of the spontaneous Ca2+ sparks in isolated CASMCs was significantly enhanced in SHRs. Moreover, hypertension displayed increased whole-cell BKCa, Cav1.2 but decreased KV currents in CASMCs. The single BKCa channel activity was markedly enhanced, and protein expression of BKCa (β1, but not α-subunit) was significantly increased but KV1.2 was decreased in SHRs. Exercise training ameliorated all of these functional and molecular alterations in hypertensive rats.

Conclusions: These data indicate that hypertension leads to an enhanced functional coupling of RyRs-BKCa to buffer pressure-induced constriction of cerebral arteries, which attributes not only to an upregulation of BKCaβ1-subunit function but also to an increase of Ca2+ release from RyRs. However, regular aerobic exercise can efficiently prevent the augmented coupling to alleviate the pathological compensation to restore the cerebral arterial function. ”
Exercise Training Reverses Unparallel Downregulation of MaxiK Channel α- and β1-Subunit to Enhance Vascular Function in Aging Mesenteric Arteries

Background: Aging is the main risk factor for cardiovascular disease, which remains the number one killer in modern society. As age advances, several structural and functional changes occur in the vasculature. In contrast to age, habitual exercise is associated with enhanced vascular function and reduced risk of cardiovascular disease. However, the underlying mechanisms are not fully understood. Large-conductance Ca2+-activated K+ (MaxiK) channels are expressed broadly on smooth muscle cells (SMCs) and play a critical role in regulating vascular tone. This study was designed to determine the effects of aerobic exercise training on aging-associated selective changes of the function and expression of MaxiK channels in mesenteric arteries.

Methods: Male Wistar rats aged 19–21 months were randomly assigned to sedentary (O-SED) and exercise-trained groups (O-EX). Two-monthold rats were used as Young control.

Results: Addition of iberiotoxin (10−8 M) increased the norepinephrine-induced arterial contraction in all three groups, with the greatest enhancement being in Young and the least in O-SED. Patch clamp study revealed the characteristics of aging on MaxiK channel function in mesenteric arteries, mainly including (a) decrease of iberiotoxin-sensitive whole-cell K+ current, (b) decrease of open probability and Ca2+/voltage sensitivity of single MaxiK channel, and (c) reduction of tamoxifen-induced MaxiK activation. After exercise training, all of these changes were markedly inhibited. Western blotting revealed that the protein expression of MaxiK was significantly reduced with aging and the suppression of β1-subunit was larger than that of α-subunit, although exercise training diminished this alteration.

Conclusions: Taken together, aerobic exercise training reverses the aging-related unparallel downregulation of MaxiK α- and β1-subunit expression on mesenteric arteries, which partly underlies the beneficial effect of exercise on restoring aging-associated reduction in mesenteric artery vasodilatory properties.
ORAL PRESENTATION

Exercise-induced Autophagy is a Beneficial Promoter for Health

Physical activity and health

"Ning Chen, Jingjing Fan, Shaohui Jia, Xuanjuan Kou, Yi Yang, Qingxue Li, Xiaoqi Yang, Ziyang Shu"
"Wuhan Sports University , Wuhan Sports University , Wuhan Sports University , Wuhan Sports University, Wuhan Sports University, Wuhan Sports University, Wuhan Sports University, Wuhan Sports University"
"CN, CN, CN, CN, CN, CN, CN, CN"

“Background: It is well known that Exercise is Medicine. Currently, exercise-induced autophagy for health promotion has gained tremendous attentions in the field of exercise physiology. Autophagy is an evolutionarily conserved process involving the degradation of cellular components in lysosomes to maintain cellular homeostasis and quality control, as well as temporarily sustain cell viability in response to stressful stimuli. Since activated autophagy can execute the clearance of senescent cells or organelles, and provide a stable homeostasis and high-quality life for the survival of normal cells, exercise-induced autophagy should have the potential for preventing and treating chronic diseases, delaying aging process, or extending longevity.

Methods: In our research group, we have established a series of rat models with chronic diseases including diabetes or sarcopenia. These model rats were subjected to exercise intervention such as treadmill running, swimming, volunteer wheeling running, resistance training, or combinatorial training. The efficacy of exercise invention for these chronic diseases was evaluated and corresponding signal pathways associated with autophagy or mitophagy after exercise interventions were explored through Western blotting, RT-PCR, transmission electronic microscopy and RNA-seq or microRNA analysis.

Results: Appropriate exercise is an autophagy or mitophagy enhancer to regulate cellular homeostasis, improve mitochondrial quality control and mitigate metabolic stress. Exercise-induced autophagy can enhance insulin sensitivity and improve glucose consumption, thereby realizing the prevention and synergistic treatment of diabetes. Meanwhile, exercise-induced autophagy and irisin may also mutually promote the regulation of diabetes. In addition, due to the dysfunctional autophagy during sarcopenia, appropriate exercise training can execute the activation of autophagy to modulate the quality control of mitochondria through PGC-1α-AMPK-FOXO3 signal axis, correspondingly mitigating the occurrence of sarcopenia.

Conclusions: These studies provide useful information on how to use the functional status of autophagy to improve the efficacy of the prevention and treatments for these diseases, and insight how
to take advantage of autophagic regulation to achieve health-promoting roles, which will produce medical significance and social benefits for health promotion.”
ORAL PRESENTATION

EXPERIENCE OF UNDERSERVED YOUTH IN SPORT AND PERCEIVED SELF-EFFICACY IN AN EXTRACURRICULAR SPORTS PROGRAM

Sport pedagogy

“Riller Silva Reverdito, Presenter Paula Simarelli Nicolau, Humberto Moreira de Carvalho, Alcides José Scaglia, Thiago José Leonardi, Carlos Eduardo de Barros Gonçalves, Roberto Rodrigues Paes”

“Universidade do Estado de Mato Grosso, Universidade Estadual de Campinas, Universidade Estadual de Campinas, Universidade Estadual de Campinas, Universidade Estadual de Campinas, Universidade de Coimbra, Universidade Estadual de Campinas”

“BR, BR, BR, BR, BR, BR”

“Background: In Brazil, social policies are paying particular attention to sport by mobilizing different sectors of society, and by focusing on participation of the young people in the sport. Currently, Brazil has one of the broadest and sustainable programs in the world. In this context, with particular characteristics, due to geographical and socio-cultural dimensions, there has been no systematic study that has combined perception variables on the experiences of underserved youth in sport, time of participation and Human Development Index of Municipalities (HDIM). The aim of this study was to observe the strength of the interaction between the positive experience of underserved youth in sport and perceived self-efficacy by controlling time of participation and HDIM.

Methods: Youth (n=821) with mean age of 13.2±1.5, who are attending extracurricular sports program, participated in the study. Data were obtained through the Youth Experience in Sport questionnaire (YES-S) and General Self-Efficacy Scale, demographic information (age, sex and time of participation in the program) and HDIM. Descriptive statistics were applied to all values obtained and multilevel modeling was used to explore the influence of independent variables.

Results: The results show a positive and significant influence of perceived self-efficacy on the positive experience of the underserved youth in sport, enhanced by the time of participation in the program. The exponents were positive, indicating that the trend of positive experience in sports can positively influence the perceived self-efficacy. The underserved youth in contexts, with high HDIM, remained longer in the program, which is contradictory in relation to the goals of the program.

Conclusions: The study brings innovative and decisive contributions to the understanding and evaluation of the youth participation in sport. The time of participation in the program and IDHM are essential variables that can be used in explaining the developmental experience provided by the sport participation.”
ORAL PRESENTATION

Far Infrared Emitting Fabric Enhances Anaerobic Energy System and Improves Exercise Tolerance During Very Heavy Intensity Exercise in Humans

Technology in sports

“Arthur Gáspari, Antônio Moraes, Celene Bernardes, Amanda Sardeli, Patrícia Guimarães, João Barbieri, Alex Castro, Mara Patrícia Chacon-Mikahil, Romulo Bertuzzi”

“University of Campinas, University of Campinas, Metrocamp/DeVray Brasil, University of Campinas, University of Campinas, University of Campinas, University of Campinas, University of Campinas, University of São Paulo”

“BR, BR, BR, BR, BR, BR, BR, BR”

“Background: Both near and far infrared have shown interesting biological effects and have been suggested as new ergogenic aid to enhance sport performance. Although, some studies have shown the utility of near infrared to improve strength and endurance performance; these results were obtained from phototherapy devices (LED or laser light), non-portable and fed by electric power. A new technology can partly solve these issues; Far Infrared (FIR) emitting fabric (polyamide fiber mixed to emitting inorganic substances) is capable to absorb heat and re-emit this energy as FIR radiation. It is known that FIR emitted by materials can enhance cell metabolism and function, improve blood circulation and an ex-vivo study of skeletal muscle have shown the effect of delay fatigue. Although, FIR share in vitro findings of positive effects with near infrared; ergogenic effects of both forms of infrared have never been compared, as well as their mechanisms are not fully understood. Furthermore, the effect of the FIR fabric on performance was poorly investigated. Thus, our study analyses the effect of FIR fabric on exercise bioenergetics and exercise tolerance during moderated and very heavy intensity exercise.

Methods: Sixteen men (age 25.1+3.7 years; mass 69.8±7.4 kg, height 174.1±5.8 cm; VO2max 36.6±4.9 ml.kg-1.min-1; POmax 290, 9+29, 4 W) performed two testing days, two weeks apart, composed by a square-wave cycling exercise at moderate intensity (2 sets of 10 min), followed by very heavy intensity (until exhaustion). Tests occurred after 96 hours of use of FIR or Placebo fabric, in a crossover, double-blind, placebo-controlled design. The Total Energy Expenditure (TE) and the Aerobic Contribution (AC) (exercise oxygen uptake), Anaerobic Lactic Contribution (AnLC) (plasma lactate accumulation) and Anaerobic Alactic Contribution (AnAC) (fast VO2 off-kinetics), absolute and relative to TE values, were calculated using the GEDAE-LaB software (http://gedaelab.org/).
**Results:** Total exercise time (Placebo 3326±84 s – FIR 3372±120 s, p=0.03). Absolute energy system contributions (kJ), for the moderate exercise: TE (Placebo 99.26±48.38 – FIR 97.09±48.85, p>0.05); AC (Placebo 87.32±41.44 – FIR 85.01±43.12, p>0.05); AnLC (Placebo 4.53±3.32 – FIR 4.61±3.65, p>0.05); AnAC (Placebo 7.40±4.90 – FIR 7.47±3.61, p>0.05). For the very heavy exercise until exhaustion: TE (Placebo 204.19±90.02 – FIR 250.64±99.31, p=0.005); AC (Placebo 134.59±83.70 – FIR 174.12±93.58, p=0.004); AnLC (Placebo 41.90±9.13 – FIR 47.21±9.36, p=0.003); AnAC (Placebo 27.70±27.43 – FIR 29.31±27.09, p>0.05). Relative energy system contributions (%), for the moderate exercise: AC (Placebo 88.52+3.17 – FIR 87.83+3.21, p>0.05); AnLC (Placebo 4.29+2.34 – FIR 4.45+2.88, p>0.05); AnAC (Placebo 7.18+2.47 – FIR 7.72+1.45, p>0.05). For the very heavy exercise until exhaustion: AC (Placebo 62.82+14.57 – FIR 67.64+11.01, p=0.06); AnLC (Placebo 22.75+6.88 – FIR 20.28+4.93, p=0.07); AnAC (Placebo 14.43+12.90 – FIR 12.08+9.86, p>0.05).

**Conclusion:** Far infrared emitting fabric enhances aerobic energy system and improves exercise tolerance during very heavy intensity, thus confirming the ergogenic effect of this aid.
ORAL PRESENTATION

Fighting for Space: Women and Combat Sport.

Sport eligibility and inclusion

"Rafael Gomes Sentone, Thaynara do Prado Szeremeta, Bruna Bárbara Proença Oliveira e Silva, Fernando Renato Cavichioli"

"Federal University of Parana, Federal University of Parana, Federal University of Parana, Federal University of Parana"

"BR, BR, BR, BR"

“Background: This study aims to analyze the sports participation of women in the sport combat, from the understanding of amateur athletes, professional and athletic trainers women in combat sports. Women social roles have been assigned throughout history - motherhood, femininity maintenance, graciousness and domestic functions - which the excluded eminently masculine activities such as work and sports practices. Gymnastics and swimming, for example, could be practiced by them in order to strengthen them keeping the idea of regeneration of society. In Brazil, from the 80, the legislation passed to allow the practice of sports to fight for women changing the social scene. According to Mesquita and Nascimento (2011) in the 1980s there were significant social, economic and political changes that helped the changes on the social representations of women and contributed to the sport participation of them.

Methods: The research was qualitative and exploratory approach (Gil, 2010). Interviews were conducted semistructured with amateur athletes (A1, A2, A3), professional athletes (P1, P2, P3) female and coaches (T1, T2) of combat sports such as boxing, MMA, jujitsu, muay-thai, wrestling and submission, all respondents in Brazil. The following categories for structuring interviews the athletes were pre-established: habitus/cultural capital, prominent in society, financial reward and prejudice; for coaches prejudice the categories and financial reward.

Results: The results (a) stand out claim the athletes climb professionalism, but not have it inserted into the sport with this objective, (b) change the habitus through the new cultural capital brought by female athletes in combat sports, allowing they can train and coaches to adapt to training, (c) opening of the media field and visibility among viewers with the immersion of women in combat sports, (d) and the social standing through sport and financial reward, the athletes seek professional, fame, recognition, career advancement and financial through the struggles, however amateur athletes receive symbolic awards that do not allow support them, requiring another job, (e) with respect to prejudice the surveyed athletes reported that people of “off the mat” utter verbal attacks, unlike the training partners, finally (f)
about prejudice the coaches said this is nonexistent, say in terms of combat, the athletes get some features like determination, discipline and focus that also end up being used in achievements out of the struggles universe goals.

**Conclusions:** We conclude that women have gained ground in the combat sport and modified habitus through cultural capital. Still, that professionalization has been an option in the sport, are even financially inadequate, as well as the prejudice is present."
Food Intake, Competitive Anxiety and Sleep Quality Profile of Basketball Elite Athletes in a Competition.

Sport nutrition


Universidade Federal de São Paulo, Universidade Federal de São Paulo, Universidade Federal de São Paulo

BR, BR, BR, BR

Background: In addition to nutrition, other factors that can influence athletes’ performance are anxiety and sleep quality.

Methods: Aiming to evaluate dietary intake, competitive anxiety and sleep quality in a competition day, this cross-sectional study assessed nine basketball male athletes at two moments: a) on the game day: glucose and lipid profiles, Pittsburgh Sleep Quality Index (PSQI) questionnaire, anthropometric and dietary evaluation, and Competitive State Anxiety Inventory-2 short-form version, answered right before the game; b) during the subsequent night: actigraphy and sleep diary.

Results: Athletes mean values were: 18.4±0.7 years old; 90.7±10.9 kg; 1.93±0.1 m; 24.4±1.5 kg/m² of Body Mass Index; 10.4±3.2% of body fat percentage. Blood glucose (96.2±6.3 mg/dL), cholesterol (153.7±6.6 mg/dL), and triacylglycerol (82.6±11.8 mg/dL) values were within normal range. During competition the team slept in a school, on mattresses disposed on the floor of a classroom. Athletes pointed out the poor quality of the mattress and high environmental noise as causes for awakenings. The three main meals, planned by the competition’s organizing committee, were served by the school’s food service. Athletes kept their usual food choices at these meals; but, although available, didn’t consume usual afternoon and night snack. Energy intake (32.6±4.7 kcal/kg) was close to the minimum recommended for athletes, while carbohydrate consumption (3.2±0.3 g/kg) was below the recommendations for collective sports players. Protein (1.8±0.3 g/kg) intake was within the recommendations and lipid intake (1.4±0.3 g/kg) slightly exceeded the suggested values. The consumption of vitamin E, K and C, calcium, magnesium and potassium was lower than the recommendation for individuals of the same age range. The team had poor sleep quality, with a mean score of 5.5±3.2 for the PSQI. The total sleep time was 384.7±42.6 minutes, with efficiency of 86.9±5.2%. Sleep latency (37.0±38.8 minutes) and wake after sleep onset (57.6 ± 20.9 minutes) indicate a poor sleep quality. Subjective sleep quality (indicated on 0-10 scale) was 4.2±1.9, with only 29% of the athletes evaluating the night as “good”. Regarding competitive anxiety, self-confidence...
(3.0±0.5) was higher than cognitive (2.2±0.6) and somatic anxiety (45±0.6), indicating adequate psychological preparation for the competition.

**Conclusions:** The context of this competition, common in sports, led to poor sleep condition. Athletes would benefit from guidance to enhance their food intake in competitions. Considering the importance of food and sleep, our results emphasize the need for awareness to improve competitive conditions of Brazilian basketball athletes.”
ORAL PRESENTATION

Food provision affects daily nutrient but not energy intake in elite female water polo players

Sport nutrition

"Peng Liao, Xiaoqin Gao, Aiwen Wang, Xiaodan Zhang, Ming Lei"

"Tianjin University of Sport, Tianjin University of Sport, Tianjin University of Sport, Tianjin University of Sport, State general administration of sport"

"CN, CN, CN, CN, CN"

“Background:
Food provision is crucial for rational diet and improvement in exercise tolerance and performance in elite athletes. In addition to balanced and adequate nutrients, nutritional adherence is also an important interfering factor for food intake. However, there is insufficient research investigating effects of food provision on athletes’ dietary intake. This study was conducted to assess the impact of food components and overall satisfaction with meal on nutrient and energy intake in elite female water polo players.

Methods:
Six-day buffet food component (weighed records) and dietary intake including all food, fluid, and supplements consumed (24-h recalls) were assessed for 3 times with one month interval in Chinese Women’s Water Polo Team (23±4 yr, 23±2 kg/m2, n=32). The animal source food mainly came from general or high quality of sea food depending on freshness and size, or came from meat and poultry respectively. Sources of other food, cooks, dinning environment, and variety of menu were remained the same during the study. The subjects trained 32 hours per wk, and ate buffet together at meal times. Overall satisfaction with meal were assessed by a five-point Likert scale ranged from “strongly disagree” to “strongly agree”.

Results:
There were no significant differences concerning levels of morning proteinuria, morning pulse, and rating of perceived exertion among the three survey periods. Significant differences were observed concerning levels of energy density, percentage of energy from macronutrient, dietary fiber, retinol, niacin, ascorbic acid, calcium, phosphate, sodium, potassium, iron, zinc, selenium, and copper in food prepared for buffets, and scores of overall satisfaction with meals among the three food provision survey periods. Significant differences were observed concerning percentage of energy from carbohydrate and fat, levels of dietary fiber, thiamine, riboflavin, niacin, ascorbic acid, vitamin E,
sodium, iron, zinc, selenium, magnesium, and copper but not daily energy intake among the three dietary intake surveys.

**Conclusions:**
Calorie and nutrient intake are the two most important components of dietary intake. Due to the energy expenditure caused by physical activity, athletes need to consume more energy to meet elevated energy requirements. On the other hand, the regulation of nutrient intake is more complicated. Besides sufficient nutrients sources, nutrition supply satisfaction and compliableness are also important. The different alteration of calorie and nutrient intake accompanying changes of food components and overall satisfaction with meal in this study provide evidence that food provision influences daily nutrient intake, but not energy intake, in elite female water polo players."
ORAL PRESENTATION

Formation of The Legacy of The Olympics Games and The Olympic Winter Games in The 21st Century

Sport history
"Zinaida Kuznetsova, PhD, Professor, Alexander Morozov, PhD, Senior Lecturer, Ilsiyar Mutayeva, PhD, Professor"
"Naberezhnye Chelny State Pedagogical University, Naberezhnye Chelny State Pedagogical University, Naberezhnye Chelny State Pedagogical University"
"RU, RU, RU"

“Background: Introduction. In 2002, under the auspices of the International Olympic Committee (IOC) for the first time an International Symposium “Legacy of the Olympic Games 1984-2000” was held. As the result of the symposium fundamental issues related to legacy, were raised which leave behind the Olympics Games and the Olympic Winter Games. As the result, the key areas that need special attention from the organizing committee - planning for sustainable and long-term management of legacy identified (International Olympic Committee, 2013). Symposium dedicated to the legacy of the games and addition of the Olympic Charter completed the step of forming the legacy as an independent phenomenon.

A new stage - the stage of the extraordinary historic decisions development mark the 127th IOC Session, held on December 9, 2014 in Monaco. In the session, recommendations adapted on reforming the Olympic movement were adapted according to the principles of sustainable development of the city and the country as in the preparation and holding of the Olympic Games, as well as the use of the Olympic legacy in the social, economic and environmental spheres after their completion.

The aim of our study was: to develop the concept of the Olympiad and the Olympic Winter Games legacy.

Object of the study: the development of the Olympic games and Olympic Winter Games legacy.
Subject of the study: the main directions of the Olympic Games and the Olympic Winter Games legacy development.

Methods: analysis of literature; content analysis.

Results and discussion. Analysis of the emergence and formation of the legacy directions leads to the conclusion that today the legacy takes one of the leading positions in the organization and holding of the Games of the Olympiad and the Olympic Winter Games. Aspects of legacy are careful planned. Organizers are trying to take into account the positive and negative legacy of the previous games. This
is reflected in the opening of the new legacy directions. Each direction is the significant legacy of certain tangible and intangible segments Games of the Olympiad and the Olympic Winter Games. Every Games open from 1 to 3 new legacy directions.

Conclusions. All this leads us to conclude that the stage of legacy development which put its beginning in 2002 marked the beginning of the new era of conscious approach to legacy and to give equal attention to what will remain after the Games of the Olympiad and the Olympic Winter Games, along with the organization and holding.

Based on the results of the legacy research questions we have attempted to develop the general concept of the legacy Games of the Olympiad and the Olympic Winter Games. The concept of the legacy represents territory, society, environment and combines all selected directions."
ORAL PRESENTATION

Four Weeks of Maximum Lipid Oxidation Rate Intensity Training and Resistance Training Enhanced Body Composition and Changed Metabolic Profiles Significantly in Obese Youth

Physical activity and health

"Li ZHANG, Jian-fang XU, Cai-hua HUANG, Ying-li LU, Lian-shi FENG, Wen-yuan SHANG, Da-peng BAO"

"China Institute of Sport Science, China Institute of Sport Science, Fujian Medical University, China Institute of Sport Science, China Institute of Sport Science, Beijing Sport University"

"CN, CN, CN, CN, CN, CN, CN, CN"

“Background: Although many studies have found the usefulness of aerobic and resistance training in reducing body fat, few study was about maximum lipid oxidation rate (MLOR) intensity exercise, or has been compared its effect on reducing fat and metabonomics change with resistance training.

Methods: 55 obese youth, whose body fat percentage were over 38%, were divided into control group(C, n=15), aerobic training group (AT, n=20) and resistance training group (RT, n=17). The experiment lasted for 8 weeks. Subjects were submitted to different physical training and the same diet restriction during 1st-4th week and no intervention during 5th-8th week in order to see the sustainability of training effect. The C group didn’t receive extra exercise intervention besides their normal life activity. The AT group was trained by aerobic exercise with intensity of the MLOR point. RT group were trained by resistance strength training. The exercise time was 1.5 hours/day and 6 days/week. The daily calory was based on subject’s personal RMR. Parameters including body composition by DEXA and blood metabonomics by NMR were measured pre-training and at the end of the 4th and the 8th week.

Results: (1) At the end of 4th week, when compared AT and RT groups with C group, significant differences (p<0.001) were observed in: BMI (C 0.433±2.40% vs. AT -8.22±1.95% and RT -7.72±1.70%), total fat mass (C -2.47±9.28% vs. AT -19.89±7.69% and RT -18.36±6.18%), arm fat mass (C -4.51±13.8% vs. AT -22.04±9.36% and RT -16.30±8.45%), leg fat mass (C -3.65±7.73% vs. AT -8.78±27.22% and RT -15.80±4.63%), trunk fat mass (C -1.48±12.8% vs. AT -21.97±9.68% and RT -20.04±9.03%), total muscle mass (C 1.54±3.03% vs. AT -2.28±2.16% and RT -1.77±3.77%). When compared AT group with RT group, we only found significant difference in total muscle mass (p=0.004).

(2) When compared the change between the 8th week and the 4th week in AT group, significant differences(p<0.05) were observed in: total fat mass (-3.89±6.79%) and trunk fat mass (-5.73±7.86%). In RT group, significant differences were observed in: arm fat mass (-5.79±10.63%) and leg fat mass
(-4.06±6.45%). However, no significant differences was found between AT and RT groups. (3) Metabolic profiles of 4th week and 8th week could be distinguished from each other and 19 metabolites were identified by OPLS-DA, which are characteristically manifested mainly in lipid, energy and creatine metabolism. Inflammatory marker NAC also has changed. However, the scores plot of the PCA model showed a differentiation tendency of metabolic profiles by training but return by detraining.

**Conclusions:** Four weeks of resistance strength exercise and maximum lipid oxidation rate intensity exercise combine proper diet restriction showed satisfied effect on reducing body fat. And the metabolic profile was also been significantly affected, but resumed by one month of detraining. Resistance exercise showed better benefit of protecting muscle than aerobic exercise. The fat mass reduces faster in body parts that not participate in exercise directly than body parts that directly participate in exercise."
ORAL PRESENTATION

From East to West: Growth and Organization of Asian Sports in North America

Sport development

"Mandy Y. Zhang, Minkil Kim, Kevin K. Byon, James J. Zhang"
"Shanghai University, Troy University, Indiana University, University of Georgia"

"Background: Sports are becoming a huge business globally. As the cradle of modern sports, Western countries have spread their sport forms, ideologies, and products to other parts of the world. Asia has become a prime target market for the expansionary strategies of many powerful sports leagues, teams, companies, and media. With the rapid growth of Asian economies in recent years, increasingly more Asian countries and organizations are becoming exporting entities. Can Asian sport organizations start doing the same to counter the global dominance of Western sports? At least, Asian sport organizations should look into the possibility of reversing the tide, gradually increasing the presence of Eastern sports overseas, and ultimately letting the world enjoy the benefits of Eastern sports. Through studying three sport examples (i.e., Taekwondo (TKD), tai chi, and table tennis), this qualitative study was aimed to illustrate the growth, organization, challenges, and opportunities of Asian sports in North America.

Method: Following qualitative research procedures, three sources of information (literature review, interviews, and observations) were collected to identify themes and assertions associated with the development of TKD, tai chi, and table tennis in North America. Interviews with open-ended questions were conducted with managers of sport clubs located in the Southeastern region of the U.S. that offered TKD, tai chi, or table tennis programs. Non-intrusive observations were also conducted in these clubs.

Results: TKD is widely considered “the most popular martial arts” in North America. To a great extent, achievements in TKD’s high popularity, participation rate, and international recognition are attributable to the concerted promotional efforts made by the Korean government. Tai chi is also considered valuable participatory activities. Despite of its recognized benefits, unlike TKD, tai chi is not a familiar activity for many Americans. Its traditional styles are difficult to instruct and learn although there are some simplified forms; also, its slow motion is not attractive to some desiring for fast-paced sport activities. Originated in England, table tennis has comparatively gained more popularity in Asian countries over the past century. In recent years, it has increasingly become a favored leisure activity in North America due to promotional efforts made by table tennis associations, ease of having a table tennis table, and expanded Asian population living in North America.
Conclusion: TKD is the most successful Asian sport being promoted in North America because a relatively high market demand has been developed through creating consumer awareness, tying with consumer needs for fitness and self-protection, recruiting club members, and establishing a well-designed competition system. Those fruitful lessons learned in TKD can be seriously considered by those who organize and promote table tennis and tai chi."
From Representativeness to Opportunism: Championships from São Paulo State

Governance and policy

"PAMELA PIRES SILVA, MICHELE VIVIENE CARBINATTO"
"USP - University of São Paulo, USP - University of São Paulo"
"BR, BR"

Background: The professionalism of sports activities began mainly with the systematization of European Gymnastics Methods, in which those proposals commenced to be scientifically proven. As a result, the expansion of the sport had been defending in diverse policy areas - such as education and health - which required a sports organization in different aspects. One of them turned to the professional athlete, whose involvement in a particular practice has become, mostly, unique and linked to labor rights, such as receiving salaries, vacation and bonus. In some cases, athletes have received salaries in a season or particular event, according to specific championships regulations.

Methods: In this research, we expose the opinion of coaches with significant results in “Jogos Regionais” and “Jogos Abertos”, both championships between cities and villages from São Paulo state that includes several sports embracing men’s artistic gymnastics and women’s artistic gymnastics. Seventeen coaches from seventeen cities were interviewed, represented by first to third place in the two categories (free and sub14) in MAG and WAG, in both division in the year 2014. Data were collected through semi-structured open questions and the analysis was done by Content Analysis, in which different themes were elucidated, among them hiring athletes.

Results: As a result, we observed a constant dichotomy (good x bad) of coaches’ opinion. The positive side refers to the fact that to hire motivate athletes who are not part of the core team in the city he/she trains- which would take him/her to the secondary team- and athletes in burnout and/or retirement, to postpone those processes, remaining active. Moreover, it allows some cities participate in events with complete teams, by hiring and/or lend a gymnast. By contrast, hiring athletes obscures and falsifies the sports policy for AG, because sometimes the city on the podium does not have artistic gymnastics gym, coach, and even a gymnast. It is important to reveal that the purpose of those championships is to expand the practice of different sports in São Paulo state and therefore hiring athletes inhibit this development.

Conclusions: The coaches provided solutions and suggestions: encourage coaches with greater quantitative athletes to organize the participation of the secondary team in other types of events such
as the Municipal Leagues and inhibit hiring entire teams, it means, do not authorize more than half of the team from other cities and/or states.”
ORAL PRESENTATION

Game Load and Heart Rate in Wheelchair Basketball Game

Elite performance

"Bruna Barboza Seron, Jessyca Bueno da Silva, Emanuel Messias Oliveira de Carvalho, Everaldo Lambert Modesto, Eloise Werle de Almeida, Marcia Greguol"

"Londrina State University, Londrina State University, Londrina State University, Londrina State University, Londrina State University"

"BR, BR, BR, BR, BR"

“Background: With the wheelchair basketball becoming increasingly competitive, the highest level of performance has become required from athletes. In this way, proper monitoring of training and game loads is fundamental to optimize athletic and technical performance in players, allowing the development of more specific and safe practice. Studies have shown different technical/tactical and physiological behaviors among athletes of different functional classes, position on the court and practice time. The aim of this study was to describe the internal load (IL) during a wheelchair basketball game and correlate the heart rate data to the functional classification

Methods: The group of study consisted of 10 athletes from the wheelchair basketball teams of the State University of Londrina and the State University of Maringa, with an average age of 32, 10 (±6, 56). To obtain the heart rate values a friendly match game was performed, with four times of 12 minutes. The frequency data was measured using heart rate monitors Sunto Team Pod (SuntoOy, Finland). The calculation of the internal load was made over time, in minutes, on each heart rate zone ( 50-60%, > 60-70%, > 70-80%, > 80-90%, > 90-100%), using the formula proposed by Edwards. Mann Whitney tests and Spearman correlation tests were performed between the heart rate variables and functional classes, adopting p <0.05.

Results: Players of higher functional classes showed higher internal load values (155 ± 55.96) that the lower classes (128 ± 42.12); there were no significant differences between the functional classes and HR at rest (p = 0.67), maximum HR (p = 0.405) and average HR (p = 0.133); there was moderate correlation (0.68) between HR at rest and functional classification and strong correlation (0.85) between maximum HR and average HR.

Conclusions: Players of higher functional classes have a higher internal load compared the lower classes; There were no differences in maximum, average and at rest heart rate values between functional classes; strong correlation between maximum HR and average was observed."
ORAL PRESENTATION

Gender differences exist in joint mechanics and neuromuscular control patterns during the stance phase of an unanticipated side-cut maneuver in elite rugby players of China

Sport medicine and injury prevention
"Luzhiyong, Liwei, Dingjie, Louzhikun, Xieqiang, Liguoping"

"National Institute of Sports Medicine, Beijing, China, National Institute of Sports Medicine, Beijing, China, National Institute of Sports Medicine, Beijing, China, National Institute of Sports Medicine, Beijing, China, National Institute of Sports Medicine, Beijing, China, National Institute of Sports Medicine, Beijing, China, National Institute of Sports Medicine, Beijing, China"

"CN, CN, CN, CN, CN, CN"

"Background:
Many non-contact anterior cruciate ligament (ACL) injuries in rugby players occur during sidestep cutting. Females unfortunately have a non-contact ACL injury rate 2–8 times higher than their male counterparts. However, the exact mechanisms of how prolonged activity increases the risk for ACL injuries are not clear. Firstly, the objective of this study was to identify the stance phase of a sidestep cutting maneuver that place rugby players at a greater risk for ACL injuries. Secondly, we try to find the difference between male players and female players during the stance phase of an unanticipated side-cut maneuver.

Methods:
Three-dimensional motion analysis was performed using a marker-based, 11-camera digital motion capturing system (250 Hz; Qualisys, Gothenburg, Sweden). Ground reaction force data were obtained using a force platform (1500 Hz; AMTI, Newton, MA, USA) embedded into the floor. Bipolar superficial EMG sensors (Blue Sensor; MEDICOTEST, Olstykke, Denmark) were placed over the muscles.

Fifteen healthy Chinese national female rugby athletes and ten healthy male athletes were asked to perform an unanticipated side-cut maneuver; the hip, knee flexion and valgus angles, GRF as well as the electromyographic activity of the vastus lateral, vastus medial, biceps femoris, and semimembranosus muscles of the dominant leg were analyzed during the maneuver. A kinematic and inverse dynamic model was used to calculate the three-dimensional hip, knee postures.

Results:
The mean knee valgus angle peak, hip abduction and internal tended to be greater for females than males (P<0.05). Moreover, the ratio of hamstring to quadriceps muscle activation for female players was significantly lower than that for male players (P<0.05). Females demonstrated greater lateral and medial
gastrocnemii activity for the early stance phases of the side-cut (P<0.05). A rectus femoris activation difference was identified with females having an earlier and more rapid rise in muscle activity during the stance phase (P<0.05). The differences suggest that the activation patterns observed in females might not be providing adequate joint protection and stability, thereby possibly having a contributing role towards increased non-contact ACL injuries in females.

**Conclusions:**

Female rugby athletes have a higher risk for ACL injury during the stop phase. Moreover, these data further suggest that the hip may play a different role during cutting to smaller and larger angles and also illustrate a pattern of engagement in the sagittal and frontal planes that has not been described previously."
ORAL PRESENTATION

Geographic Environment Distribution of Chinese Adults’ Physical Activity Level

Physical activity and health

"ZHANG Yanfeng, WANG Mei, LI Jijiang, Zou Jinhui, LI peihong"

"China Institute of Sport Science, China Institute of Sport Science, Si Chuan Research Institute of Sport Science, Guang Xi Research Institute of Sport Science, China Institute of Sport Science"

"CN, CN, CN, CN, CN"

“Background: Physical activity pattern is influenced by climate, geographic environment, as well as economy. China features a vast territory, with great differences in nature and economic condition. Thus, it is important to understand the geographical environment distribution of the resident’s physical activity level to provide scientific base for policy-maker and physical activity promotion.

Methods: The research objects were the adults aged 20-59 years old in the fourth National Physical Fitness Surveillance in 2014, which covered 31 provinces of Chinese mainland. Multi-stage stratified random sampling and face-to-face interview were used. The total sample size is 146703 adults, including 73104 males and 73599 females.

“Physical Activity Questionnaire for Chinese Residents” was developed, in which the core based on the “IPAQ”. And it confirmed by reliability and validity analysis.

One-way Analysis of Variance and K-Means cluster analysis were used to analysis Data. The physical activity level (PAL) was evaluated by METs. Three physical activity levels are divided, which are sedentary, moderate PAL and active PAL.

Results: There are two kinds of geographical environment area in this study: one is natural geographical climate area that is divided whole Chinese regions by south and north according to the traditional division standard of geographical and climatic environment. The north covers 16 provinces, including Beijing, Tianjin, etc; the south covers 15 provinces, including Shanghai, Jiangsu, etc.; Another is economic geographical area, three economic zones are divided according to the division standard of regional economy of China, which are eastern, middle and western, represent developed, developing and under developed economic zone respectively.

Results show: compared to the adults in the north part of China, adults in South have higher proportion of sedentary PAL in traffic (55.5% VS. 48.5%), lower percentage of active PAL in occupation (1 percentage lower), lower percentage of moderate PAL in housework (47.0% VS. 57.6%), and higher percentage of active PAL in leisure time (6.3% VS. 5.8%).
In view of the overall physical activity level, adults in the eastern have higher percentage of sedentary PAL and moderate PAL than that in the middle and the western. The proportions of active PAL population in the eastern, middle and western are 30.7%, 37.4% and 42.2% respectively. The proportions of active PAL population in the south and north are 37.5% and 35.2% respectively.

**Conclusions:** There are significant differences of PAL among Chinese adults in different geographic areas. Adults’ PAL in transportation and occupation decreased with the going up of economic development in different economic zone. There is a trend of that the adults in adjacent provinces had similar PAL in geographic distribution."
ORAL PRESENTATION

Goalball - Effect of Rule Changes and Performance Impact of Techniques

Elite performance
"Christoph Weber, Daniel Link, Thomas Prokein"
"Technische Universität München, Technische Universität München, National Paralympic Committee"
"DE, DE, DE"

“Background:

Goalball is a paralympic disciplines designed for visually impaired athletes. The goal is that two opposing teams, each consisting of 3 players try to score points by rolling the ball into the oppositions’ net. Players wear blindfolds to guarantee equal impairment. The ball contains bells allowing players to echolocate movements. So far only very few studies in the field of Goalball performance analysis can be found. The purpose of this study is to analyze possible effects of rule changes made by IBSA-Subcommittee Goalball in 2014 (change of 10-Sec. Violation-Rule and 3-Time-Bowling Rule per player). This includes information’s about changes within general structure of performance. Furthermore influence of playing techniques on performance parameters are the focus of this investigation.

Methods:

Altogether, performance in 145 Goalball matches (Paralympics 2012, European Championships 2013; World Championships 2014; 79 men games, 66 women games) was analyzed. A semi-automatic computerized software was used to analyze each bowl (n = 24066) regarding scoring sector, ball speed and individual bowling patterns.

Results:

Neither men nor women show significant difference regarding to no. of bowls, between games in 2013 and 2014 (Men: U = 146.50; p = .143; r = -.22 Women: U = 119.00; p = 0.78; r = -.28). Concerning penalties per game women games show no significant difference between 2013 and 2014 (U = 155.00; p = .479; r = -.11), instead of a significant change in men games in 2014 (F = 4.95; df 0 41; p = .006; d = -.95). The remove of 3-Bowl-Violation must be analyzed for each individual player and team. Individual case examples show a tendency towards the exploitation of this rule change in its dependencies of team characteristics (e.g. Finland). A statistically significant effect of scoring goals is proven by using so called “bouncing balls” in men, χ² (1, N = 11501) = 3.77, p = .02 and women games (χ² (1, N = 9093) = 29.57, p < .001). The statistical examination by the χ²-test method shows no significant difference according to the bowling technique “Rotational” vs. “Regular” in men games, χ²
(1, N = 11501) = 1.88, p = .17. Contrary to this, the statistical evidence that the bowling technique “Rotational” is more effective in women games, χ² (1, N = 9095) = 20.22, p < .001. Scoring sector analyses show significance differences on sector 3 and 7 (n = 19754; χ² = 7.50, p ≤ .005).

**Conclusions:**

In this study, an investigation on effect of rule changes was conducted. The change in the rules was wisely executed so that the structure of the game was only minimally changed. Differences of techniques for performance were demonstrated statistically. Scoring sector analysis proved coaches and players opinion that it is easier to score on sectors, where defensive responsibilities of two players overlaps. Additional research should further investigate underlying causes of observed bowling patterns."
ORAL PRESENTATION

GOALBALL ATHLETES´ LIFE HISTORY

Sport eligibility and inclusion
"Glenda Andriani Booz, Antonio Luis Fermino"
"Independent, Independent"
"BR, BR"

GOALBALL ATHLETES´ LIFE HISTORY

Keywords: Goalball, Life Stories, Athletes, Visual Impairment.

The adapted sports have been increasing over the years, these sports already have one of the biggest events for people with a disability which is call Paralympic Games. One of the sports presents in this event is Goalball whose main factor is the only sport designed for people with disabilities, in this case with visual disabilities, other sports are modified and/or adapted for players and their disability.

General objective of this research was to analyze the life stories of Goalball athletes, and the methodology was a descriptive and exploratory research and field analysis, where we did a standardized questionnaire with 19 open and closed questions concerning the life of some Santa Catarina Association team athletes Adapted Sports (ACESA) of Florianópolis, SC. All athletes were invited to participate in the study but only three male athletes were part of this questionnaire.

The Goalball could be a collective game, and help in a better social life help, serving as an improvement in the life of those who practice it, because through this sport they can show everyone that they are the same as FJ quotes "he brought benefits to society, because just to seeing the smile on their faces, knowing that they see us doing a sport they are happy and that for me is a great benefit [... ]". In addition to the social part of this sport, it assists in spatial sense, hearing, motor development, physical and perceptive, PH quotes the benefit brought to his life 'The Goalball helped me on my hearing, orientation, helped me in living, because it is a team sport [ ... ]'. Thus, the Goalball brings benefits to those who practice it and those life stories prove that people seek in the sport to overcome their feelings.

It was found that this sport is important in the lives of athletes as it helps in social life providing different livings, team interaction, closer relationship with other athletes, the spatial concept, etc., and also in physical and motor life. The participation of athletes on this research was fundamental because they reported the benefits of Goalball in their lives.
Therefore, the survey was satisfactory, because we had the opportunity to know the athletes better, and not only helping my research, bringing facts of their lives but also showing me that is no problem that I cannot overcome.”
GOING TO THE MATCH - AN ANALYSIS OF A 6 WEEK REMINISCENCE THERAPY INTERVENTION ON A GROUP OF MEN WITH DEMENTIA.

Physical activity and health

Glyn Harding
University of Worcester
GB

“Background:

There are currently some 850,000 people in the UK living with dementia. By the year 2015 it is predicted that this figure will rise to at least one million.

The financial cost of dementia to the UK economy is in excess of £26 billion per annum. Family carers of people with dementia save the UK Government £11 billion per year.

Approximately two thirds of dementia sufferers live within the community, with the other third living in a care home.

It is estimated that of the 60,000 deaths each that are attributable to dementia, could be reduced by half, i.e. 30,000 people, if the onset of dementia was delayed by five years (Alzheimer’s Society 2015).

In the absence of a known cure for dementia, there are a numerous initiatives and therapies undertaken by a variety of organisations in an attempt to improve the quality of life for both sufferers of dementia and their carers (Department of Health 2015).

One such initiative is a form of reminiscence therapy delivered to dementia patients and carers using football as the main focus. There is a growing surge of enthusiasm for football based reminiscence therapy. However despite the interest for this form of therapy, the delivery mechanisms, training requirements and outcome based evaluations is not well advanced (Watchmen et al. 2015).

The aim of this study is to investigate the impact of football based reminiscence therapy sessions on dementia patients and their carers based on the views of associated professionals.

Methods:

Semi structured interviews

Results:

Quotes and findings to show that the approach is hugely beneficial to service users and carers.

Conclusions:

An interesting and evolving topic that can be transferred to a range of sporting and activity settings.”
GROWTH, DEVELOPMENT AND PHYSICAL FITNESS RELATED TO HEALTH (PFRH) IN CHILDREN AND ADOLESCENT OF SANTOS CITY – Longitudinal Study

Physical activity and health

"Aurea dos Santos Mineiro, Lenir Duarte Gonçalves, Louise Madsen, Rose Rodrigues da Silva, Leandro dos Santos Souza, Maria Luiza T.L. Steola, Claudio Scorcine, Emilson Colantonio"

"Federal University of São Paulo, Federal University of São Paulo, Federal University of São Paulo, Federal University of São Paulo, Federal University of São Paulo, Federal University of São Paulo, Federal University of São Paulo, Federal University of São Paulo"

"BR, BR, BR, BR, BR, BR, BR, BR"

“Background: To identify risk population groups and what affect the harmful effects of health in childhood and adolescence are important initiatives to develop relevant interventions on the control chronic diseases in adult life. As such, the aim of this study was to analyze the behavior of the variables related to growth, development, and PFRH, of children and adolescents during four years (2012, 2013, 2014 e 2015).

Methods: This study was approved by the Committee of Ethics of Universidade Federal de São Paulo, under appraisal no. CEP 234/11, and informed written consent was obtained from all volunteers before starting the study. The sample was composed by 27 students (14 boys and 13 girls) from 8 to 15 years old. The variables investigated were: body mass [BM (kg)], height [H (m)], body mass index [BMI (kg/m²)], percent of body fat [%BF], flexibility [Flex (cm)], aerobic fitness [AF (m)], speed [S (m/s)], lower limbs strength [LLS (cm)], upper limbs strength [ULS (kg/f)] e abdominal [ABD (rep)]. The repeated measures test and post hoc of Bonferroni were used for analysis and comparison during four years of the study.

Results: There has been a significant increase of BM for the girls from 2012 to 2013, 2014 and 2015 (p=0, 00), and from 2013 to 2014 and 2015 (p=0, 046 e 0, 007). For the boys, the increase of BM happened from the first to the following assessments (p=0, 00). The height had a significant increase for the girls from 2012 to 2013, 2014 and 2015 (p= 0, 00; 0, 00; 0, 029); since for the boys this increase was found from 2012 to 2014 and 2015 (p=0, 00). Regarding the BMI, the results were quite similar to those found for BM. No significant difference was found for the variables %BF, ABD and S in both genders. With respect to physical performance variables, the Flex showed a significant increase from 2012 to 2013 and 2014 (p=0, 057; 0, 025) for the girls, and for the boys there is no changes. For AF, the girls didn’t showed significant difference, since the boys showed difference from 2012 to 2014 (p=0,
008). For LLS, the girls presented a difference from 2012 to 2013 and 2015 (p=0, 00; 0, 014), and from 2013 to 2014 and 2015 (p=0, 00); while in the male gender was found a difference from 2012 to 2013, 2014 and 2015 (p=0, 016;0, 016;0, 00) and from 2013 to 2014 (p=0, 004). As a last variable studied, the ULS showed significant difference from 2012 to 2015 for girls (p=0, 004), and for the boys from 2012 to 2014 and 2015 (p=0, 005;0, 00), from 2013 to 2014 and 2015 (p=0, 014;0, 00), and from 2014 to 2015 (p=0, 005).

**Conclusions:** Through the results obtained, it can be verify that the subjects increased the BM and H, but no difference was found in %BF. For physical performance variables, the more significant increases happened when the strength generated was not depended from actions with much displacement.
HEALTH STATUS, BODY COMPOSITION AND PHYSICAL ACTIVITY OF WOMEN WITH VISUAL IMPAIRMENT IN CLIMACTERIC AND POST MENOPAUSE

Physical activity and health
"ELOISE WERLE DE ALMEIDA, MÁRCIA GREGUOL"
"STATE UNIVERSITY OF LONDRINA, STATE UNIVERSITY OF LONDRINA"
"BR, BR"

“Background: Menopause may be defined as complete cessation of menses. The climacteric or perimenopause is the period before this event and is characterized by a series of hormonal transitions that result in changes in the body and health of women. Just as women in the general population, women with disabilities are often affected by symptoms of perimenopause and menopause and its implications in the state and health care. Thus, the aim of this study was to analyze the health status, physical activity and body composition in women with visual impairment during climacteric, and postmenopause.

Methods: A descriptive-correlational study with 19 Brazilian women with visual impairment in perimenopause or menopause was conducted. The assessment of body composition (% mass Fat, Lean Mass%) was performed by analysis with quadrupole bioimpedance of Biodynamics, model 310, United States. The Women’s Health Questionnaire was applied, which evaluates the perception of women in general in relation to their physical and mental health, and also the short version of the IPAQ questionnaire to assess the level of physical activity.

Results: was found that 84.2% (N = 16) of women practiced a minimum of 150 minutes of weekly physical activity and were considered active, however the average fat percentage was 39.2%, characterizing the sample as obese seconds WHO criteria. When correlated the results of physical activity time and the percentage of fat, there was no significant correlation, indicating that the physical activity time does not interfere with fat percentage of participants. Regarding the self-perceived health, the results of the women's Health Questionnaire indicate that 21.1% (N = 4) of the participants perceived their health as good and 78.9% (N = 15) as great.

Conclusions: There are many factors that influence the health of women with visual impairment in climacteric and post-menopause. The results found in this study may be indicative that the excess fat does not influence women's health self-perception, and poor generation of body image related to visual impairment, may be a factor which implies that data. In regard to physical activity, even with the most
women characterized as being active, the results of body composition indicate a negative situation. So perhaps the time practice is still insufficient or intensity is not adequate, indicating that needs to be given more attention to this aspect."
ORAL PRESENTATION

Heavy and light snacking elite female water polo athletes, with similar BMI and body composition, have similar overall energy intakes during training

Sport nutrition

"Peng Liao, Aiwen Wang, Xiaoqin Gao, Xiaodan Zhang, Ming Lei"

"Tianjin University of Sport, Tianjin University of Sport, Tianjin University of Sport, Tianjin University of Sport, State general administration of sport"

"CN, CN, CN, CN, CN"

"Background:

Snacking is an effective nutritional practical strategy in elite athletes. However, no reference of snacking patterns of elite water polo athletes has been reported. The aim of this study was to explore the role of snacks of elite female water polo athletes in body composition and daily energy intake (EI).

Methods:

All 20 athletes (23±4 yr, 23±1 kg/m2) from the Chinese Women's Water Polo Team who took the 2014 spring training session were recruited. The subjects trained 32 hours per wk, and prospectively completed 6-training-day dietary records including all food, fluid, and supplements consumed. The types, frequency, components of snacks, and their contribution to BMI, body composition, and EI were also analyzed. Athletes were categorized into light (0 - 3 snacks/d, n = 10) and heavy snacker (≥3 snacks/d, n = 10) according to their snack frequency.

Results:

The subjects self-reported snacking 6.2±2.5 types of snacks and snacked 2.6±1.5 times per day. Fresh fruits, milk, high fat grains/cereals/beans/nuts, dried fruit and low fat grains/cereals/beans/nuts were the top 5 most commonly consumed snacks. The top five contributors to snacking energy intake (EI) were high fat grains/cereals/beans/nuts, fresh fruit, candy/sugar/other sugar foods, dried fruit and low fat grains/cereals/beans/nuts. The content (P < 0.01) and the proportion of snack EI from fat (P < 0.01) of heavy snackers were significantly higher than those of light snackers. Snacking accounted for 13% of daily EI in the full sample. The snack calories (P < 0.05) and the percentage of daily EI from snacks (P < 0.05) of the heavy snackers were significantly higher, but the percentages of daily EI from meals (P < 0.05) were significantly lower than that of the light snackers. No significant differences between heavy and light snackers were revealed related to total daily EI, body fat percentage, and BMI.

Conclusions:
Snacking sometimes facilitates overeating and body weight gain, but regular intake of snacks can satisfy hunger and help prevent overeating at meals and elevate and meet energy and nutrient intake needs. In this study, conducted during high volume heavy intensity training days, the elite female water polo players snacking patterns did not significantly increase their daily EI. Rather the snacking patterns were reflective of their consumption at meals. In conclusion, snack consumption did not significantly increase the daily EI or body weight status of the athletes undertaking high volume intense training. Snacks had energy compensation effect on meal intake of the athletes."
ORAL PRESENTATION

Helper, Helped, or Helpless: Moving beyond deficient positioning of students with physical disabilities in elementary physical education

Sport pedagogy
"Kirsten Petrie, Joel Devcich"
"The University of Waikato, Whitby Discovery School"
"NZ, NZ"

“Background: Experiences in physical education can impact on students’ desire and ability to engage in sport and physical activity beyond the school gates. In Aotearoa New Zealand (NZ) many students with special learning needs, included physical disabilities, are mainstreamed in elementary school classrooms, and generalist teachers predominantly deliver physical education. In previous work we have examined how pedagogical decision-making in the elementary school physical education has a central role in physically disabled students’ being position as the teacher’s ‘helper’, the ‘helped’ as they are been support one-on-one by a teacher aid or another student, or the ‘helpless’ as they sit out of the lesson or stay back in the classroom doing other work. As is evidenced in broader literature such positioning further isolates students from their peers, teaches students that they can only have limited if any involvement in movement-related activities, and as a result leads to them become switched off, despondent, and avoiding future opportunities to participate in physical activity or sport both in and out of school settings. In this paper we examine physical education practice using practice theory (Kemmis et al, 2012) to discuss the ‘sayings’, ‘doings’ and ‘relatings’ inherent in teaching and learning practices in physical education, and examine the practice architectures that constrain learning opportunities for students with physical disabilities, and result in individuals with physical disabilities being positioned as helper, helped, or helpless.

Methods: This research is drawn from a critical participatory action research (CPAR) project are explored school, teacher and student practices, and the public/professional/personal discourses that shape pedagogical decision-making in physical education. Data were collected in the form of interviews and/or informal conversations with participants; field notes (reflective thoughts and observations), learning programme materials, and a school/community/media environmental audit. In this paper the theory of practice architectures is used as a framework to analysis the data.

Results: Drawing from the experiences of a classroom generalist teacher we demonstrate how the site-based nature and ecological arrangement of practices reinforces the positioning of students as helper, helped, or helpless. This is accentuated by cultural-discursive, material-economic, and social
political arrangements, for example traditional programme offerings, school PE resourcing, government priorities (initiatives and agendas), and public health discourse that narrowing what it means to be active.

**Conclusions:** If we want to change practices to ensure learning in PE is genuinely inclusive for students with disabilities in mainstreamed elementary school settings then you also have to simultaneously address the practice architectures that constrain opportunities to transform practice. Teachers need to be supported to unpack the architectures that constrain their current practice so they too can avoid positioning learners as the helper, helped, or helpless."
How Active Are the Economically Disadvantaged Women of the Olympic City of Rio de Janeiro?
Analyzing the Four Domains of Physical Activity

Physical activity and health

"Fabiana Rodrigues de Sousa Mast, Arianne Carvalhede Reis, Marcelo Carvalho Vieira, Sandro Sperandei, Luílma Albuquerque Gurgel, Uwe Pühse"
"University of Basel, Western Sydney University, State Institute of Cardiology Aloysio de Castro, Oswaldo Cruz Foundation (FIOCRUZ), State University of Ceará, University of Basel"
"CH, AU, BR, BR, BR, CH"

Background: Despite scientific knowledge of the health benefits of regular physical activity (PA), 20% of the world’s adult population can be considered inactive. Importantly, rates of PA are not distributed evenly in society and several studies indicate that gender and educational and socioeconomic levels have considerable influence on regular PA participation. Recently, sport mega-events such as the Olympic Games have been promoted as opportunities for changing the PA behaviour of the local population, transforming community sport euphoria into motivation for PA practice. However, there is scarce evidence of this impact at the population level. The aim of this study was to analyse the current PA patterns of women living in a low socio-income community in Rio de Janeiro that is located in close proximity to the 2016 Olympic Park.

Methods: This cross-sectional study collected data using the Portuguese long-version and face-to-face interview format of the International Physical Activity Questionnaire (IPAQ). PA levels were measured in four domains: occupational, household, transport-related (TRPA) and leisure time physical activity (LTPA). Adult women were recruited from four sites located within the community of Cidade de Deus.

Results: The majority (54.8%) of participants reported high levels of PA when the four domains were combined. The participants spent, in average, 4040 ± 3278 MET-minute/week (CI95%: 3487 – 4593 MET-minutes/week) on PA. The domains which contributed the most for this pattern were occupational and household PA. When the analysis focused only on LTPA, the vast majority of participants (88.1%) reported low levels of PA (less than 500 MET-minute/week). In the TRPA domain, participating women were relatively more active, but more than half of them (57%) still spent less than 600 MET-minutes/week in this domain.

Conclusion: The results emphasise the discrepancies between different physical activity domains, suggesting also that these low-income women have little opportunity to engage in PA during their
leisure time. The proposed commitments of the Rio 2016 bid committee to increase PA participation by those living in the most disadvantaged areas of Rio de Janeiro need to be effectively implemented if these sedentary practices during self-directed time are to be changed."
ORAL PRESENTATION

How can the training load be adjusted individually in team sports?

Technology in sports

"João Claudino, John Cronin, Bruno Mezêncio, Rafael Soncin, João Pinho, Alberto Amadio, Julio Serrão"

"USP, AUT, USP, USP, USP, USP, USP"

"BR, NZ, BR, BR, BR, BR, BR"

**Background:** Individually adjusting the training load of athletes is of undeniable importance, in optimizing adaptation and performance gains, however, this individualized approach has been a challenge for coaches especially in team sports. The countermovement jump (CMJ) height with the minimal individual difference (MID), an individual’s typical error of measurement and the respective confidence interval, has been suggested as a method for monitoring and regulating training load. Therefore, the purpose of this study is to introduce a method that can be applied by researchers and practitioners to individually adjust the training load of team sports athletes.

**Methods:** Initially, the participants were familiarized with the CMJ. Thereafter, two reliability sessions were conducted after a 24h interval from the last familiarization session. Thereafter, it was possible to calculate the MID of each participant as detailed in Equation 1: \( \text{MID} = \frac{\text{SDiff}}{\sqrt{2}} \times 2.145 \) (1) where, MID is minimal individual difference, SDiff is standard deviation of the difference score i.e. the difference between the scores of jumps performed in session 1 and session 2 of the reliability testing, and 2.145 is used to establish the 95% Confidence Intervals (CI) according to the distribution of probability for \( t(14) \) as \( p<0.05 \). In the T0 CMJ height was assessed with a contact mat to determine jump height. The mean of 8 jumps was used for analysis. The participants were randomly allocated into: the regulated group (RG; \( n=9 \)) and the control group (CG; \( n=9 \)). The CG performed 4 weeks of periodized training, the aim of weeks 2 to 3 were to elicit decreased or stable CMJ height, whereas the aim of week 4 was to decrease jump height (induced overreaching). For the taper weeks, increased CMJ height was the goal. With regards to the RG, CMJ height and associated MID were assessed at the beginning of each week, and if necessary, training loads were modified. At the end of these 4 weeks of intensified training loading (T1) and after 2 weeks of tapering (T2), the participants were reassessed. To quantify the training load, the session-rating of perceived exertion was used. The differences between groups and across time points were analysed via a 2 way ANOVA.

**Results:** In the RG, the MID loading was increased in weeks 3 and 4 (8.2% and 14.5%, respectively; \( p<0.001 \)) compared to the pre-planned loading of the CG during the overreaching phase. However, the
final training load did not differ significantly between groups (p=0.082). In terms of the jump results, the RG significantly (p<0.05) reduced CMJ height during T1 (ES=-0.31: 95%CI: -0.58, -0.02), however there were no significant changes in the CG jump height. At T2, the RG significantly increased CMJ height above baseline (ES=0.30:95% CI:0.09, 0.51).

**Conclusion:** Researchers and practitioners could use the CMJ with MID to regulate and monitor training load in team sports athletes. In terms of utility, the CMJ assessment requires little equipment, it is easy to manage and can be easily applied in the field."
Human Action Recognition Study with Motion Capture System Based on Inertial Sensors

Technology in sports

"Jing Chen, Xiaoqing Fu, Ning Li, Yu Huang, Lei Che, Fuquan Lu"

"Peking University, Peking University, Peking University, Peking University, Peking University, Peking University"

"CN, CN, CN, CN, CN, CN"

Background:
Human identity recognition is a very active research field. Not only walking style but also other activities can provide identity information. The purpose of this study was to examine whether persons performing same actions can be recognized by analyzing data captured by inertial sensors.

Methods:
Nine active volunteer athletes of aerobics performed a set of 3 aerobic actions at a same rhythm of 8/8 beat after putting on the wearable motion capture system named Noitom Legacy, which contain 17 inertial sensors with wireless motion capture analysis software. We chose leg-raising, jumping with clapping overhead and arm-stretching as a set of actions for they represented the movements of the body’s lower part, upper part, and the whole body, respectively. Each action was repeated three times to capture subjects’ respectively motion characteristics.

Results:
Displacement and orientation data of 21 body segments in biovision hierarchical (BVH) format captured by inertial sensor were collected. K-means clustering was applied on these BVH data to explore the most representative orientation angles or the joints positions, using Mata Lab Software. F-value for these three actions were 0.90, 0.91 and 0.90 in leg-raising, jumping with clapping overhead and arm-stretching respectively, which indicated good accuracy in person identity recognition in these three actions.

Conclusions:
Experimental analysis highlights the fact that the way humans perform various actions can be used for identity recognition. The three best calculated values of the different actions came from the upper segments of body with no exception, suggesting that movements of the upper body have the possibility to be one of the most sensitive non-invasive biometrics identification besides gait, while verification and identification application using these inertial sensors, still need to be verified."
Immunoregulation comparison of cordycepin, flammulina velutipes polysaccharide, and glutamine after exhaustive exercise

Sport nutrition

"Xuewen Tian, Lianshi Feng"
"shanghai university of sport, china institute of sport science"
"CN, CN"

**Background:**
The imbalance of the Th1/Th2 ratio, which is attributed to exhaustive exercise, can cause an imbalance in the immune function of athletes. Thus, researchers should use special drugs to recover the Th1/Th2 ratio of athletes that are prone to exhaustion. Exhaustive exercise can impair immune balance in the rat’s body due to change of Th1- and Th2-related cytokines, and some natural products can regulate immune balance. The aim of this study is to evaluate the immunoregulation action of cordyceps militaris cordycepin, flammulina velutipes polysaccharide, and glutamine on rats that were subjected to an intense running session by analyzing Th1- and Th2-related cytokines and transcription factors.

**Methods:**
All rats were subjected to the exercise protocol except for a subgroup rat that was used as the negative control group. On the tenth week, the exercise was stopped. All animals were killed by decapitation after having recovered on the tenth week. Then their blood indexes were analyzed. The mRNA expression of the transcription factors and cytokines in the spleen of rats were assessed via real-time PCR. Meanwhile, the protein expression of the transcription factors and cytokines in whole blood of rats was determined using ELISA kits and western blotting.

**Results:**
The serum analysis results show that cordycepin showed a remarkable ability in regulating RBC, Hb, and PCV. The induction of leukocyte by polysaccharides was remarkable. The mRNA or protein expressions of IL-4, GATA3, T-Bet, IFN-γ, STAT1, and STAT6 in the exhaustive exercise subgroup remained higher than those in the CK subgroup, whereas the expression levels of IL-4, GATA3, T-Bet, IFN-γ, STAT1, and STAT6 in the cordycepin, polysaccharide, and glutamine subgroups were already close to those of the CK subgroup. The results show that cordycepin, polysaccharide, and glutamine could all induce the expression of the transcription factors and cytokines into normal levels, whereas the effect of polysaccharide and glutamine inducing these transcription factors or cytokines expression is most significant.
Conclusions:
The findings of this study imply that the action of cordycepin had the most significant effect on the immunoregulation of rats that were subjected to exhaustive exercise."
Impact of Different Levels of Physical Activity on Physical Fitness in Chinese College Students

Physical activity and health

"Zhonghui He, Weiyun Chen"

"Peking University of China, University of Michigan"

"CN, US"

Background: The continuous declination of physical fitness has reached a high level of concern. This study aimed to examine the impact of different levels of physical activity on physical fitness in Chinese college students by gender.

Methods: 4,710 undergraduates in one university (2298 females, 2412 males) voluntarily participated in this study. Students’ weekly minutes spent in moderate and vigorous aerobic PA were assessed by completing International Physical Activity Questionnaire (IPAQ). The students’ physical fitness was assessed by trained evaluators using the National Students Physical Fitness Assessment Kit during regular physical education classes. The assessment included body height, body weight, lung capacity, standing long jump, and sit-and-reach. Data were analyzed by means of descriptive statistics, ANOVA methods.

Results: Descriptive statistics indicated that 58.7% of students participated in ≤ 90 min. weekly (Low level of PA (LPA)), 35.3% of students spent > 90 min <150 min. in MPA, and 6.4% of students spent <150 min. in VPA. The results of ANOVA revealed significant differences among three levels of PA in male and female cardio-pulmonary function (F = 7.64, p < .01; F = 7.46, p < .01), flexibility (F = 4.71, p< .01; F = 7.2, p < .01), and lower limb strength (F = 16.95, p < .01; F = 13.5, p < .01). The BMI was significantly different among three levels of PA for female students (F = 16.72, p < .01), but not for male students. Furthermore, no significant difference was found between MPA and VPA in cardio-pulmonary function for males and females. Males showed no significant difference in flexibility between LPA and VPA, while females showed no significant difference in flexibility between MPA and VPA. Regarding lower limb strength, no significant difference was found in males between MPA and VPA and in females between LPA and VPA.

Conclusions: Both male and female students who were in MPA and VPA groups significantly outperformed than their counterparts who were in LPA group in cardiovascular endurance, flexibility, and lower-limb strength, but in BMI. However, gender differences in specific fitness between specific levels of PA were found in this study."
ORAL PRESENTATION

Increase in Cardiorespiratory Fitness Improves Inflammatory Status in Obese Women

Physical activity and health

“Obesity Study Group (GEO), Federal University of São Paulo – UNIFESP - Santos, Brazil., Obesity Study Group (GEO), Federal University of São Paulo – UNIFESP - Santos, Brazil., Obesity Study Group (GEO), Federal University of São Paulo – UNIFESP - Santos, Brazil., Obesity Study Group (GEO), Federal University of São Paulo – UNIFESP - Santos, Brazil., Obesity Study Group (GEO), Federal University of São Paulo – UNIFESP - Santos, Brazil., Obesity Study Group (GEO), Federal University of São Paulo – UNIFESP - Santos, Brazil., Obesity Study Group (GEO), Federal University of São Paulo – UNIFESP - Santos, Brazil., Obesity Study Group (GEO), Federal University of São Paulo – UNIFESP - Santos, Brazil., Obesity Study Group (GEO), Federal University of São Paulo – UNIFESP - Santos, Brazil., Obesity Study Group (GEO), Federal University of São Paulo – UNIFESP - Santos, Brazil.”

“BR, BR, BR, BR, BR, BR, BR, BR, BR, BR, BR”

“Background: Obesity is associated with an imbalance in cytokine concentrations and therefore low-grade chronic inflammatory status. The cardiorespiratory fitness (CRF) is an important parameter that can influence the inflammatory status, being a powerful predictor of early mortality independent of physical activity levels, body mass index, or other risk factors. In this way, the aim of this study was to analyze if the increase in cardiorespiratory fitness can improve some pro and anti-inflammatory proteins in obese women after an interdisciplinary therapy.

Methods: A total of 20 obese women (41.8±6.4 years old and BMI 34.5±3.2 kg/m²) performed 32 weeks of interdisciplinary therapy (IT). The therapy was composed by physical exercise 3 times per week, and physiotherapy, nutrition and psychology, once a week, 60 min per session. The CRF was determined by maximum oxygen uptake (VO2max.) using a maximum cardiopulmonary exercise test. The plasma levels of leptin and IL-10 were determined by ELISA immunoassay. All measures were carried out at baseline and after the IT. In statistics analysis were used the percentage difference between pre and post therapy (Δ%) and it were performed a Pearson’s correlation test (p<0.05).
Results: After the IT was found an important correlation between Δ% of VO2max. and Δ% of IL-10 level (anti-inflammatory) (r=0.69, p=0.001); and an inverse correlation between Δ% of VO2max. and Δ% of plasma leptin (pro-inflammatory) (r=-0.58, p=0.007).

Conclusions: The improvement on CRF was associated with an increase of plasma IL-10 level and in reduction of plasma leptin level. Our results show that the more the CRF was increased more the inflammatory status was improved. In this way, the interdisciplinary therapy can be a good strategy to treat obesity and its comorbidities.

Funding: Research relating to this abstract was funded by FAPESP 2015/00953-3 and CNPq.
ORAL PRESENTATION

Influence of low back pain symptoms on motor control
Technology in sports

"Lucas Eduardo Antunes Bicalho, Ana Maria Forti Barela"
"Cruzeiro do Sul University, Cruzeiro do Sul University"
"BR, BR"

“Background: Low Back Pain Comprises an Extremely Common and Costly Condition that Represents the Leading Cause of Disability Globally. Usually, Low Back Pain Presents a Nonspecific Etiology and its Recurrences are Common. Despite Epidemiologic Data Involved Mainly Non-Athletes, Nonspecific Low Back Pain is also a Common Finding Between Athletes of Different Modalities. Among Different Aspects Related to Nonspecific Low Back Pain, Issues Related to Motor Control are the Focus of the Present Study. For Example, Anticipatory Postural Adjustments (APA) are Achieved from a Main Control Mechanism Named Feedforward, Which is Responsible for Predicting Disturbances and Producing Adequate Responses that Maintain Stability. This Aspect of Motor Control Could be Influenced by the Low Back Pain Symptoms. Among Different Motor Tasks to Investigate APA, we Selected Gait Initiation, which is a Functional Task and Corresponds to the Transition between an Upright Quiet Stance and the Execution of the First Step. In this Way, the Main Goal of this Study was to Compare Gait Initiation in Younger Adults with and without Nonspecific Low Back Pain Symptoms.

Methods: Eleven Individuals with Nonspecific Low Back (“LBP group”) and 11 Individuals without LBP Symptoms (“Control Group”) Paired by Sex, Age and Anthropometric Characteristics Participated in the Study. All Participants were Requested to Stand Still with One Foot on Each Force Plate, Side-by-Side, and Body Weight Evenly Distributed Between both Feet. At a Verbal Command, they Should Start Walking with Right Foot at a Comfortable and Self-Selected Speed. Reflective Markers were Placed Bilaterally on Heel and Third Metatarsal Head in Order to Detect the Following Events: Heel-Off and Toe-Off of both Feet, and Heel Strike of Step Foot. From Force Plates’ Data, Ground Reaction Forces and Center of Pressure (CoP) in the Anterior-Posterior (AP) and Medial-Lateral (ML) Directions were Calculated. From the Events and CoP, APA Duration and Displacement on AP and ML Directions were Calculated.

Results: Participants from LBP Group Presented Longer APA Duration and Reduced Displacement of CoP in the AP Direction Compared to Participants from Control Group. No Difference was Found for the Displacement of CoP in the ML Direction.
Conclusions: APA are Determined by Descending Commands from Central Nervous System prior the Execution of Any Voluntary Movement. In Gait Initiation, APA Consists of a Backward and Lateral Displacement of CoP. Since Individuals with Nonspecific LBP Symptoms Presented Reduced Backward Displacement and Longer Duration of APA Compared to Individuals with no LBP Symptoms, we can Suggest that LBP Symptoms can Influence the Feedforward Control of Voluntary Movement, Mainly in the AP Direction which is the Progression Line of Gait.
Influence of Physical Fitness on Special Judo Fitness Test Performance: a Multiple Linear Regression

Elite performance

"João Paulo Lopes-Silva, Braulio Henrique Magnani Branco, Emerson Franchini"

"1Martial Arts and Combat Sports Research Group, 1Martial Arts and Combat Sports Research Group, 1Martial Arts and Combat Sports Research Group"

"BR, BR, BR"

“Background: Special Judo Fitness Test (SJFT) is a widely used test in judo research, as also to evaluate competitor’s judo specific physical capabilities. Thus, the purpose of this study was to identify the physical fitness variables that best predict SJFT performance.

Methods: Thirty-five male experienced judo athletes (age: 23.8 ± 5.7 years, body mass: 79.8 ± 11.9 kg, height 174.5 ± 0.6 cm and body fat: 14.3 ± 4.1%) at national and international levels took part in the present study. All athletes performed the following tests: a) an upper-body cycle ergometer graded exercise test; 2) a lower-body cycle ergometer graded exercise test; 3) an upper-body Wingate test; 4) a lower-body Wingate test; 5) a SJFT. In the 1st and 2nd visits athletes performed a graded test and a Wingate test for different body segments on each day, with 45-min interval between them and in the last visit only the SJFT was performed. All visits were separated by 48 hours and were conducted at the same time of day to minimize circadian variance. The VO2peak, maximum heart rate (HRmax), maximum aerobic power (MAP), and the variables corresponding to onset blood lactate accumulation (OBLA) were determined during the graded exercise test. During the Wingate tests, peak power (PP) and mean power (MP) relative to body mass were determined. Furthermore, the total number of throws, HR immediately and 1-min after and SJFT index were registered. Four separated forward multiple linear regression models were used to identify the physical fitness variables that best explained the SJFT performance.

Results: Upper-body VO2peak explained 27% of variance in the total number of throws, while additional 7% was explained by upper-body Wingate test PP. Upper-body maximum HR explained 56% of variance in the HR immediately after the SJFT, while lower-body HR at OBLA accounted for additional 8%. Lower-body maximum HR explained 21% of the variance in the HR-1min after the SJFT, while peak lactate after the upper-body graded exercise test accounted for additional 12%. Relative upper-body VO2peak accounted alone for 15% of variance in the SJFT index.
Conclusions: Based on these results, the data suggest that generic laboratory tests have a small contribution to predict the SJFT variables."
ORAL PRESENTATION

Intercultural Communication and Construction of National Image in the Context of New Media

Sport sociology
"Wu Kun, Jia Lijuan"
"Wuhan Sports University, Wuhan Sports University"
"CN, CN"

“Background: New media has changed the ways people receive and disseminate information and also reshaped the time, space and human perception of time and space. It has become one of the core strength of the social media framework. Major sports events are often not only the world's most influential sporting event, but also the world's most remarkable media events. Extensive media coverage and a large number of audience provide the strategic opportunity for sports news. From the perspective of communication, the media plays the role of linking connections of different political and national ideology. Nationalism is the one of the fundamental principles of attracting audience’s attention on the global sporting event by all the media and advertisers. As a politicized media, the nation's imagination and creativity are the most important news topics of news coverage. Thus, in comparison with the traditional media, new media has played an increasingly important role in spreading sports culture, shaping the national image and enhancing national identity.

Methods:
Expert reviews, questionnaire survey

Results:
1 the influence of new media
The application of new media has made significant changes for the spread of large sporting events. From the range of spreading to production, forms of communication, communication cycle and language style, new media has given a new significance to the intercultural communication of major sporting events. (1) expanding the scope of intercultural communication , (2) changing the content of intercultural communication, (3) enriching the form of intercultural communication of major sports events, (4) reducing the cycle of intercultural communication, (5) transforming the language style of intercultural communication .

2 Main problems
(1) The fragmentation of information dissemination, which can not fully demonstrate national image; (2) the lack of correct guidance of public opinion, for which the audience can easily be mislead to false news and the international society may gain a distorted understanding to national image; (3) the lagging
of legal and regulatory supervision and the spreading of false information and information on sex and violence, which affects the construction of national image; (4) the spread of new media exacerbated the crisis of dissemination imbalance of cultural information, cultural hegemonism, racism and cultural identity prejudices.

Conclusions:
Solutions: (1) increase the national element, highlight the national characteristics and disseminate national culture; (2) purify the environment of the new media and enhance the credibility of new media; (3) increase media literacy and more oriented in humanistic care; (4) emphasis on agenda and actively guide public opinion; (5) establish the awareness of international communication and take a wide range of communication strategies; (6) integrate of fragmented segments and form a multi-level system of propagation; (7) strengthen the building of professional editing team."
Interventions in outdoor play areas of Kindergarten to promote physical activity of girls and boys

Sport pedagogy

"Rosa Diketmueller, Heide Studer, Franz Mairinger, Jenny Lischka, Barbara Gungl, Stefanie Spoerl, Rita Mayrhofer"

"University of Vienna, tilia, University of Vienna, University of Vienna, tilia, University of Vienna, tilia”

"AT, AT, AT, AT, AT, AT, AT"

"Background:

Results in the HAPPY-study indicate that preschool children spend 85% of waking time being sedentary (Hinkley et al., 2012), and less than 50% of the children meets physical activity (PA) guidelines and recommendations (Tucker, 2008; Nicaise et al., 2011). The findings of the baseline study (E1) in the "Kindergarten-project (8 kindergartens, n=333 children; Diketmueller et al., 2014) showed significant differences in PA-levels between girls and boys, esp. of boys with migrant background (highest proportions of time in MVPA). Whereas the offer of specific physical activity programs was associated with higher PA levels of both sexes, large-sized outdoor areas did not automatically lead to higher levels of PA. So the intervention focused on spatial changes, regulations of using the spaces as well as pedagogical concepts.

Methods:

In the evaluation study (E2) of the project physical activity behavior of children in 4 kindergartens (2, 5-6yrs) was collected on three time-points during outdoor play time through direct observation, where types of activity of girls and boys were identified and integrated into maps of activities. In addition, PA was measured by accelerometer (n=140). The results (maps of activity) and the accelerometer data were compared with the findings of the baseline study.

Results:

Based on a methodological triangulation, the comparison of the findings of the baseline and evaluation study (E1, E2) illustrates changes in PA behavior due to spatial, organizational and pedagogical changes: markings led to less conflicts between children, to larger –scaled activities in the outdoor area and to a significant increase of steps of girls. Changes in regulations, like the allowance of using secluded or “hidden” spaces (e.g. behind trees, bushes, …) empowered the children to explore new spaces, enlarged the number of activity patterns and increased significantly the amount of PA of girls and boys.
Conclusions:
The discussion of the results with kindergarten teachers show who important the discussion and visualization of results in activity maps of each kindergarten and the accelerometer-derived physical activity data were to ensure awareness of kindergarten teachers.

References
Investment Analysis of Listed Companies in the Sports industry of China

Sport development
"Maowei Xu, Xianyu Chen"
"Wuhan Sports University, Wuhan Sports University"
"CN, CN"

Background:
In recent years, Chinese sports industry market has entered a new stage of comprehensive development and is being a newborn force of promoting Chinese economic development. Among the most highly developed nations in the Western world, sports industry has become a driving force for domestic economic growth. Contribution degree to national economy of the sports industry in the western developed countries is much better than that of China’s sports industry. So there will be enormous value-added space of China’s sports industry.

In October 2014, State Council of the People’s Republic of China had promulgated the Several Opinions on speeding up the development of sports industry and promoting the sports consumption. This is a clear signal of reform in the sports industry. The goal of the opinions is that, by 2025, china will establish a rational layout, fully functional and complete system of sports industry, and the total size of output value in sports industry will be more than 5 trillion yuan.

Methods:
This study utilizes documentary method, data analysis method and investment evaluation method. The research object is financial data of 30 sports industry listed companies, which collect data from Wind Information Financial Terminal. First, through analyze the existing domestic and foreign investment evaluation methods , this paper makes a detailed analysis of the factors affecting the macro and micro aspects of the sports investment value of listed companies and builds the investment value comprehensive evaluation index system of sports industry listed company. Second, with the annual reports of the listed companies in 2015 and SPSS 16.0 statistic software, we do the factor analysis and cluster analysis. Combining the results of data and investment evaluation analysis, investors can determine the initial investment scope of 30 listed companies.

Results:
According to factor analysis, we get principle factor comprehensive score ranking of sports industry listed company and 5 common factors (profitability, assets operation ability, business growth ability, credit capacity and cash flow). Then, combining the results of cluster analysis, we obtain 4 categories
of the listed company, which are recommended to the investor. The first category includes 2 companies. Every item of their common factor score is very high. The second category includes one company. The common factor score of its 4 items are higher than grand average. The third category includes 5 companies. The common factor score of their 3 items are higher than grand average. The fourth category includes 10 companies. They get 2 items which are higher than grand average and their principle factor comprehensive scores are good. All in all, there are 60% of the companies, which are worth investing in.

**Conclusions:**
Sports industry of China is worth being invested, and there are more than 50% of listed companies worthy to be invested in."
ORAL PRESENTATION

Isokinetic Analysis on the strength of lower limb joints of elite female sprinters

Elite performance
Xiaofeng Li
Chengdu Sport University
CN

“Background: The aim of this paper is to investigate the muscle strength characteristics of excellent female sprinters’ lower limb joints, analysis the test data on different angular velocity, diagnose weakness of tested joints and muscles, which has great practical significance for strength training and prevention of joint injury.

Methods: With IsoMed 2000(made in German)isokinetic muscle strength tester, we carried on flexion and extension isokinetic strength test(bilateral hip, knee and ankle) on 12 excellent sprinters in 60°/s and 240°/s. We had data processing with Spss 19.0, and had paired sample T test on the relatively PT/BW, PTR and ER indexes, significant level \( \alpha = 0.05 \).

Results: The PT/W results of hip, knee and ankle: when move 60°/S, left hip flexor of outstanding female sprinters is 2.03±0.21, right hip flexor is 2.06±0.16, left and right hip extensor are 3.62±0.30, 3.70±0.42; left knee flexor is1.96±0.32, right knee flexor is 1.67±0.36*, left and right knee extensor are2.63±0.56, 2.41±0.44*;left ankle flexor is1.35±0.20, right knee flexor is1.30±0.18, left and right knee extensor are0.35±0.10, 0.33±0.13. when move 240°/S, left hip flexor is1.82±0.18, right hip flexor is1.70±0.29*, left and right hip extensor are2.50±0.26, 3.00±0.37**; left knee flexor is1.69±0.16, right knee flexor is 1.56±0.23*, left and right knee extensor are2.74±0.70;, 2.69±0.45;left ankle flexor is2.74±0.70, right knee flexor is2.69±0.45, left and right knee extensor are0.33±0.03, 0.28±0.04.

The ER results of hip, knee and ankle: the ER of hip joint of left flexor is 0.82±0.13;right hip flexor is 0.90±0.16*; the ER of hip joint of left extensor is 0.80±0.03;right hip flexor is0.93±0.17*; the ER of knee joint of left flexor is 0.70±0.14;right knee flexor is 0.77±0.14; the ER of knee joint of left extensor is 0.64±0.08;right knee flexor is0.75±0.11*;the ER of ankle joint of left flexor is 0.90±0.13;right ankle flexor is 0.72±0.10**; the ER of ankle joint of left extensor is 0.43±0.12;right ankle flexor is0.45±0.12.

Conclusions: According to the test results above, we can make conclusions as follows:

1. With the increase of angular velocity, the flexion and extension PT/BW of hip, knee and ankle of both side decrease, and PT/BW shows hip > knee > ankle.
2. The outbreak quick stretch ability of ankle is bigger than hip and knee joint. We suggest to strengthen the explosive force training of hip flexor muscles.
3. The flexion and extension endurance of hip joint is relatively good, the flexion endurance of ankle joint is poorer, the extension endurance of knee joint is to be improved. The athletes should improve the flexion endurance ability of ankle joint."
ORAL PRESENTATION

Isports: A Web-Oriented Expert System for Talent Identification in Soccer

Technology in sports

"Francisco Louzada, Alexandre Cristovão Maiorano, Anderson Ara"
"University of São Paulo, Federal University of São Carlos, University of São Paulo"
"BR, BR, BR"

“Background: Nowadays soccer is the most practiced sport in the world and moves a multimillionaire market. Therefore, a club that is able to recruit and develop talented players to theirs fullest potential has a lot of advantages and economic benefits. In the most clubs, new players are selected through scouts and coaches recommendation, with predictive success based mostly on intuition than other objective criteria. In addition, it is known that talent development and identification is a multifactorial process involving many characteristics.

Methods: This work proposes the creation of performance indicators based on multivariate statistical analysis using field tests that reflect the physical and technical aptitude of an athlete. Technical ability are measured by Mor and Christian pass test, 5 cones dribbling test and a kick after pass test and the physical capacity are evaluated by 1000 meters on a track test, cyclic speed of 20 meters test and the anaerobic power test (RAST). Usual principal components and factor analysis are performed to construct physical, technical and general score and copula modeling is proposed to create the consistency index, which generalizes the Z score method.

Results: With these indicators, a web-oriented expert system for analyzing sport data in real time via R software is proposed as a powerful tool for talent identification in soccer. This system, the so called iSports, allows the monitoring and continuous comparison of athletes in a simple and efficient way, taking into account essentials aspects, as well as identifying candidate talented that have above the average performance, that is, who stand out from the studied population of soccer players.

Conclusions: In order to promote and popularize the access of information and the statistical science applied in the sports context, the iSports system can be used in any training center of the country, increasing significantly the knowledge of the athletes in training phase at any school, city or region. Since the system is available on a cloud structure, it is not necessary to install it on local use, requiring only a connection to the Internet indicating that iSports can be used in large scale and accessed from different locations and different type of devices. To the best of our knowledge, this is the first web based system that aims at the discovery, identification and development of talents in soccer."
L-arginine supplementation and endurance training effects on male rats performance, antioxidant system and oxidative stress

Sport nutrition

"Edenilson Pinto da Silva Junior, Leandro da Silva Borges, Sandro Massao Hirabara, Rafael Herling Lambertucci"

"Cruzeiro do Sul University, Cruzeiro do Sul University, Cruzeiro do Sul University, Federal University of Sao Paulo"

"BR, BR, BR, BR"

"Background: Skeletal muscle has several physiological functions. One of the most important function is the ability to regulate the redox status through reactive oxygen species (ROS) production and the modulation of its antioxidant system. Intense exercise practice is the main characteristic of several sports, and is known to be responsible to induce oxidative stress. Nutritional supplements are commonly used among athletes to increase their performance, and also to reduce some damages that can be caused by intense exercise. L-arginine is a conditionally essential amino acid that actively contributes to several process, such as: urea synthesis, cellular growth and nitric oxide production. Furthermore, new evidences are proposing that L-arginine could also be beneficial to skeletal muscle, by regulating some antioxidant enzymes and controlling ROS production. Therefore, the aim of this study was to evaluate the effects of L-arginine supplementation on trained and untrained rats’ performance and skeletal muscle oxidative stress and antioxidant system.

Methods: It was used 40 male Wistar rats which were divided into 4 groups: control (C), control + L-arginine (CA), trained (T) and trained + L-arginine (TA). After 8 weeks of endurance training, rats were submitted to an intense exercise section and then immediately euthanized. Maximal velocity and total time of section were used as performance indicators. Oxidative stress and the antioxidant system were evaluated by the following Methods: TBARS, GSH/GSSG ratio, uric acid concentration, iron, nitrate and activities of antioxidant enzymes (superoxide dismutase, catalase and glutathione peroxidase).

Results: It was found that L-arginine supplementation has improved rats’ performance, mainly when associated to training. Additionally, L-arginine and exercise training reduced some oxidative stress biomarkers. This response was exacerbated when they were associated. Supplementation and exercise training were alone capable to increase glutathione peroxidase activity. When combined, besides glutathione peroxidase, catalase activity was increased as well.
Conclusions: We concluded that L-arginine could be a good strategy to sports practitioners, being able to improve their performance and attenuating some damages that can be caused by oxidative stress. Studies in humans are now need to be carried out to confirm this hypothesis.
Leisure-time physical activity and health-related quality of life of the Chinese young people in the network era

Sport and quality of life for adolescence and aging
Beatriz Pereira
University of Minho
PT

**Background:** Nowadays, the Internet has penetrated every corner of society. According to the report of the China Internet Network Information Center, by the end of December 2015, China had 688 million people using the internet, which represented around half of the country’s population. Yet those aged between 10 and 39 comprise 75.1 % of the overall number. The internet makes our life much more convenient and efficient and it also brings many negative impacts as well. The Chinese National Survey on Students Constitution and Health began in 1985 and it repeated every 5 years. The surveys showed that the Chinese young peoples’ physical fitness had deteriorated over a 30-years period, which has aroused great concern to the government and society. The aim of this study was to study the relationship between the Chinese young peoples’ leisure-time physical activity (LTPA) and health-related quality of life (HRQoL).

**Methods:** By using the methods of literature consultation, investigation, statistics, and comparison, 2743 of students (female:1384 vs. male:1359) aged 11-22 yrs were randomly selected from Shanghai, China. The leisure-time physical activity level was estimated by The International Physical Activity Questionnaire. The health-related quality of life was measured with the Medical Outcome Study 36-item short form (SF-36), the SF-36 assesses four dimensions of physical health: physical functioning (PF), role functioning-physical (RP), bodily pain (BP), and general health perception (GH). Additionally, it assesses four dimensions of psycho-social health: vitality (VT), mental health (MH), role functioning-emotional (RE), and social functioning (SF). SF-36 has been widely used in of clinical and nonclinical studies, which has good reliability and validity.

**Results:** The study showed that 31.9% (female:24.4% vs. male:39.5%) of the students participated in regular basis of moderate to vigorous physical activity (MVPA). Results from multivariate analysis showed that the young people meeting physical activity recommended level was associated with higher perceived HRQoL scores (except in Bodily Pain dimension for male). Partial correlations revealed small-to-moderate associations between LTPA and GH, VT, and MH (P<0.05). The comparative study showed that the Chinese young people had lower HRQoL scores than the Chinese Taiwan young people.
people in most dimensions of HRQoL. The reasons were likely to be intense learning and exam, job competition, lifestyle change, and so on.

**Conclusions:** With the influence of the rapid economic development, globalization, urbanization and information networking, the Chinese lifestyles have changed dramatically. This study listed some health problems among the Chinese young people. It indicated that regular leisure-time physical activity can help young people to improve their HRQoL in Vitality, Mental Health, and General Health. It can help the young people to reduce the risk of mental health problem. Face with the challenges of the network era, the government, society, school and family need to work together to promote healthy and active lifestyles for the young people."
Management Capacity at Sport and Recreation Facilities at Local Government Level

Governance and policy
"Anneliese Goslin, Darlene A Kluka, Gontse Sere"
"University of Pretoria, Barry University, FL, University of Pretoria"
"US, ZA, ZA"

Background:
The mandate of public local government is to provide services to constituents to improve overall quality of life. Local governments are increasingly pressured to provide services that reflect value for taxpayers’ money and promise sustainable development. Sustainable development is, in turn, dependent upon quality decisions by political leaders and management capacity of civil servants.

Methods:
This study aimed to (1) determine the management capacity profile at sport and recreation facilities on local government level; and to (2) identify areas of concern related to management capacity. A quantitative, case study research design with a non-probability purposive sample (n=8) was used. Although the purposive sample of eight recreation and sport facility managers is small, these respondents were responsible for managing 68% of the sport and recreation facilities within the scope of this investigation. Data was collected using the criteria-based Capacity Analysis Tool self-reporting questionnaire consisting of 88 sub-elements over eight dimensions of management capacity (leadership, governance and strategy; administration and human resources; finances and budget of the facility; project design, management and evaluation; technical capacity; advocacy and networking; community ownership and accountability and fundraising) and has a Cronbach Alpha value of 0.89 (α=0.89).

Results:
Results indicated that the internal systemic management capacity of the particular department in this investigation measured unsatisfactory (≤2.50) in five of the eight management dimensions. While three dimensions scored satisfactory (≥2.50), the overall collective management capacity score for all eight dimensions was unsatisfactory at =2.33.

Conclusions:
As scholars proved a link between management capacity and organizational performance, it can be concluded that sustainable development and decision making might be compromised at sport and recreation facilities. The management capacity profile obtained from this study can be used as baseline...
from which management practices and capacity at sport and recreation facilities can be further developed.”
ORAL PRESENTATION

MEDIA AND SCIENTIFIC DISSEMINATION: THE RELATIONSHIP WITH INTERCULTURAL INDIGENOUS PEOPLES’ GAMES

Sport history
"Vera Regina Toledo Camargo, Maria Beatriz Rocha Ferreira, Deoclecio Rocco Gruppi"
"UNICAMP / UFGD, UFGD, UNICENTRO"
"BR, BR, BR"

Background: The context of the Intercultural Indigenous Peoples’ Games is an actual and complex phenomenon. Several ethnic groups get together for a large cultural and sportive celebration held in the cities. They perform their traditional games, sacred rituals, dances, songs and crafts fair. The goal of this paper was to strengthen and empower the indigenous games movement through the media and scientific dissemination.

Methods: The research was done by Labjor-NUDECRI / Unicamp, the Polytechnic University of Madrid and the former Laboratory of Anthropology Bio-Cultural-FEF-Unicamp. The memory of the games was registered through the photos of the games, interviews, analyses of newspapers, and publications.

Results:
The production of 03 videos, with support and implementation of TV Unicamp (University of Campinas Channel), a photography database of the games, a website of the project and a printed and e-book were done. The results represent the games as a movement initiated by the indigenous leaders Marcos and Carlos Terena in 1986, with the support of the government and non-governmental entities in Brazil. The information illustrate the richness cultural that exists in the indigenous games, combined with their cultural and physical diversity of each ethnical group.

Conclusions:
The disclosure of the information helped to strength the identity of the groups through the media. The information is accessible to different people such as indigenous groups, researchers, students and general public. The meaning and the portray of the different cultural aspects of the games were important to enhance and exchange experiences between the indigenous peoples themselves and the non-Indigenous."
ORAL PRESENTATION

Mega Sporting Events and Human Rights: Who is Really Winning and Losing?

Sport ethics and integrity

Dr. Marianne Meier

Terre des Hommes

CH

"Mega Sporting Events (MSEs) such as the FIFA World Cup or the Olympic Games are joyful and prestigious competitions, beloved by millions and globally broadcasted. But they may also cause direct and indirect human rights violations related to the event or aggravate those already existing in the country. When athletes break the rules in competitions, they are sanctioned. When host countries violate human rights around MSEs, they largely get away with it. MSEs are driven by various stakeholders and staged in a very complex environment. Not only sport-governing bodies such as FIFA and the IOC are involved, but also public authorities, organizing committees, and sponsors. The complexity is also nurtured by the variety of affected sectors involving human rights, children rights, labour, housing, LGBT, anti-corruption, etc.

Who is ethically and formally responsible for what area? What policies need to be in place to ensure all actors comply with international human rights obligations? What standards are needed to prevent negative and promote positive effects of MSEs? How can they be implemented and monitored?

The campaign ‘Children Win’ was launched by Terre des Hommes (TDH) to tackle these questions, increase global awareness and change the bidding process of MSEs in the long term. Even though change in and through sport is also considered, the main campaign focus is around sport. Based on various studies, the campaign analyses both the positive and negative effects of MSEs on local People with a special focus on children. The campaign does not only target future MSEs, but also past events for evaluation and advocacy. There are four action streams: research and evidence building; awareness raising; alliances and advocacy; and local case studies. In order to influence the key stakeholders, TDH is part of the ‘Sport and Rights Alliance’ together with major NGOs such as Amnesty, Human Rights Watch, ITUC or Transparency. In cooperation with the University of Dundee, TDH has contributed to the ‘Dossier on Mega Sporting Events and Human Rights’ in Rio de Janeiro with a chapter on ‘Children and Adolescents’. Appropriate standards are needed for all stakeholders to ensure human rights and the monitoring of this process over time, also involving compliance.

Documentary films were produced to ‘give a voice’ to the local population. There are established exchanges with technical staff at IOC and FIFA. Based on the ‘UN Guiding Principles on Business and
Human Rights’, key asked were defined and adapted for businesses with a social mission. Policies adopted by leading sports bodies to ensure human rights - including children's rights, labour standards and anti-corruption - have the potential of preventing, reporting and responding to the systemic risks posed by MSEs; from the bidding phase until the final reporting. By referring to concrete processes around the 2016 Rio Olympics and Paralympics, multi-stakeholder engagement is promoted. There needs to be a formalized dialogue between civil society, sport-governing bodies, local organizers, government representatives, and sponsors to address the issues in an ethically decent and sustainable way."
Metabolomic Approach to Investigate Metabolic Changes in Obese Men and Bioindicators of this changes after 24 Weeks of Combined Training

Physical activity and health

"Renata Garbellini Duft, Alex Castro, Ivan Luiz Padilha Bonfante, Diego Trevisan Brunelli, Mara Patrícia Traina Chacon-Mikahil, Cláudia Regina Cavaglieri"

"University of Campinas, University of Campinas, University of Campinas, University of Campinas, University of Campinas"

"BR, BR, BR, BR, BR"

"Background: Aerobic and resistance training (AT; RT) performed in the same session [known as combined training (CT)], has been widely recommended for improvement of the health and reduction of some deleterious effects caused by chronic noncommunicable diseases (NCDs) in the metabolism. In relation to these diseases, obesity had become a pandemic with biggest development in recent years, which is associated a comorbidities such type 2 diabetes, metabolic syndrome, cardiovascular diseases, among others that promotes metabolic changes. Thus, to a better understanding of the metabolism, metabolomics (an approach that allows us to simultaneously identify and quantify metabolites) have been used to detect new bioindicators and its pathways for that allow a better knowledge of the physiological and biochemical adaptations of the exercise training. Therefore, the purpose of this study was to investigate metabolic changes on the metabolism in obese subjects and find new bioindicators of this possible changes after 24 weeks of CT.

Methods: Twenty-two middle-aged obese men (48.18 ± 6.01 years; body mass index 31.00± 1.45 kg·m-2) were randomly assigned to a control group (CG; N = 11) or CT group (N=11). The CT were performed during 24 weeks, 3 days a week, with 1 hour each session and composed of RT (6 exercises, 3 sets of 6-10 repetitions with 1-min rest between sets) and AT (30 minutes of walking or running with varying intensity at 50–85% of VO2peak). The maximal strength (for leg press and bench press), peak oxygen uptake (VO2peak) and blood sampling were performed before and after experimental period. The nuclear magnetic resonance spectroscopy was used to identify metabolites and the software Chenomx 7.6 for quantifying. The Fold-Change (Post/Pre) values of metabolites, VO2peak and strength were calculated. Partial least squares discriminant analysis (PLS-DA) and metabolite set enrichment analysis (MSEA) were applied using MetaboAnalyst software.

Results: The CT group increased VO2peak and strength (1.12 and 1.20 times, respectively) more than CG group (1.00 and 1.00 times, respectively). Forty-seven metabolites were found, among them
tyrosine, histidine, 2-oxoisocaproate and pyruvate were classified as better discriminators of metabolic changes between groups. After performing a MSEA, was possible to observe that these metabolites participate in some metabolic pathways used in energy production during exercise, thus proving an important metabolic interconnection for understanding the role of exercise in the metabolism of this population.

**Conclusions:** Twenty-four weeks of CT were effective for improve functional parameters and metabolic changes in middle-aged obese men, promoting beneficial changes on the metabolism and suggesting new bioindicators of metabolic adaptations of these subjects to CT."
ORAL PRESENTATION

Modeling Triathletes Performance Prediction with the use of Discriminant Analysis

Elite performance

“Domingos R Pandelo Jr, Paulo Eduardo Pereira, Yuri Motoyama, Gilmar J Esteves, Paulo Henrique HSM de Azevedo”

“GEPEFEX UNIFESP, UNIFESP/GEPEFEX, GEPEFEX/UNIFESP, GEPEFEX/UNIFESP, GEPEFEX/UNIFESP”

"BR, BR, BR, BR, BR"

“Background: The performance of triathletes can be predicted by the use of multivariate data analysis. It could be used to detect young talents or to redefine the training program of athletes.

Methods: To arrive at the optimum sample size G * Power software was used. 21 volunteers were selected, 7 professionals (group 1) and 14 amateurs (group 2), all male. The variables used were the body mass index (BMI), age (A), resting heart rate (RHR), the number of years of practice of triathlon (YPT), the maximum oxygen consumption (VO2Max), the weekly distance training in swimming (WDS), the weekly distance training in cycling (WDC), the weekly distance training in running (WDR). The technique used was the discriminant analysis and the values were normalized with natural logarithm (nl). All statistical analyze was performed using SPSS 21.

Results: The method used was stepwise, so that only in the model the variables with the greatest predictive power, considered jointly, not individually. The first group centroid (professionals) stood at 2, 338, while the second group centroid stood at -1, 169. Making a weighted average of the centroid of each group, the sample size in each group, one reaches the Z cutoff score. In this case, Z cutoff score would be zero. Above zero would be closer to the performance amateur athletes and values below zero would be closer to the performance of professional athletes. As the sample was reduced was decided to work with the original models and cross-validation. The hit ratio stood at 92, 93% in the case of the model with cross-validation.

Conclusions: This study showed that it’s possible infer the triathletes performance, which is vitally important, whether for detecting talents, or for structuring the training.”
**ORAL PRESENTATION**

**Moderate Physical Training Reduces Percentage of Macrophages M1 in Tumor Microenvironment in a Murine Melanoma Model Submitted to Fat Diet**

Physical activity and health

"Cesar Miguel Momesso, Vinicius Leonardo Sousa Diniz, André Luis Lacerda Bachi, Laiane Cristina dos Santos, Tamara Ghazal, Lucas Lima da Silva, Maria Elizabeth Pereira Passos, Heloisa Helena de Oliveira Alves, Laureane Nunes Masi, Adriana Cristina Levada-Pires, Sandro Massao Hirabara, Tania Cristina Pithon-Curi, Renata Gorjao"

"UNICSUL, UNICSUL, UNICSUL, UNICSUL, UNICSUL, UNICSUL, UNICSUL, UNICSUL, UNICSUL, UNICSUL, UNICSUL, UNICSUL"

"BR, BR, BR, BR, BR, BR, BR, BR, BR, BR, BR, BR"

**Background:**

The increase of adipose tissue changes the inflammatory status. Several studies suggest that low level of chronic inflammation increase the risk of cancer development. Scientific evidences suggest that the moderate physical exercise can be used to modulate the control of inflammation. Therefore, we want to analyze how the moderate physical exercise can modulate macrophage profile in the tumor microenvironment in C57BL-6 mice with melanoma and submitted to high-fat diet.

**Methods:**

22 female mice C57BL-6 were divided in four groups: Normolipidic Diet Melanoma (NM) High-fat Melanoma (HM), Normolipidic Exercise Melanoma (NEM) and High-fat Exercise Melanoma (HEM). All mice were treated during eight weeks with normolipidic diet (4%fat) or high-fat diet (40%fat) and the exercise groups trained 5 days per week, 60 minutes per day between 50 to 65% maximal velocity in treadmill. After, the animals received 1x106 B16F10 cells and were accompanied by two weeks. We analyze the tumor growth, percentage of cells macrophages , Treg and Th17 cells in tumor microenvironment using flow cytometry. Differences between groups were detected by Anova Two Way, and Bonferroni post hoc test (p<0, 05) performed by Graph Pad Prism 5.0.

**Results:**

The physical exercise improved maximal velocity in treadmill in NEM and HEM groups compared to baseline (NEM increased 9.0 ± 2.0 m/min and HEM 3.0 ± 1.9 m/min, respectively). On the other hand, control group decreased performance (NM decreased 1.28 ± 2.3 m/min and HM 4.50 ± 2.49 m/min). Mice submitted to high-fat diets developed higher body weight gain (HM 8.22 ± 1.05 g, and HEM 8.63 ± 1.48 g higher when compared to the respective normolipidic group. The tumor weight
was higher in high-fat groups (HM 1, 29 ± 0, 46 g, and HEM 1, 04 ± 0, 44 g higher values) when compared with their respective normolipidic groups. We observed that M1 macrophage percentage was higher in HM than in the others groups (HM 24, 8 ± 4, 13% and 25, 35 ± 4, 46% more cells than NM and HEM groups, respectively). It was not observed differences in M2, Treg and Th17 cells.

Conclusions:
In conclusion these results show that moderate physical exercise can decrease inflammatory response associated with M1 macrophages in tumor microenvironment leading to a lower tumor growth in obese mice."
ORAL PRESENTATION

Movement coordination impairments during single-leg deceleration following ankle sprains in elite adolescence soccer players

Sport medicine and injury prevention

"Wei Li, Zhiyong Lu, Jie Ding"

"national institute of sports medicine, national institute of sports medicine, national institute of sports medicine"

"CN, CN, CN"

"Background: The aim of this study is to compare co-contraction patterns, lower extremity muscles onset latencies to time of impact and magnitude of activation of selected muscles during landing after single-leg-jump in adolescent soccer players with or without lower extremity injury.

Methods: Twenty two players of under sixteen male national soccer team of China, divided into injury group (IG) who had ankle sprains and will return to play and control group (CG) who had no injuries, volunteered to participate in our study. The SEMG muscle activity order and contribution rate of players’ lower extremities were tested during specific single leg landing.

Results: Compared with CG, the activity of IG were significantly slower on TA (P = 0.0001), BF (P = 0.01), VM (P = 0.0001), VL (P = 0.001), PL (P = 0.0001), TP (P = 0.0001) and ST (P = 0.01), while the activity of RF was faster (P = 0.024). Most tested muscles of both groups had same contribution rate (P> 0.05) during the movement processing which was from heel-landing to toes-off. But the contribution rate of BF had significant difference between the two groups (P = 0.016).

Conclusions: During stance phase of single leg landing, the leg muscles of healthy elite adolescent soccer players have the corresponding activation order: ankle dorsiflexion, quadriceps and hamstrings collaborative stable knee and then PL, TP and gastrocnemius muscle collaborative stable ankle; elite adolescent soccer players with lower extremity soft tissue injury before returning to play had significantly delayed activation of the rectus femoris and compensatory increase of hamstring work; muscle activation order and contribution rates during specific actions can be used to develop and evaluate the efficacy of targeted rehabilitation programs."
ORAL PRESENTATION

MRI T2 relaxation time in lumbar muscle training

Physical activity and health

"Ming-Yun Sun, Jian-Qiang Lü, Zu-Chang Ma, Jiao-Jiao Lü, Qing Huang, Yi-Ning Sun, Yu Liu"

"Anqing Normal University, Shanghai University of Sport, Chinese Academy of Sciences, Shanghai University of Sport, Anqing Normal University, Chinese Academy of Sciences, Shanghai University of Sport"

"CN, CN, CN, CN, CN, CN, CN"

“Background: The application of high field strength T2 relaxation time can serve as an effective and non-invasive indicator to evaluate structural changes in the lumbar muscles. So, how exactly to measure about high field strength under normal lumbar muscle tissue T2 relaxation time? How did T2 values change after the training? The purpose of this study was to analyze normal human lumbar muscles T2 relaxation time values after inertial barbell training.

Methods: Thirty undergraduate healthy males (mean age 19 ± 1.2 years old, mass 72 ± 10.0Kg, body height 1.78 ± 0.1 m), were recruited to participate in this study. They were randomly divided into two groups: inertial barbell training group (IBTG)(15 males) and normal barbell training group(NBTG) (15males); All participants were conducted 1 hour / time, 3 times / week, a total of eight weeks of the lumbar flexion and extension muscle strength training. Before and after the experiment, they were asked to sustain quietly supine position at resonance, using 3.0T superconductive magnetic resonance imaging system (Siemens Magnetom Trio, Tim System), to scan the lumbar of participant respectively. Data were analyzed using the Statistical Package for the Social Sciences (version 15.0;IBM Inc., Chicago, IL). Measures of reliability are presented as intraclass correlation coefficients of absolute agreement for single measures. Within- and between-group differences were assessed by paired samples T-test and two independent samples T test respectively. Significance for all tests was defined as P = 0.05, very significant standards as P <0.01.

Results: Before the test the mean ICC values of reliability of IBTG was 0.996, 95% confidence interval (0.948, 0.999); after the test mean ICC was 0.998 (95% CI) (0.993, 0.999) , p<0.01. Before the test the mean ICC values of reliability of NBTG was 0.997 (95% CI) (0.983, 0.999); after test mean ICC was 0.994 (95% CI) (0.966, 0.999), p<0.01. Before and after the test both the IBTG and the NBTG T2 values had a very significant difference (p = 0.000 <0.01) within-group; there was no significant difference between-group (before test P = 0.45> 0.05 and after test P = 0.17> 0.05). But △ T2 between-group had
a very significant difference \( (p = 0.002 < 0.01) \); \( \Delta \frac{T2}{T2} \) percentage, the IBTG also had a very significant difference \( (p = 0.009 < 0.01) \).

**Conclusions:** This study demonstrated that eight weeks of strength training led to significant improvements in the T2 relaxation time values of lumbar muscles. Furthermore, these results indicate that \( \Delta \frac{T2}{T2} \) percentage of IBTG has a higher change than the NBTG, which suggests lumbar muscle activity had better increased in the inertial barbell training."
ORAL PRESENTATION

Multiculturalism and Physical Culture: The Case of the Greater Toronto Area

Sport development
"Peter Donnelly, Yuka Nakamura, Alvin Ma"
"University of Toronto, York University, University of Toronto"
"CA, CA, CA"

“Background:
In Canada, multiculturalism is part of the Constitution (Article 27): “This Charter shall be interpreted in a manner consistent with the preservation and enhancement of the multicultural heritage of Canadians.” However, multiculturalism can be divisive and “new Canadians” are expected to integrate into society. Physical culture (sport, physical games, dance, exercise systems, martial arts, etc.) may be used to encourage integration, but it can also be used to resist integration.

Case presentation:
Toronto is one of the most multicultural cities in the world, with over half the population born outside Canada and 223 different self-identified ethnocultural groups. Relatively little research has been done on the physical cultural practices of these populations. The goals of this research are to investigate how these ethnocultural communities negotiate their presence in Canada; to maintain an archive of physical cultural forms by tracking how they are retained, produced, reproduced, transformed, and lost in Toronto communities; and to explore the overlap between physical culture and social integration in the unique context of the Greater Toronto Area. The research is carried out by using Citizen Science, student input, and other methods of collecting data. Key informants are interviewed to find out about the evolution of these physical cultural activities and the politics of social inclusion.

Discussion:
Preliminary data suggest that by the second generation of participation, most forms of physical culture have been integrated across various ethnocultural communities, with the notable exception of traditionally “white” upper-class sports. Other forms of physical culture may disappear but it is rare to see greater exclusivity within the practising ethnocultural group.”
ORAL PRESENTATION

OLYMPIC AND PARALYMPIC GAMES IN RIO 2016, BRAZIL: OPPORTUNITIES FOR GOVERNANCE AND POLICY

Governance and policy
RICARDO RICCI UVINHA
UNIVERSITY OF SAO PAULO
BR

“Background:
Brazil has successfully secured a number of global sport events (World Cup 2014 and Olympic/Paralympic Games 2016) as a means of promoting the key goals of economic and social development. In the scope of events of large-scale production and media and public impact, the city of Rio de Janeiro has experienced several activities of that importance since 2007. In the Pan American Games in Rio 2007, the Federal Government prepared and adopted the concept of social legacy as means for various public projects in progress at the time, making a commitment that those initiatives constituted the first move towards social change in the city from conducting sporting events. The great challenge of the 2016 Games in Rio can be reflected by its numbers: more than 200 nations, 10,500 Olympic athletes, 4,500 Paralympic athletes, 28 Olympic sports, 22 Paralympic sports, more than 100 thousand people directly involved in the organization of the Games, more than 30 thousand media professionals and about 100 thousand volunteers.

Case presentation:
The Interdisciplinary Group of Leisure Studies at the University of Sao Paulo (GIEL USP) has been the academic stage to develop several investigations at graduate level focusing on sports megaevents in Brazil, such as Rio 2007 Pan American Games, Rio 2011 5th Military World Games, 2013 FIFA Confederations Cup, FIFA World Cup 2014, and Summer Olympics and Paralympic Games 2016. It was found that Brazil has developed legacy plans aiming to enhance outcomes relating to quality of life – promoting civil society and alleviating poverty, reducing violence and crime, creating economic opportunity, safe spaces and promoting public health. There are also initiatives coordinated by different Brazilian Ministries in the search for sports and physical activities that can address the demands of Brazilian society. This presentation will report some intersecting initiatives investigated at GIEL USP regarding governance and public/private policies developed by local universities, representative entities, reference centers, district associations, labour unions and state parks administration.
Discussion:
As part of the Olympic legacy, Rio 2016 Olympic and Paralympic Games states a unique opportunity to promote public health and improve the awareness of the benefits of physical activity and sports. Events on a global scale, such as the Olympics/Paralympics, can stimulate a proper governance and policy for health, physical activity and leisure programs."
**ORAL PRESENTATION**

**On the Track of IOC Sustainable Games**

Governance and policy

"Carla Rocha Araujo, Maria José Carvalho, Lamartine DaCosta"

"University of Porto, Faculty of Sport, University of Porto, Faculty of Sport, Rio de Janeiro State University"

"PT, PT, BR"

**Background:**

The Olympic Movement, in particular the International Olympic Committee (IOC) has been incorporating over the Olympic Games (OG) of Modern Era (1894 to 2014) (Furrer, 2002), the concept of Sustainable Development (SD) defended by the United Nations (WCED, 1987) and set by the Triple Bottom Line (Boff, 2012). The main purpose of this study is to analyse this concept along the 120 years duration of OGs into four chronological periods (Rubio, 2010). These periods were pre defined based on historical events (Chatziefstathiou, 2005) or correlated with social, environmental and economic dimensions of SD (Chalkley & Essex, 1999; Chappelet, 2008; Miragaya & DaCosta, 2006; Preuss, 2002). The 1st period starts from IOC birth (1894) until Second World War (WWII); 2nd from 1946 until 1967; 3rd from 1968 Mexico OG until 1991 and the 4th begins at 1992 United Nations Conference on Environment and Development until 2014.

**Methods:**

Methodology included documental analysis (official and not official) and literature review, based of predetermined keywords and intensive data analysis (Veal & Darcy, 2014).

**Results:**

Point specific characterizations were then proposed:

• 1st period with pronounced social concerns, meagre environmental actions (nature was seen as a means of exploitation) and economic unparalleled growth;

• 2nd period with social and economic disputes and environmental aspects being relegated, ignored or included in urban revitalization. Social dimension was a major concern, special in the spread of the Olympic Spirit, Promotion of Peace, Fighting for Female Participation and increasing the Olympic Family. The OG were mostly support through public and private funds (economic) and they were used as a catalyst for urban revitalization and international promotion of the cities;

• 3rd period focus on social dimension, including political and cultural ones, such as ideological dispute between capitalist and communist (who used the OG) and the expansion of the Olympism around the
World despite boycotts and terrorist constraints. This is a period of great economic growth in which environmental issues weren't prominent, let alone some environmental concerns at Sapporo 1972, Lake Placid 1980 and Seoul 1988 OG;

4th period put more attention on the environment (especially by Winter Games), but they relegated OG social role. At economic level the spread of gigantism (specially Beijing 2008 and Sochi 2014 OG) became evident, but Vancouver 2010 and London 2012 try to bring SD to a balance between social, environment and economic dimensions.

**Conclusions:**

In conclusion, it seems that social aspects have always been an inbound strong preoccupation to IOC, but they had lost some encouragement over time. Moreover environment is becoming a main concern to economy everywhere and specially to cities. Overall, today focus is bringing SD to review the OGs as now being revealed by Olympic Agenda 2020 (International Olympic Committee, 2014) a recent proposal to renovate the Olympic Movement based in its three main dimensions."
ORAL PRESENTATION

Optimization of Women Teenage Basketball Training by Genetic classification of athletes.

Genetics and sport
"JORGE LUIZ DE ARAUJO, NADJA REGUEIRA HARROP"
"CREF12-PE/AL, CREF12-PE/AL"
"BR, BR"

“Background: Performing basketball training in female adolescents, uniformly applying physical training, we began to notice that one and another athlete could assimilate and respond within the limits of the charges that would lead to the proximity of the maximum yield.

Further, despite the similarity biophysics at certain times, even with a considerably higher physique, even if approached the results obtained by colleagues. This situation came to us trouble!

Seeking to study the cases in question, ie, optimize the performance of our athletes and therefore better results in competitions (tournaments and championships), we are faced with the need to understand that to ensure a physical training in high performance, observe its principles, it is essential (TUBINO, 2000), the biological individuality. (TUBINO, 2000).

When we refer to biological individuality, due to advances in sports science, we come to find recent studies that allowed us to identify, through Dermatoglyphics, which group the individual belongs, classifying it as anaerobic and aerobic (FERNANDES, 2015).

Based on these studies, we distinguish each group of athletes and applying the proper training, strengthening it, and results in competitions were the most satisfactory because injuries were recorded, and the team went on to have homogeneous graphics fitness and victories will lead a team of 70% (seventy) percent with athletes under seventeen (17) years, being crowned Runner-up in a traditional backwoods of Pernambuco state tournament.

Methods: Based on Dermatoglyphics, study of fingerprints, we can identify you on our team, made up of twelve (12) players, which were submitted to Desmatoglifia tests, from 28 July to 02 August and after that data collection, They were evaluated by author and could be identified that most of the crew consisted of 2/3 and 1/3 individuals anaerobic aerobic constituted by individuals. Based on this result, the groups are offered up - reverse overload, ie the anaerobic group, 20% (twenty per cent) more than aerobic training, and aerobic group, a 20 % load (twenty) percent more anaerobic training.

Results: An approximation of Neuromuscular and aerobic fitness of the team, moving away more and more of Zero Point and growing, because there was a greater stimulus the needs of each group, which were distinguished, because of the finding of Dermatoglyphics, and the result in competition that was...
intended to participate, was higher than expected, given the different fitness was obtained, respecting the group that was integrated individuals.

**Conclusions:** Analyzing the research and the results achieved, we can say that based on the Dermatoglyphics studies, it was possible to group the individuals by genetic evaluation and respecting their homogeneity, provide differentiated training that strengthened their genetic abilities and leveraged its shortcomings, thus decreasing disparities in the group, making it more homogeneous team and maturity to face adversity in the face to optimize the fitness that hit.”
ORAL PRESENTATION

Organizational factors influencing the international sporting success in Judo

Governance and policy

"Leandro Carlos Mazzei, Maria Tereza Silveira Böhme, Veerle De Bosscher"

"University Nove de Julho of São Paulo, School of Physical Education and Sport of University of São Paulo, Vrije Universiteit Brussel"

"BR, BR, BE"

"Background:

The international elite sport shows two major trends in the past years. Firstly, an increasing number of countries that are seeking success in major world sporting events; secondly, an increasing number of countries that developed the ability to win medals in the international context (Shibli et al., 2013). In this context, researchers and managers have a great interest in analysing the existing sports policies in different countries in the search of explanations for the international sporting success achieved by some countries and not by others. Recently, the studies have further advanced studying certain aspects of elite sport policies and key success factors of specific sports (Brouwers, Sotiriadou, & De Bosscher, 2015). Therefore, the objective of this research was to identify the organizational factors (which are manageable) that influence the international sporting success in Judo.

Methods:

To fulfil the objective of this research, 33 international Judo stakeholders (athletes, coaches, performance directors and experts) from 11 countries were interviewed. The selection of the interviewees was defined by non-probabilistic approach and by convenience but taking in account the following criteria: being from any of the 20 countries with the highest score in Olympic Judo competitions from 1992 to 2012. The interviews were conducted in 2013 analysed using Content Analysis (Bardin, 2011; Krippendorff, 2013). The SPLISS model (De Bosscher et al., 2006) and System Theory was used as a base for the categorization process. To measure the reliability of the categorization performed, Krippendorff’s alpha agreement coefficient was used.

Results:

The content analysis conducted by two researchers identified 878 textual and had one Krippendorff’s Alpha of 0.48, which is considered as a moderate agreement level. These textual elements were divided in 44 subcategories, which were grouped into 11 categories (1 Sport system, organization and structure; 2 Sport participation at all levels; 3 Athletic career and post career support; 4 Financial resources; 5 Quality of Teachers and Coaches; 6 Tradition, history and cultural aspects; 7...
Competitions; 8 Training facilities; 9 Governments (interest), sponsors and media; 10 Talent identification and development; 11 Scientific support), established in accordance with the SPLISS model and with Systems Theory.

**Conclusions:**

It was verified that the results are similar to the other studies. However, Judo has specific characteristics that influence the organizational factors. Moreover, environment effects that influence the development of Judo in different countries and consequently the seeking of international success were also identified. The configuration of the 11 categories in relation to the System Theory enabled one possible model, which can be considered as a basis for decision-making and the development of the strategic planning; or as a parameter to identify policies or systems and policy weaknesses related to Judo in national or regional context. On the other hand, future research can also fill some limitations found in this research and deepen the understanding of this issue."
ORAL PRESENTATION

PARA-BADMINTON – EVIDENCE-BASED CLASSIFICATION IN STANDING AND WHEELCHAIR CLASSES

Elite performance

“Prof. Dr. Hanno Felder, Prof. Dr. Michael Fröhlich, Juliane Stump, Katharina Hauschild, Stuart Borrie, Prof. Dr. Shamsul Azhar, Andy Randle-Hines, Dr. Silvia Albrecht”

“Olympic Training Center, Saarbruecken, Germany University of Applied Sciences, Institute for Prevention and Public Health, Saarbruecken, Germany, University of Kaiserslautern, Olympic Training Center, Saarbruecken, Germany, Olympic Training Center, Saarbruecken, Germany, World Badminton Federation, Kuala Lumpur, Malaysia, World Badminton Federation, Kuala Lumpur, Malaysia, World Badminton Federation, Kuala Lumpur, Malaysia, World Badminton Federation, Kuala Lumpur, Malaysia”

“DE, DE, DE, DE, MY, MY, MY, MY”

“Background:

Little research has been carried out to evaluate the para-badminton classification systems within 5 sports classes. The aim of the study was to establish a reproducible and standardized game and testing protocol for para-badminton, and to evaluate performance levels of elite athletes in several classification classes.

Methods:

Various data (e.g., kinematic and kinetic parameters) were collected from para-badminton athletes from different classification classes (2 standing classes /2 wheelchair classes). The classes were categorized by a physical examination by the classifiers. Each subject performed a specific in-field test, a shuttle-run test, and a competition match. The covered distances, velocities, different angles and accelerations (e.g., of the trunk, shoulder, dominant arm), as well as agility were continuously measured. In the wheelchair classes, push rim forces at the start of propulsion, trunk-flexion forces and movements of the COP (on a pressure mat) were also measured.

Results:

The statistical results indicated significant differences (p < 0.05) between the classification classes for the peak and average values of the different variables.

Conclusions:

The results show significant differences between the classification classes and confirm multiple levels of performance.”
Participation in Physical Activity by Farmers in Western Rural Areas of China

Sport sociology
“Lu wenzhou, Cheng Juan”
"China West Normal University, China West Normal University"
"CN, CN"

“Background: In China, rural areas in the west are the most poverty-stricken areas, the industrialization, urbanization and economic development is far significant lower than rural areas in the east and average level of the nation. In the context of new sports strategy after Beijing Olympic Games and government’s new policy on rural areas, agriculture and farmers at present, promoting physical activity in western rural areas is urgent. This article aims to make survey of farmers’ physical activity level, analyze the factors affecting farmers’ physical activity level, and provide countermeasures to promote physical activity level in western rural areas of China.

Methods: Literature review, interview, questionnaire and statistics were used.

Results: 41.9% farmers in west of China participated in Physical activity one time in 2011. The first factor affecting farmers’ physical activity is educational degree, followed by gender, nationality and marriage status. Women are far higher than men in the awareness of participation of physical activity. Han nationality has a more opportunities to do physical exercise than minority group. The married has more opportunities to do physical exercise than the unmarried. With the working time decrease, the frequency farmers doing physical exercise increased. As the income exceeds certain value, the physical activity time increased rapidly. There is no significant difference between men and women on awareness of health, the choice of physical activity partners, events selection, time doing physical exercise, and the way to improve sport awareness. However, there is a significant difference between men and women about the value of physical activity, the frequency and intensity of physical activity. For non participant, there is no significant difference between men and women about the reason why did not do physical exercise, for different age group, the difference is significant.

Conclusions: Lower level and quality of participation in physical activity by farmers in west of China mainly caused by lower level of economic and social development in western rural areas of China, which result in lower demand of physical activity. Public sports service delivery by government is also key reason hinder farmers’ participation in physical activity. The countermeasures to promote farmers’ participation as follow: 1) promoting economic development to improve sports need of farmers; 2) exploring, regularizing and popularizing local traditional sports; 3) strengthening Public sports service...
delivered by government such as constructing sports venues and facilities at village level, establishing systematic administration and organization at town and village level, sharing sports facilities and field in school with local resident, propagating sports knowledge, nurturing cadres for rural sports, holding institutionalized sports competition at local level etc."
ORAL PRESENTATION

People with Disability and Sport: How to Properly Offer the Adequate Paralympic Sport According to a Person’s Disability Using the Internet

Sport eligibility and inclusion
Victor Luz Lee
Paratleta.com.br
BR

“Background:
According to the United Nations, 15% of the world population, or estimated 1 billion people, have some sort of disability. In Brazil, the estimated number is nearly 45 million in this condition, as 12 million people live with a severe disability (visual, physical, hearing) or any sort of intellectual disability. The search for a Paralympic sport to practice is still filled with many questions, since the Paralympic sports are not so familiar to all.

The online tool www.paratleta.com.br, with only two questions, may suggest several sports according to a person’s disability. This is important to open horizons for newcomers in Paralympic sport (either at a recreational or competitive level). The website also wants to encourage a more active disability sport community.

Methods:
The website www.paratleta.com.br was developed in 2014, using the success of other National Paralympic Committees, such as the ones of Great Britain, USA, Canada, Russia and Australia. The key idea was to bring on an easy way for a person with a disability in which sport(s) s/he might practice.

The website is based on two simple, direct questions:
1) Sort of Disability – this area sets six options, which most of Paralympic Sports uses to classify their athletes: Cerebral Palsy, Amputees, Visual Impairment, Intellectual Impairment, Spinal Cord Injury, Les Autres (expression in French used to classify other disabilities, such as dwarfism).
2) Length of Disability – how severe or in which part of the body the lesion is (right arm amputee, paraplegia, arthrogryposis, wheelchair user, blind, etc.)

Since these questions are made directly to the interested part, the disabled person are aware of his/her capabilities, and will select the most suitable disability to its condition.

This website does not want to be a substitute for sport classification system, but just to be a first parameter for anyone interested in Paralympic sport.

Results:
There have been successful results in Great Britain, as their website has reached nearly 8,000 unique users per month, right after the success of the London 2012 Paralympic Games. The US Paralympic Committee is also implementing a full database of Paralympic athletes, to get better results than their 6th place in the medal tally in London-2012 and the 8th place at Sochi-2014 Winter Games. The website www.paratleta.com.br have reached in March 2016 nearly 400 unique users, far from the numbers achieved by the British website.

**Conclusions:**
The proximity of the Rio de Janeiro 2016 Paralympic Games makes this tool so important for all Brazilians who are interested in practicing Paralympic sports. The visibility that Paralympic Sport will achieve in Brazil as a host of the next Paralympic Games in September 2016 will not be seen again in this country, so this is the key moment to promote and talk about disability, sport and inclusion."
ORAL PRESENTATION

Performance Indicators Related to Winning in the Chinese Football Association Super League

Hongyou Liu
South China Normal University
CN

“Background: In the field of football performance analysis, researchers and coaching staff are always exposed to a “big data” of performance-related match statistics. Hence, it would be important to identify which ones of them are those that determine the game result (win or loss). The process of this identification can be achieved by modelling relationships between match results (outcome variables) and performance-related match events and actions (predictor variables), in the means of identifying key performance indicators.

Methods: Data of all the 240 matches of the 2014 season of the Chinese Football Association Super League were collected and analysed. A cumulative logistic regression was run to modelling relationships of nineteen performance-related match events and actions and one contextual variable (home/away) with the probability of winning. Relationships were evaluated with magnitude-based inferences and were expressed as effects of a two-standard-deviation increase in the value of each variable on the change in the probability of a team winning a match. Modelling was performed in four match context of team and opposition end-of-season rank (classified as upper- and lower-ranked teams).

Results: (1) For the upper-ranked teams, (a) when they faced upper-ranked oppositions, an increase of two SDs in the variables of shot on target, ball possession, pass accuracy, through ball, offside and foul committed could bring a higher winning probability of 13% (± 90% confidence interval: ±15%), 13% (±15%), 16% (±15%), 19% (±16%), 13% (±16%) and 18% (±15%), while the increase of shot off target, foul drawn and red card would reduce the probability of winning by 21% (±16%), 19% (±16%) and 33% (±25%); (b) when they played against lower-ranked teams, a 2-SD increase in the values of shot, shot on target, pass, pass accuracy, through ball and tackle could bring 32% (±16%), 30% (±16%), 21% (±16%), 22% (±14%), 13% (±17%) and 17% (±16%) higher probability of winning, while increase of foul drawn and red card could bring a 21% (±15%) and 31% (±27%) lower probability of winning. (2) For the lower-ranked teams, (a) when facing upper-ranked oppositions, variables that were positively related to winning include: shot on target (17%; ±15%), corner (16%; ±15%) and foul committed (20%; ±16%), while variables that were negatively related include shot off target (17%; ±16%), pass (21%; ±15%).
±16%), tackle (17%; ±16%) and red card (43%; ±30%); (b) when playing against lower-ranked teams, variables brought positive effects to winning include: shot on target (18%; ±15%), foul drawn (14%; ±14%) and offside (18%; ±15%); variables brought negative effects include: shot off target (12%; ±15%), possession (14%; ±15%), cross (17%; ±15%) and foul committed (17%; ±15%).

**Conclusions:** Results from the modeling could provide information for teams and coaches of different levels to help them carry out effective pre-match training programs, in-match tactical strategies, and post-matches tactical feedback."
“Background:

This study describes specific aspects of the organization of the first edition of the project “Accessible Sport”, carried out in 2012, included in the program of physical and recreational activity proposed by the Secretary of Sports of the municipality of Puerto Madryn, in the province of Chubut, Argentina. Specifies the overall project organization listing the workshops of physical activity and recreation initially were offered. Part of sports activities proposed are included within the adapted sports, being specifically arranged for people with disabilities. We can quote Torball, Chess, Games & Recreation, Ping Pong, Swimming, Football, Boccia. Other workshops proposed areas of physical activity and inclusive sport, Athletics for people with disabilities who are integrated to the municipal athletic school; Aerobics for children and teens with disabilities are integrated into the municipal school of recreational aerobics.

“Methods:

An evaluative work is implemented with a qualitative methodology for results on the relevance, effectiveness, efficiency, impact and to know the coverage that the project had.

The internal logic of the project is valued: considering their initial planning, rationale, objectives, human and material resources, proposed activities and the results of its implementation.

“Results:

The study analyzes the relevance of the project, recognizing its ability to resolve the problem of lack of space for physical and recreational activity for people with disabilities.

Determines the degree of effectiveness of the project showing the number of workshops executed as foreseen in the project.

It describes the efficiency of the project, indicating how they have organized and used the available resources in the implementation, comparing the previous cost of the project implementation with the costs of the project applications costs.
Describe the impact of the project, establishing positive and negative aspects of its implementation, describing the benefits for the people with disabilities who participated in the workshops proposed and also the problems that have appeared.

It measures the coverage of the project, evaluating how it attracts the target population. Calculating the coverage rate.

**Conclusions:**

The conclusions of this study recognize the results of the implementation of the project, generate useful knowledge for making decision, feedback, improving management and achievement of the objectives of the project in subsequent editions, with important contributions that have been considered in the current implementation Accessible Sports Project 2016."
ORAL PRESENTATION

Physical Educators’ Self-efficacy for Exercise and Habitual Physical Activity

Sport pedagogy
"Xihe Zhu, Justin Haegele"
"Old Dominion University, Old Dominion University"
"US, US"

"Background:
The NASPE/NCATE (2008) standards emphasize, among other items, that future physical educators should exemplify the characteristics of a physically literate individual. There is an abundance of literature concerning students’ physical activity and self-efficacy. However, limited evidence explores physical educators’ physical activity or self-efficacy for exercise, other than agronomical studies examining the workload (Sandmark et al., 1999) and health/injury issues of physical education (Lamoyne et al., 2007). Therefore, we aimed to investigate physical educators’ self-efficacy to exercise and their physical activity.

Methods:
A correlational and observational study design was used. We used the self-efficacy to regular exercise scale (Bandura, 2006) to collect physical educators’ self-efficacy to exercise, and the international physical activity questionnaire-short form (IPAQ-SF, Craig et al., 2003) to collect their habitual physical activity. Two hundred and thirty physical educators (N = 230) responded to the survey, including 73.4% fulltime physical educators, and 26% part-time paraprofessionals and physical education majors. Data were analyzed descriptively and a regression analysis was conducted to predict physical educators’ daily self-reported moderate-to-vigorous physical activity (MVPA) time with gender, years of teaching experiences, professional status, and perceived body weight status as predictors.

Results:
Physical educators on average reported 57.81 ± 51.19 min of MVPA daily and weekly total MET min averaged 3624.61 ± 2892.88. Physical educators reported on average 12.20 ± 11.78 years of teaching experience, ranging from zero to 42 years; and their self-efficacy aggregated composite score ranged from 291 to 1800, with an average of 1101.23 ± 361.68. The regression analysis showed that the model explained a significant amount of variance in MVPA (F5, 177 = 16.66, p < .05, R2 = .30). Self-efficacy emerged as a significant positive predictor (β = .48), while years of teaching experience emerged as a negative predictor (β = -.35). No other predictors entered in the model were statistically significant.

Conclusions:
Physical educators on average reported high amounts of physical activity based on total weekly MET minutes (> 3000), with daily MVPA close to 60 minutes. This is not surprising given that the occupational requirement of being a physical educator has a relatively high physical workload (Sandmark et al., 1999). Despite having relatively high physical activity, 26.2% of physical educators perceived themselves to be overweight or obese. With years of teaching experiences as a significant negative predictor, the results suggest that those who taught longer are likely to be less physical active. The research is consistent with population based studies in that self-efficacy is a significant positive predictor for physical educators’ physical activity. Future studies should look at self-efficacy, physical activity, and other health-related indicators to unravel the relations of these variables and help understand the occupational and behavioral aspects of the profession.”
Physiological Differences in Walking for 30 Continuous Minutes Compared to Walking Three Ten Minute Bouts at Self Selected Paces

Physical activity and health

"Henry N. Williford, Melvenia Redding, Erin Reilly, Cornell Foo, George Schaefer, Amy Oliver, Holly Clarke"

"Auburn University Montgomery, Auburn University Montgomery, Auburn University Montgomery, Auburn University Montgomery, Auburn University Montgomery, Auburn University Montgomery”


**Background:** Walking for health and fitness is one of the most popular forms of physical activity. The purpose of this investigation was to evaluate the physiological differences in walking at self-selected paces for three 10 minute bouts (3-10) compared to one 30 (1-30) minute bout.

**Methods:** Participants were 19 females aged 35.6 ± 14.2 yrs (Mean ± SD). The subjects were recruited from local health clubs, churches and university classes. Participants reported to the Human Performance Lab for initial evaluations including health history, weight (kg), height (m), and body composition (bioelectrical impedance). Caloric expenditure, HR, and VO2 were evaluated during a maximal treadmill exercise test (modified Bruce protocol). Expired gas fractions were evaluated with a metabolic cart (ParvoMedicsTrueOne® 2400 Sandy, UT). The test was terminated when the participants reached at least two of the criteria for maximal oxygen consumption (VO2max) as follows: a plateau in VO2 (± 2 ml.kg-1.min-1) with increasing work rate; respiratory exchange ratio > 1.10; Ratings of Perceived Exertion of at least an 8 out of 10; or volitional fatigue. On separate occasions subjects walked on an indoor track at self-selected paces for 1-30 min continuous bout, and on another day 3-10 min bouts spread out over the day. The indoor track was calibrated with a distance wheel and the environmental conditions were not different. Total distance walked (TD) was measured and HR was continuously monitored with a Garmin HR monitor. Paired T-tests were used to compare distance, time, HR, and Kcals for the two walking conditions (P<0.05). Kcals were determined based on the relationship between TM HR and VO2.

**Results:** The distance walked in the three 3-10 minute bouts was 2996.76 ± 323.46 meters, as compared to 2832.44 ± 273.56 meters for the 1-30 minute bout (P < 0.000). Walking speed for the 3-10 minute bouts was 99.77 ± 10.78 m/min as compared to 94.41 ± 9.25 m/min for the 1-30 minute bout (P = 0.19). HR values were 123 ± 15 for 1-30 and 126 ± 17 for the 3-10 min bouts (P = 0.09). The
mean Kcals expended for the 3-10 minute bouts was 153.05 Kcals as compared to 142.02 Kcals for 1-30 min condition.

**Conclusions:** There were significantly higher values in total walking distance, speed, and Kcals in the 3-10 min bouts as compared to 1-30 min bout. Mean HR values for the two conditions were similar. This investigation found that when walking for equal time periods, shorter walking bouts multiple times per day can be as effective as, or even more intense, than walking for 30 continuous min.”
Physiological Responses of a Boxing Time Rule Exercise in Male Elite Amateur Boxing Athletes

Elite performance


“Nucleus of High Performance in Sport - NAR, School of Physical Education and Sport, University of São Paulo., School of Physical Education and Sport, University of São Paulo., Brazilian Boxing Confederation, Brazilian Boxing Confederation, Nucleus of High Performance in Sport - NAR, Nucleus of High Performance in Sport - NAR, Nucleus of High Performance in Sport - NAR, Nucleus of High Performance in Sport - NAR, Nucleus of High Performance in Sport - NAR, Nucleus of High Performance in Sport - NAR”

“BR, BR, BR, BR, BR, BR, BR, BR, BR, BR, BR”

“Background: The male amateur boxing rule consists of 3 rounds of 3-min interspersed with 1-min of recovery. It is considered a high intensity intermittent activity that requires several technical and physical abilities. Despite of boxing performance depends on both aerobic and glycolytic metabolisms, commonly, elite amateur boxing athletes perform daily long term continuous running (>30min) which may impair strength and power abilities due concurrent training effect. The knowledge about more specific and high intensity exercises may help coaches and physical conditioners to optimize boxing training sessions. Therefore, the present study was designed to test the cardiac and metabolic effects of a high intensity running exercise based on the official rules of International Association of Amateur Boxing (AIBA). Methods: Nine male boxing athletes (23.04±5.02 years; 70.18±13.45 kg; 173.67±8.59 cm; BMI = 23.07±2.42) from the top level of Brazilian Boxing National Team volunteered to participate in this study. The high intensity running exercise consisted of 3 running bouts of 3-min with 1-min of interval between bouts and was named as “3x3x1 exercise”. During each 3-min bout the athletes run 40-m (20-m + 20-m 180º shuttle-run), as fast as possible in the attempt to perform the maximal distance running. Between each 3-min bouts the athletes remained in a sitting position for 1-min to simulate the passive recovery according to the boxing official matches. The heart rate (HR) was monitoring continuously and the blood lactate (BL) was assessed during the rest (before the warm-up) and 5-min after the exercise. Data are described as mean and standard deviation.

Results: The athletes covered 1888.89 ± 74.24m (Bout 1 = 668.89 ± 22.61m; Bout2 = 611.11 ± 31.80m; Bout 3 = 608.89 ± 34.80m; P<0.05), and reached their maximal HR (194 ± 9 beats.min-1). The athletes
maintained their HR near to the maximal HR values more than the half of the time during the 3x3x1 exercise (Zone 1 = 0.28 ± 0.34%; Zone 2 = 2.97 ± 3.54%; Zone 3 = 7.90 ± 4.12%; Zone 4 = 32.21 ± 19.32% and Zone 5 = 56.65 ± 20.89). The HR during the passive recovery reduced in mean 42.87 ± 13.99 beats.min⁻¹ (Bout 1 = 43.56 ± 15.41 beats.min⁻¹; Bout 2 = 37.39 ± 12.62 beats.min⁻¹; Bout 3 = 47.67 ± 13.95 beats.min⁻¹). The BL starts at 0.98 ± 0.27 mmol.L⁻¹ in rest and reached 8.22 ± 1.09 mmol.L⁻¹ 5-min post-exercise. **Conclusions:** The physiological responses of a 3x3x1 exercise were similar than the physiological demands of official matches found in previous studies. The 3x3x1 exercise induces high cardiac stress and may be used in training sessions to improve both aerobic and glycolytic metabolism. Futures studies are necessary to verify the 3x3x1 reproducibility as well its relationship with other standard physiological responses as ventilatory thresholds and maximal oxygen consumption. The sensitivity of the 3x3x1 exercise to detect training/detraining effects is also necessary."
ORAL PRESENTATION

PREFERRED AND PERCEIVED LEADERSHIP STYLE OF COACHES: COMPARISON WITH RESPECT TO SPORT TYPE AND GENDER

Sport psychology
ANIL RAMACHANDRAN
"KANNU UNIVERSITY, KANNU, KERALA"

IN

“Background: The study aimed to investigate the preferred and perceived leadership style of coaches belonging to four popular sports (track and field, badminton and volleyball and basketball) in the state of Kerala, India.

Methods: The participants were 144 junior athletes, (track and field = 36, badminton = 42, basketball = 32 and volleyball = 34) participating at the national level competitions. The sample consisted of 83 male athletes and 61 female athletes in the age group of 16 to 19 years. All the athletes completed the preferred and perceived version of Leadership Scale for Sports developed by Chelladurai and Saleh (1980). A multivariate analysis of variance was conducted with the behavioral variables as dependent variables and gender and sport type as independent variables.

Results: The results showed significant differences in perception and preference of athletes on the different dimensions of coaching behaviour. Female athletes reported significantly higher values on social support, democratic behaviour and positive feedback. Athletes of team sports perceived their coaches to be more socially supportive than the individual sports athletes. Female athletes of team sports reported higher values on social support as compared to other groups. Female athletes of individual sports perceived higher levels of positive feedback as compared to other groups.

Conclusions: Exploring the athlete’s perception and preference of leadership behaviour of coaches would benefit the coaches to develop better coach athlete relationship and to better motivate the athletes and increase their satisfaction and performance.”
ORAL PRESENTATION

Presence and Performance of the Brazilian Athletes’ Scholarship (Bolsa Atleta) Recipients at the 2015 Toronto Pan-American Games

Governance and policy

"Barbara Schausteck de Almeida, Fernando Marinho Mezzadri"
"UFPR, UFPR"
"BR, BR"

“Background:
The program Athletes’ Scholarship (Bolsa Atleta) is a monthly financial support given by the Brazilian government to eligible athletes in six categories: base (young athletes), students (competitions among schools), national (national competitions/rankings), international (international competitions/rankings), Olympic (athletes at the previous Olympic Games) and podium (athletes at the 1st to 20th positions in international events/rankings). A mean to evaluate this program is to consider the athletes’ participation in international events, such as the Pan-American Games. For the 2015 edition in Toronto, the Brazilian delegation had 591 athletes and won 141 medals. The aim of this research is to evaluate the participation and the results of the Brazilian delegation in Toronto 2015, using as reference the relationship of the participants with the Athletes’ Scholarship.

Methods:
The list of the Brazilian delegation for the 2015 Pan-American Games was obtained at the Games' official website, as well as the medal winners. The athletes’ names were compared to the scholarship recipients from 2005 to 2014, available at the database of the “Sport Intelligence” project, at the Federal University of Paraná. All the data was tabled at a Microsoft Excel spreadsheet and a descriptive statistic was used to summarize the information of the participants. This step was followed by a qualitative analysis of this policy.

Results:
The Brazilian athletes were 53% men and 47% women. Among the eligible athletes, 86% received the Athletes’ Scholarship between 2005 and 2014, while 71% were still receiving in 2014. The medal winning analysis consider not only the number of medals won, but mostly the number of athletes needed to win this medals – which includes team’s members and substitutes. For the 141 medals, 299 athletes were involved (50, 5% of the Brazilian delegation) and 81% of them received the Scholarship at some point. The Scholarships were bigger for recipients of national and international categories, particularly since 2011. Very few athletes received the benefit at the categories student and base, even
though the majority would be eligible in the age criteria. The total investment in the delegation reached R$ 52.4 million (US$13.1 million); 40% was invested in athletes that did not win any medal.

**Conclusions:**

The importance of the Athletes’ Scholarship for the Brazilian delegation at the Toronto 2015 is evident, as the majority of athletes received this benefit, as well as all the medals won had the participation of an athlete subsidized. The athletes have mostly received the national and international scholarships, showing their late identification in the sport pyramid. Regarding the expenses, the investment for medal winning prove to be more efficient for athletes in individual sports and even more if they compete in more than one event at the same competition (e.g. canoeing, gymnastics, and swimming). However, a political question that raises is: what is the purpose of investing in elite sport, medal winning or promoting various sports? The answer is key for a precise evaluation of this policy."
ORAL PRESENTATION

Press Operations Before and During International Games Hosted by China

Sport sociology
Al Xianfeng
Wuhan Sport University
CN

“Background:
China has hosted over ten international sport games since 2008, including the 29th Olympic Games in Beijing in 2008 and the 2nd Youth Olympic Games in Nanjing in 2014. Press operations have become a very important measurement in judging and promoting the success of each of the international sport games held in China and helped to make the host cities known to the world. Based on the actual participation in the press operations and investigation, this paper attempts to probe into the press operations of the international sport games held in China with the hope of offering ideas for further improvement in the future press operations.

Methods:
Documentation method, experts interview and field survey

Results:
1. The preparation work for the press operations started much earlier than the actual beginning of the games without the participation of the experts and their guidance, leading to a lot of mistakes in the layout of venues and loss in the reconstruction of the venues.
2. Bureaucracy in the leadership of organization committee resulted in misunderstanding the nature of press operations and misconducts in the preparation stage work. Lack of cooperation between the different sections slowed down the work pace; inefficiency marked the earlier phase of preparation.
3. Much more emphasis has been given to sticking to the press working condition requirements and service policy set forth in the Technical Manual without showing necessary reconciliation in allocating resources according to the actual conditions of the venues to meet the needs of different media.

Conclusions:
1. The organization committee of the games should invite the experts on press operations both at home and abroad to participate in the preparation work as early as possible to make the venue design and the construction of venues more scientific and people oriented. Professional work should be done by professional experts.
2. Officials involved in the leadership of press operations are supposed to receive the necessary training to acquire sufficient knowledge on it to avoid bureaucratic work style and become better informed leaders.

3. More investigation should be conducted before decision making. The implementation of the terms and service polices set forth in the Technical Manual should take into consideration the specific condition of the venues so as to optimize the allocation of resources and best serve the needs of different media.

4. With more and more international sport games being held in China, more attention should be given to developing inter-disciplinary talents in people who are equipped with the knowledge about sports, communications, the needs of journalists, venue operation and sport industry and have good English proficiency and international vision. Inter-cultural communication competence and good coordination ability are also important in qualifying for coping with the press operations work."
ORAL PRESENTATION

Prevalence of Dysmenorrhea among physically active and inactive girls in Amravati District

Physical activity and health
"Alka Karanwal, Kamalakanti Debnath"
"Late Shri Madangopalji Mundada Kala & Vanija Mahavidyalaya, Chandur Rly., Dist. Amravati (Maharashtra), Degree College of Physical Education, HVPM, Amravati"

"IN, IN"

“Background:
Dysmenorrhea is experienced as pain or cramp in the lower abdomen before or during menstruation. Prevalence of dysmenorrhea among girls varies from place to place. Aim of the present survey study was to assess the prevalence of dysmenorrhea among girls studying in sub – junior, junior and senior level in college of Amravati District.

Methods:
In the present study total 183 girls (Median age 14 year) were selected randomly after their informed consent. Out them 73 were physically active and 110 were physically inactive girls. Physically active girls were the regular participants of physical education training program and participating at least inter collegiate/school competitions. But the physically inactive girls they seldom participate in the physical activity program. Questionnaire - Specially designed for girls students based on symptoms of Dysmenorrhea was applied to gather the data. Descriptive, percentage, and comparative (ANOVA) analysis was applied to analyze the data.

Results:
Results of the percentage distribution showed that the prevalence of dysmenorrhea was higher in physically inactive girls as function of moderate and severe pain. Comparative analysis (ANOVA) showed statistically significant (p < 0.05) difference in dysmenorrhea among the girls, the physically inactive girls significantly experienced higher level of pain as compare to that of physically active girls.

Conclusions:
In conclusion, regular participation in moderate to vigorous physical activity may reduce the symptoms of dysmenorrhea in girls."
Prevention of sarcopenia through exercise and spermidine intervention by regulating functional status of autophagy

Sport and quality of life for adolescence and aging

"Jingjing Fan, Ning Chen"
"Wuhan Sports University, Wuhan Sports University"
"CN, CN"

"Background:
Accompanying to increasing number of aged people, the progressive loss of muscle strength and muscle mass, as sarcopenia, due to reduced physical activity, has resulted in a series of influence on the quality of life for these aged people and highly economic burden. The quality and mass control of skeletal muscle during the lifetime is the requirement for the delayed decline of the function with aging. The autophagy is a major cellular pathway to regulate protein and organelle turnover in skeletal muscle. Since the basal autophagy is regarded as the attenuation with the extension of age, appropriate exercise training has revealed the enhanced autophagic signaling in aged mice. Furthermore, spermidine is a natural polyamine involved in many important cellular functions for the extension of lifespan and improvement of life quality through the induction of autophagy.

"Methods:
In the present study, the effect of spermidine and exercise on the mass maintenance of skeletal muscle in D-galactose (D-gal) induced aging rat model. Sub-acute aging was induced in male SD rats by subcutaneous injection of D-gal (200 mg/kg•d), and the rats were treated with spermidine (5 mg/kg•d, intraperitoneally) or/and swimming (60 min/d, 5d/wk) for 42 days. After sacrificed, the gastrocnemius muscle samples were surgically harvested, and fixed with 10% neutral-buffered formalin. Other samples were stored at -80 ºC for western blot assay.

"Results:
In order to understand the skeletal muscle loss caused by D-gal exposure, we examined the ratio of gastrocnemius and body weight. In our study, the gastrocnemius of D-gal-treated rats exhibited significantly decline when compared with that in the control group (t-test, n = 5; P < 0.001), suggesting that D-gal induces the loss of skeletal muscle mass in rats. The combinatorial intervention of spermidine and exercise could accomplish the obvious protective effect on gal-induced impairments although the single intervention could not produce the satisfactory result. To characterize the internal structure of muscle fibers, the morphology of the gastrocnemius after 6 weeks of exercise training and spermidine
intervention, the structure of myofilament was improved. The expression level of LC3B and Beclin-1 revealed an obvious increase due to the combinatorial intervention of exercise and spermidine. Therefore, the D-gal-induced decline of skeletal muscle mass could be slowed down through the activated autophagy by exercise and spermidine.

**Conclusions:**

Autophagy, as an important physiological process, can be activated by exercise and spermidine, which can ameliorate the D-gal-induced detrimental aging of skeletal muscle and can provide the reference for the prevention and rehabilitation of sarcopenia."
Reading and the Olympic sports: why not?

Sport pedagogy

"Tania Regina Pinto de Almeida, Rodrigo Vianna Mulatinho"

"GEO SANTA TERESA, GEO Santa Teresa - UTAD"

"BR, BR"

“Background: Even though the idea of uniting the practice of sports with traditional education in schools is a current theme for lectures and debates, it is in usual to verify the implementation of an educational system that manages to combine both. Throughout the history of mankind, the practice of sports has been a relevant factor to education. Practice of sports and reading are very important to focus the student on their subjects and to construct someone's education based on discipline and concentration. In Ancient Greece, for example, physical activities were combined with moral studies in people's development in order to become “real citizens”. Sports practice has been facing enormous changes and discussions through time but their relationship with people’s education remains accurate (Korsakas Junior, 2002). Aiming that the reading is important for organizing students ideas and also concentration our school developing this project to prove that Judo can help the improve the students learning not only the Olympics values but also the concentration in their reading that they need in their lives.

In Brazil, due to the occurrence of the Olympic and Paralympic Games in 2016, at the city of Rio de Janeiro, there was proposed a new educational system to be applied at school units called GEOs (Experimental Olympic Gymnasiums) that has been conquering simultaneous achievements in sports and traditional educational areas, since its beginning, four years ago.

Methods: The school’s project began in February 2016 with groups of students from the 6th grade Elementary School of E.M.J.A.S, presenting aspects of the east culture (with special attention to the Japanese) including its history, food and architectural structure, together with the practice of the Japanese sport of judo. This type of fight was chosen to be the starting point of this project. After the study of these information, the students would go to their judo class space (the Dojo) to practice the sport itself and to read and learn about this in the Reading classes.

It’s proved with the groups for the Reading groups that their grades go up and that they developed their listening and organization by itself. Then, the judo coach would teach its procedure, with a special focus on the compliance with its rituals and the due respect to the Samurai’ system, in a way that all
information acquired would become useful and even more interesting. They learn and read about the Judo and afterwards they can practice what they’ve learnt.  

**Conclusions:** The school’s subject that combines these two (literature and sports) is called “Reading Room”. So, the students can read in and out the School’s walls proving that they can learn not only literature, poetry and Fairy Tales practicing the values and the concepts of the Judo’s.”
ORAL PRESENTATION

Real-Time Feedback System of Weightlifting with Kinect Sensor Technology in sports
"Kangwei Al, Zhiyuan Bi"
"China Institute of Sport Science, Taiyuan Normal University"
"CN, CN"

“Background: Video analysis can be not only used to obtain the kinematical data of weightlifting movements for scientists, but also served as a way of feedback for coachers and weightlifters. However, post-processing is needed to obtain the kinematical data, so it is impossible to provide coachers the video feedback with relevant kinematical data in real-time. Therefore, the purpose of this study was to develop a real-time feedback system (RTFS), which can provide the coachers and weightlifters kinematical data and video information.

Methods: A Kinect sensor was used as the hardware to capture the depth data and RGB video, the methods of the pattern recognition and algorithm were established, and corresponding software was developed using Kinect SDK v1.5 and C++ programming language to identify the barbell and calculate the data of barbell center of mass (COM) in three dimensions. In order to check the reliability of the data from RTFS, an experiment was carried out to compare the data from RTFS and that from 3D analysis based on video (SIMI Motion).

Results: The statistical analysis (T-Test) showed that there were no significant differences existing between the displacements (x, y, z) of barbell COM from SIMI Motion system and RTFS, this means that the data exported by RTFS in real-time are reliable and credible, and can be used to calculate the other kinematical parameters. The real-time feedback system developed in this study was mainly designed for coachers to diagnose and evaluate the technique of weightlifters in daily training, so this system has following specific features:

1. Without any marker, set up and use the system very easy
2. The system starts and stops capturing automatically by means of judging the bar left from the ground and dropped to the ground
3. After the bar dropped to the ground, the video captured, data and curve, such as the maximal height of the bar, the trajectory of the bar were replayed on LED screen immediately
4. Pre-defined evaluation protocols for snatch and clean & jerk can be automatically chosen by judging the characteristic of bar movement
5. Video and kinematical data can be saved directly to database for the further comparison and analysis
The system has two screens, one is touch screen for easy operation, the other one is large screen for showing the feedback of results.

**Conclusions:** The system developed in this study is an integrated system, which has the comprehensive systematic functions including the depth images & video recording, intelligent pattern recognition, data processing and saving, results feedback and exporting. It was designed particularly for coaches in weightlifting training to improve the performance executed by lifters. The innovation of this system is to realize the feedback in real-time, which makes the feedback more and more effective than before. China National Weightlifting Team has been using this system in their daily training, and some improvements will be made to meet the demands for practical applications."
ORAL PRESENTATION

REGIONAL AND TOTAL BODY BONE MINERAL DENSITY IN MALE SWIMMERS AND SOCCER PLAYERS IN DIFFERENT AGE GROUPS

Elite performance

“Emilson Colantonio, Claudia R Juzwiak, Cláudio Scorcine, Fabrício Madureira, Marcelo M Pinheiro”

“Postgraduation Program Interdisciplinary in Health Sciences – Universidade Federal de São Paulo, Postgraduation Program Interdisciplinary in Health Sciences – Universidade Federal de São Paulo, Postgraduation Program Interdisciplinary in Health Sciences – Universidade Federal de São Paulo, Physical Education Faculty of Santos - UNIMES, Universidade Federal de São Paulo”

“BR, BR, BR, BR, BR”

“Background: During childhood and adolescence, bone mineral density (BMD) increases until to be reached the acquisition peak of bone mass to be reached in early adulthood. The aim of the study was to compare the total and regional BMD (legs, arms, hip and spine) measurements among children, teenagers and young adults, who train in soccer and swimming disciplines

Methods: A total of 117 male volunteers were recruited being 38 soccer players (SP), and 33 swimmers (SW). The control group (CG) was composed by 46 sedentary individuals. The subjects were divided according to the age in three groups: children 7 to 10 y (n=50), teenagers 11 to 17 y (n=41), and young adults 18 to 30 y (n=36). The body BMD and body composition were measured using dual-energy absorptiometry (DXA). Total and regional BMD were measured and derived from the total-bodyscan (Lunar Prodigy Advance® - GE Healthcare, Madison, USA). One Way Anova for multiple analyses within and between the studied groups was performed (SPSS 19.0, IBM, Chicago, USA).

Results: No differences were found in mean total BMD (g/cm2) values between SW, SP and CG. The significance level was set at P ≤ 0.05; it was difference between children and adults of the same group. P = 0.371, P = 0.093 (between SP and SW for teenagers and adults, respectively). Regarding body site-specific area, the BMD means values showed for SP femur a higher BMD than SW and CG in all age-groups; for L1-L4 the SP and SW groups showed BMD mean values higher than CG in children. However, the SP group presented BMD mean values higher than SW and CG in teenagers and young adults (p = 0.01). With respect to femoral neck area, were not observed differences in children among the sport modalities and CG. While in the teenagers and young adults, were observed differences between SP x SW and SP x CG (p = 0.01). Children, adolescents and young adults presented higher BMD for SP and SW than CG, independently of sports modality, in Radius site-specific area.
Conclusions: Our data showed that male SP and SW have similar total body BMD to healthy sedentary controls, regardless age and BMI. On the other hand, the athletes had higher site-specific BMD measurements, especially at spine and forearm, in all age groups. Hip BMD was higher only in teenagers and young adults SP and SW, but not in children. These results highlight the importance of changing the strength exercise in SW."
ORAL PRESENTATION

Regulation Dilemma and Promotion Countermeasures of Sports Social Organizations in China

Sport sociology

"YangYuanbo, ChenCongkan"

"Southwestern University of Finance and Economics, Southwestern University of Finance and Economics"

"CN, CN"

"Background: Sports social organization is a significant force in developing sports in China. The quantity of all social organizations in China is about half a million in 2014, sports social organizations take 5 percent in it. While developing, sports social organizations meet problems. To deal with the problems, regulation is important. Because of the defects of administrative management system, the environment for the rule of law, social development and sports social organization itself, regulation is not efficient and ineffective. How to get rid of the dilemma and promote the regulation on sports social organizations becomes a hot issue.

Methods: Literature Review, Comparative research, Systematical analysis were used in the research.

Results: The Regulation Dilemma consist of different aspects: 1) Regulation from government is lack of execution. The efficiency of regulation is influenced by “Dual Management System”, functions of government and sports social organizations are confused, the law and policy for the regulation need to be improved; 2) The initiative for regulation from the society is not enough. There is a weak power for society; citizens are not active in regulation. They are lack of consciousness sometimes. Also, as for the media, they need to be more standardized; 3) Absence of social responsibility always caused by sports social organization itself. Autonomous capability is too weak, responsibility mechanism needs to be improved, enhancement of the level of human resource is necessary.

Conclusions: To promote the regulation, measures should be taken as follows: 1) Deepening the regulation of government is important, such as to enhance the path, to innovate the mechanism, to regulate the purchase of public service from sports social organizations and to reform the ways of regulation; 2) Strengthen social regulation, leading social forces participate in regulation, evaluating sports social organizations and constructing the mechanism of accountability are recommended; 3) In the area of regulation from sports social organizations itself, it is important to promote the public responsibility of sports social organizations, to provide a strong fit of “right” and “responsibility” of sports social organizations, to expand the independent space of sports social organizations and to adjust the internal governance mechanism; 4) Construct the regulation system consist of “trinity of government,
society and Social organization”, it is suggested to perfect the legal system of regulation, try to form the modern sports social organization system in accordance with law, make multi-regulation subject work well and to keep coordination of all the factors of the regulation system.”
Rehabgesture For Range of Motion Classification In Paralympic Sport

Technology in sports

"Alexandre Fonseca Brandao, Carolina Mie Kawagosi Onodera, Ricardo Aurélio Carvalho Sampaio, Marco Carlos Uchida, Gabriela Castellano"

"State University of Campinas, State University of Campinas, State University of Campinas, State University of Campinas, State University of Campinas"

"BR, BR, BR, BR, BR"

"Background: The Range of Motion (ROM) Is Considered an Important Parameter of Training Prescription and Physical Assessment, like as Classifications Rules and Regulations for Classification in Paralympic Sport by Ensure that Athletes Compete Equitably with each other. The Purpose of Classification is to Minimise the Impact of Eligible Impairment Types on the Outcome of Competition, so that Athletes who Succeed in Competition are Those with Best Anthropometry, Physiology and Psychology and who Have Enhanced them to Best Effect. The Focus of this Work was to Build An Innovative Tool for Measuring the Amplitude of Arm Movement, Called Rehabgesture.

Methods: In the Development of the Rehabgesture Tool, We Used the Gesture Recognition Sensor Kinect, and the Concepts of Natural User Interface (NUI) and Open Natural Interaction (Openni). Rehabgesture Application was Developed in a Multidisciplinary Study in The Laboratory Of Visualization, Immersive, Interactive And Collaborative (Laviic), Computer Science Department, and Was Approved by the Ethics Committee on Human Research Under the Process Number – CAAE 11319712.4.0000.5504, Supported by the Center for Science and Technology / Federal University of São Carlos.

Results: Rehabgesture Can Measure and Record the Range of Motion (in the Coronal Plane) from 0° Extension to 145° Flexion of the Elbow Joint, and from 0° Aduction to 180° Abduction of the Glenohumeral (Shoulder) Joint, Leaving the Standing Position. The Movement of Abduction Goes Through Three Stages: 1st Stage - 0° to 60° is Performed Solely by the Shoulder Joint; The 2nd Stage - 60° to 120° is Performed by the Shoulder Joint with Participation of Scapulothoracic Joint and The 3rd Stage - 120° to 180° Degrees that Combines Trunk Inclination and the others Joints Described above. Data are Recorded at 30 Hz (Frames per Second) and Separated by Joint (Shoulder / Elbow) and Side (Right / Left). The Proposed Tool has Application in the Fields of Training and Physical Evaluation of Professional and Amateur Athletes in Clubs and Gyms, and May Have Application in Rehabilitation and Physiotherapy Clinics for Patients with Compromised Motor Abilities.
Conclusions: Rehabgesture Represents a Low Cost Solution to Measure the Movement of the Upper Limbs, and to Stimulate the Process of Teaching and Learning In Disciplines Related to the Study of Human Movement, such as Kinesiology. From the Data Acquired, by Rehabgesture, Creating Charts is Possible to Compare Differences Between the Movement for the Same Joint (Right Vs. Left) or Among Patients Undergoing the Same Therapy, Allowing Health Professionals (Kinesiology Experts) to Create a Database. However, More Studies are Necessary to Indicate the Use of Rehabgesture Tool in Scientific Research on Human Movement Analysis."
ORAL PRESENTATION

Relationship among Possible Mechanisms of Self-Control Exercise Intervention on Cancer Survival

Physical activity and health
"Jibing Wang, Renwei Wang, Weimo Zhu, Jiaying Lang, Yong Gao"
"Tongji University, Shanghai University of Sport, University of Illinois, Tongji University, Boise State University"
"CN, CN, US, CN, US"

"Background: While the Self-Control Exercise (SCE), known also as Guolin Qigong, has been used in China for cancer survival for more than 40 years and many cancer survivors have benefited from this exercise, the possible biological mechanisms of this exercise has not been understood. This study was aimed to explore the relationship among several possible mechanisms of SCE intervention in cancer survivorship.

Methods: 36 malignant tumor patients (17 males & 19 females; M±SD: Age in yr: 61.98±7.31; Cancer survival yr: 16.54±4.12) who had survived and kept SCE practice for over 10 years were recruited for the study. Their cancer history, general well-Being schedule(GWB) and index of well-being(IWB) were surveyed, resting metabolic rate (RMR) measured by Fitmate gas analyzer, the activity of super oxide dismutase (SOD), glutathione peroxidase (GSH-Px), total antioxygen capability (T-AOC), malonaldehyde (MDA) in serum were collected. The lymphocyte surface antigen CD3/CD4/CD8/CD(16+56)/CD19/CD4CD25 were examined by direct immunofluorescence staining and flow cytometry. Kendall τ coefficients were computed to measure the correlations among these variables.

Results: It was found that CD3+ is moderately correlated with GWB (tau=0.460, p<0.01), IWB (tau=0.474, p<0.01) and RMR (tau=0.428, p<0.01), respectively, and RMR is also positively correlated with GWB (tau=0.660, p<0.01) and IWB (tau=0.450, p<0.01). There is a low, but positive correlation between MDA and SOD (tau=0.266, p<0.05). In addition, there is a low and negative correlation between CD4+CD25+ and CD(16+56)+ (tau=-0.292, p<0.05).

Conclusions: The lymphocyte subsets, free radical, and psychological state all could affect cancer survival and there seem synergistic or antagonistic effects and interaction among them. The low-to-moderate correlations between immune system and psychological state measures indicate that SCE may benefit to the long-term cancer survivors from improved immune function, psychological state and their interactions."
ORAL PRESENTATION

Relationship Between Sport Performance and Mood States of High Performance of Para-athletics

Sport psychology

"Carol Uehbe, Ciro Wincker de Oliveira Filho, Maria Regina Ferreira Brandão, Maria Cristina Nunes Miguel"

"Federal University of São Paulo, Federal University of São Paulo, University São Judas Tadeu, Brazilian Paralympic Committee"

"BR, BR, BR, BR"

"Background: The Paralympic sport in Brazil has greatly increased in recent years being evidenced by the space gained in the media and the international games performance. There are a few studies about Psychology Sports in Paralympic high performance. Therefore, the study in this area has great value to athletes and can be considered a contributing factor to individualization of training. Thus, the aim of the study was to investigate the relationship between the sport performance and mood states of high performance of para-athletics.

Methods: We evaluated 23 athletes, members of the Brazilian team of para-athletics. We separate in 13 man and 10 women, with ages between 15 and 45 years. The disabilities in both groups was mental disability, visual impairment, cerebral paralysis and amputees. The visual impairment’s guide participated as well. For evaluation of mood states aspects was used the questionnaire Brums Scale. For analysis of sport performance, was used two Jump tests: Alternate Tenfold Jump (TJ), it was a horizontal jump test, and Squat Jump (SJ), it was a vertical jump test without countermovement. Brums Scale and Jumps Test were made twice on two consecutive months, on time for each month. The application of Brums Scale was conducted by psychologist of the Brazilian Paralympic Committee’s track team. The SPSS software was used to do the statistical analysis of data, and the nonparametric Wilcoxon test was used to analyze the variation of samples from groups. The correlation between samples was made using the nonparametric Spearman correlation test. The significance level utilized was 5%.

Results: For the first and second time were made the tests, respectively, the means (x̅) for men at Brums was: Tension x̅=5,23 and x̅=4; Depression x̅=1,69 and x̅=0,92; Angry x̅=2,77 and x̅=1,61; Vigor x̅=11,61 and x̅=10,61; Fatigue x̅=4,46 and x̅=3,92; Mental Confusion x̅=2,85 and x̅=1,69. For physical tests: SJ x̅=41,43 and x̅=42,25; TJ x̅=25,59 and x̅=24,96. For women, the results was: Tension x̅=5,3 and x̅=2,9; Depression x̅=2,3 and x̅=1,8; Angry x̅=2,3 and x̅=2,2; Vigor x̅=10,2 and..."
x̅=9,90; Fatigue x̅=2,6 and x̅=3,2; Mental Confusion x̅=3,90 and x̅=3,10; SJ x̅=30,62 and x̅=32,96; TJ x̅=18,73+3,2 and x̅=18,23+2,91. But, for both genres didn’t show significant variation (p > 0,05) for any test for the first to second time. When we compared women’s physical tests with men’s physical tests, the results showed not significance for SJ (p=0,07), and significance for TJ (p=0,05). At the correlation (ρ) of the variables, for women, the Angry marker, identified by the Brums Scale, correlated with TJ ρ=0,64 (p=0,047). For men, the Tension marker correlated with SJ ρ=-0,57 (p=0,04).

**Conclusions:** With this results, we can conclude it was a relationship between the SJ and Angry mark for women and Tension marker with TJ for men of brazilian team of para-athletics. Therefore, a negative humoral aspect has influence at athlete performance. The importance of this kind of analysis emphasizes the need for inter-relation between training specifics and relevance of sport psychology at the high performance context.
ORAL PRESENTATION

Relationship Between Stress Biomarker, Vertical Jump and Psychological Aspects and Effort Perception at Performance in the Brazilian Athletics Paralympic Team Paralympic During Period Preparatory and Competitive in the Year 2015.

Elite performance
"Shaeny Gomes da Costa, Daniel Paduan Joaquim, Everaldo Braz Lúcio, Silvia Soraia da Silva, Ciro Winckler de Oliveira Filho"

"São Paulo Federal University - UNIFESP, São Paulo Federal University - UNIFESP, Brazilian Paralympic Committee, Brazilian Paralympic Committee, São Paulo Federal University - UNIFESP/ Brazilian Paralympic Committee"

"BR, BR, BR, BR, BR"

"Introduction: The purpose of this study was analyze the relationship between perceived exertion (Hooper Scale), stress biomarkers (CK) and vertical jump in the performance of athletes of the Brazilian Athletics Paralympic Team throughout the preparatory and competitive period. Methods: Were analyzed a total of 22 athletes with different types of disabilities, members of the Brazilian national team paralympic athletics both genders. The study was longitudinal character, consists of 5 evaluation periods, 3 preparatory and 2 competitive. Were evaluated serum levels of creatine kinase (CK), analysis of vertical jumps Squat Jump (SJ), and perception of effort by Hopper scale in order to evaluate the adjustments caused by of training during the preparatory and competitive period. Statistical analysis was performed using the statistical software SPSS 15.0, which was held the Shapiro-Wilk normality test and adopted the non-parametric Wilcoxon test for non-normal samples, and the test Spearman correlation to verify the relationship between the variables. For the analysis of CK deltas was used a maximum of 120%. It was also adopted the value of P <0.05 for significance. Results: The activity and serum CK concentrations showed an increase in the final stages of collection as compared with the early stages throughout the study period as well as the variables Hooper scale, presenting a significant difference at various times. When compared CK values, only the initial sampling at each moment was possible to note a significant difference between week of training and Taper 1 (0.01) between Taper 1 and 2 (0.05) Taper 1 and World Championship (0.02) and the Parapan American Games and World Championship (0.02), the evaluation of the initial collections. And when compared to the final collections, significant difference between the week of training and Taper 1 (0.01), Week of Training and Taper 2 (0.02) and Week Training and the World Games (0.00), plus significant difference also between the Parapan American Games and the World Championship (0.04), Taper 2 and World Games..."
When analyzed the difference between the initial and final values (delta) of CK, it was possible to observe that only the Taper 1 showed values above the 120% limit stipulated as a reference value. When analyzed the vertical jump, SJ showed significant differences (0.02) between the week of training and Taper 1. There was an inverse relationship between CK and SJ. There was an inverse relationship between CK and SJ, with significant difference of 0.00 at all time points analyzed, and when CK values increased to values decreased SJ. **Conclusion:** It was observed that both the CK as the variables of perceived exertion scale of Hooper had similar behavior over the analysis period, with elevation peak and decline in the next few moments. However, the vertical jump test presented an inverse relationship with the other tests, showing a drop in revenue at times when the levels of CK and perceived exertion were high. Thus it is possible to conclude that by controlling the CK values and effort perception tests, such as Hooper Scale, you can monitor the level of performance of athletes.
**ORAL PRESENTATION**

Reliability of the Frequency Speed of Kick Test in Taekwondo

"Jonatas Ferreira da Silva Santos, João Paulo Lopes-Silva, Braulio Henrique Magnani Branco, Irineu Loturco, Emerson Franchini"

"Martial Arts and Combat Sports Research Group, Sport Department, School of Physical Education and Sport, University of São Paulo, Martial Arts and Combat Sports Research Group, Sport Department, School of Physical Education and Sport, University of São Paulo, Martial Arts and Combat Sports Research Group, Sport Department, School of Physical Education and Sport, University of São Paulo, Martial Arts and Combat Sports Research Group, Sport Department, School of Physical Education and Sport, University of São Paulo, Martial Arts and Combat Sports Research Group, Sport Department, School of Physical Education and Sport, University of São Paulo"  

"BR, BR, BR, BR, BR"

**Background:** The assessment of physical fitness is necessary for monitoring the performance, fatigue and recovery, however, few tests use specific sports gestures and, furthermore, are reliable. The Frequency Speed of Kick Test (FSKT) is a specific test designed to evaluate the taekwondo athletes’ performance. Considering that specificity and reliability are essential characteristics of confidence, the purpose of this study was describe the reliability of FSKT using single and multiples sets in taekwondo.

**Methods:** Fourteen male black-belt taekwondo athletes (mean ± SD, age: 20.6 ± 4.2 years; height: 180.4 ± 7.0 cm; body mass: 70.7 ± 11.8 kg; practice time: 7.8 ± 4.7 years) volunteered to participate in this study. The athletes were competing at a regional or more prominent level (international: 21%; national: 36%; state: 36%; regional: 7%). The FSKT single set had duration of 10-s (FSKT10s). The technique used during the test was the turning kick (bandal tchagui). The performance was determined by the total number of kicks generated during the test. Moreover, FSKT multiple (FSKTmult) consisted of 5-sets of 10-s effort with 10-s of rest between each set, with total duration of 90-s. The performance was determined by the total number of kicks generated during each set, sum of kicks during five sets and kicks decrement. Data presented normal distribution and were presented as mean and standard deviation. The intraclass correlation coefficient (ICC) technical error of measurement (TEM), limits of agreement (LOA) and minimal detectable change at 95% confidence interval (MDC95%) were calculated. **Results:** The FSKT10s performance was 21±2 and 21±2 kicks in test and retest. During FSKT10s the TEM (%) and ICC were 0.6 and 0.95, respectively. The LOA was 0.4±1.7 rep and MDC95% was 3.3 rep. The FSKTmult presented 21±2, 20±2, 19±2, 18±1, 18±1, 91±26 and 8.3±3.1 for...
set 1, 2, 3, 4, 5, total sum and kick decrement percentage in test and 21±3, 20±2, 19±2, 19±2, 18±2, 98±10 and 7.6±3.0 for set 1, 2, 3, 4, 5, total sum and kick decrement (%) in retest. The FSKTmult present ICC between 0.73-0.90, TEM between 0.6–3.1%, LOA between -0.1 and 0.5 and MDC95% values for FSKTmult were 4.32 – 6.28 for kicks, 17.72 for sum of kicks and 9.30% for decrement kick. **Conclusions:** This test presented good reliability (test-retest). Considering the reliability an important characteristic, the results presented herein should be of interest to coaches, trainers, practitioners and taekwondo athletes, because this is the only intermittent taekwondo test currently available in scientific literature.
Repetitive Sprint Ability with Change of Direction in U-17 and U-20 Soccer Players

Background: Repeated sprint ability with change of direction is very important for elite soccer performance. However, there are few studies designed to study this ability in young elite athletes. Therefore, the present study aimed to investigate the performance of repeated sprint ability with change of direction in young soccer players.

Methods: During the starting of the season, matured U-17 (174.9 ± 7.8cm; 68.1 ±7.1kg; 10.0 ± 1.6 %BF; N=21) and U-20 (178.3 ± 7.7cm; 73.9 ± 9.0kg; 10.4 ± 2.3 %BF; N=22) soccer players performed the Bangsbo sprint test (BST) which consists of 7x34.2-m sprints interspersed with 25-s active recovery periods and three 45° change of direction in the middle of the run. The Shapiro-Wilk test was used to check the normality of the data. After that the results were compared by the ANOVA two-way test. The significance level adopted was 5% (P<0.05). Data are described in mean and standard deviation.

Results: The intragroup comparisons showed significant differences between the 1st (6.44±0.20s) and 4th (6.70±0.20s), 5th (6.76±0.20s), 6th (6.84±0.18s) and 7th (6.93±0.21s) sprints (P<0.05). Between 2nd (6.51±0.15) and 5th, 6th and 7th sprints (P<0.05). Between 3rd (6.62±0.19) and 6th and 7th sprints, and also between the 4th and 7th (P<0.05) sprints performed for U-20 soccer players. The U-17 soccer players showed significant differences among the 1st (6.69±0.18) with 3rd (6.92±0.21), 4th (7.02±0.21), 5th (7.16±0.23), 6th (7.22±0.28) and 7th (7.27±0.23) sprints (P<0.05). The 2nd (6.76±0.18) was significantly lower than 4th, 5th, 6th and 7th sprints (P<0.05). The 3rd sprint was significantly lower than 5th, 6th and 7th sprints (P<0.05). The 4th sprint was significantly lower than 7th (P<0.05). The intergroup comparisons showed that U-20 was faster than U-17 for all sprints (P<0.05).

Conclusions: Regarding the mature status of the players, the better performance of the U-20 may be explained due to the time of training, even with both groups have been tested during the starting of their pre-seasons. The result of the present study may help coaches and physical conditioners to organize their training sessions aiming to increase the BST ability in young elite soccer players during the competitive season.
ORAL PRESENTATION

Research of 2016 Rio De Janeiro Brazil Olympic sponsors on its corporate image and product trust effect

Sport sociology

"Sitong Yang, Yongsheng Dai, Lina Luo"
"Hubei University of Technology, Hubei University of Technology, Hubei University of Technology"
"CN, CN, CN"

Background:
In 2016, Brazil Rio de Janeiro would host a world class sports event—the 31st Olympic Games, Brazil Government planned total budget is US $13.92 billion, of which more than 20% is funded by corporate sponsorship, sponsors play the pivotal role on the successful hosting of the Olympics. In contrast, sponsors definitely hope its own corporate image and people’s trusts in the product improved effectively by the Olympic Games. Researching marketing strategy of the 2016 Brazil Rio de Janeiro Olympic sponsors, and then identify important variate which improve corporate image and an product trust, aims to provide a reference for future large games sponsorship decisions and look for win-win strategy for both sides.

Methods:
This study proposes four hypotheses about the sponsors, which proved by questionnaires about people’s cognition of the 2016 Olympic Games three kinds sponsors. Using the method Likert7 point scale to assess in the questionnaires (1 stands for entire disapproval, 7 stands for entire approval), 3000 pieces of questionnaires were distributed, but 2768’s effective and got back. The objects were three categories of sponsors of the 2016 Olympic Games, namely 11 Worldwide Olympic Partners, 6 Official Sponsors and 8 Official Supporters.

Results:
The validity and reliability level of the questionnaire is very high (α>0.84, T<0.01). Results support hypothesis H1 and H2 with the path coefficients of the model analysis were 0.31 (p<0.01, T=3.24) and 0.23 (p<0.01, T=3.44), it showed that the co-identity with the Olympic theme and the sponsor’s products, and their exposure during the event have significant impact on the images of the sponsor company. The coefficient of H3 was 0.41 (p<0.05, T=3.86), means sponsors profit-making objective and fulfill its social responsibility don’t conflict, motives of sponsors and the images of Corporate Social Responsibility can help each other. The coefficient of H4 was 0.31 (p<0.05, T=3.22), this indicates that...
the sponsor 'll achieve a positive effect by changing the original advertising strategy during the games cycle, it plays a dual positive role in promoting both its own image and the Olympic Games.

Conclusions:
At first, sponsors should take further step to match the Olympic theme for getting more consumers' accepting. Suggest sponsors should investigate the target audience of the Olympic Games firstly and find the fusion point for marketing brand and the Games. Secondly, the sponsor should increase media exposure during the event for pushing the effect. Thirdly, by changing the original form of advertising channels and content, fitting the Olympic theme can benefit their products and corporate image shaping. Finally, the sponsor shall get customers, suppliers, government and other stakeholders relationship resources by actively highlighting its social responsibility to win the reputation and image, thus making sponsor interactive brand leverage."
ORAL PRESENTATION

Research on Event Resources of Female Teenage football in China
Sport and quality of life for adolescence and aging
"CHEN WEI, TIAN DAN"
"WUHAN SPORTS UNIVERSITY, WUHAN SPORTS UNIVERSITY"
"CN, CN"

“Background:
In recent years, female teenage football in China has been developing rapidly and many kinds of female teenage football events have been launched everywhere, such as The National female football League of U-14, U-16, U-18, Championship and Chinese Women’s Football Association Cup. But these event resources need to be integrated and optimized.

Methods:
Literature review method; Data Statistics method; Case Analysis method

Results:
1.1 Event resources of female teenage football are departed into material resources and immaterial resources. Material resources include financial resources and non-financial resources; immaterial resources include human resources, time resources, information resources and so on.
1.2 Financial resources of female teenage football in China are not abundant. The funds of each team mainly stem from football clubs’ special appropriations, government’s appropriations and their own collections. The source of organizer’s funds comprise entry fees, commercial naming and Chinese Football Association appropriations.
1.3 Training resources and match resources are the main parts in material resources. The football training grounds are not abundant in China, while the resources of match grounds are relatively standard.
1.4 Athletes, coaches, referees, staff and audiences belong to human resources. The developing areas and match teams of female teenage remain stable; coaches have great experience with football matches and their education levels have been improved gradually; referees are relatively fair and just; the management of staff, volunteers and attendants go well; but the number of audience is not ideal.
1.5 Time resources refer to the time and period of holding football matches of female teenage. Generally, football matches of female teenage is carried on from April to June and September to October of every year. Parts of match time conflict with players’ studying time at school.
1.6 Brand resources, scientific and technological resources and information resources are developing step by step and also promoting the event development of female teenage football.

**Conclusions:**

1.1 Event resources of female teenage football are a union. The traditional resources and new resources, material resources and immaterial resources should be optimized.

1.2 Financial resources need more government’s investment and stronger cooperation with enterprise and business institution to provide material guarantee for football events’ organization, planning and administration.

1.3 It is necessary to increase material resources to cultivate and establish elite events of high-standard and high-level.

1.4 The human resources of female teenage football need to be adjusted including coaches’ teaching abilities, referees’ judging abilities and athletes’ selection and training systems.

1.4 The events’ time and period should be adjusted to balance players’ studying time and the competition’s time.

1.5 Taking the advantage of brand resources, science and technology resources and information resources to heighten the competitions’ technological content."
ORAL PRESENTATION

Research on resettlement problems and countermeasures for retired athletes in China

Governance and policy

"Fujuan, Rongji"

"Chinese paralympic management center, Shenyang Sport University"

"CN, CN"

Background:

Every year, about 3000 athletes retired in China, so resettlement task is heavy, and heavy sports projects and facilities, equipment, high environmental requirements of the project, such as canoeing, archery, bicycle project placement job placement of retired athletes are the most difficult. Therefore, government support and public support is not fully meet the employment needs of retired athletes, this needs from the administrative promotion, according to the characteristic of combining the needs of society, the social allocation of resources to establish a comprehensive, sustainable and scientific and effective system of retired athletes' resettlement.

Methods:

Literature, policy analysis, statistics

Results:

1. retired athletes job placement related administrative institutions and the scope of responsibility present situation analysis

From the Angle of the government responsibility, enhance the government's sense of responsibility and mission, find out the related administrative agency liability gaps and the job placement way, strengthen the communication and coordination between the various functional departments

2. retired athletes job placement policy formulation and implementation

In the policy formulation and implementation processes, methods, and the work plan, etc, to find out problems and the insufficiency

3. supply of resources to the settlement of retired athletes employment type, subject, way, etc

From the perspective of supply and demand, update the concept of job placement, optimizing the resources supply layout of job placement, and employment trend based on the characteristics of sports project, the development of diversified development path, the rational allocation of resources, make the resource supply and employment guidance demand

Conclusions:

1. Make full use of social resources, to build diversified practice platform
2. Emphasis on the effect of employment guidance work, the construction of retired athletes employment guidance studio again
3. According to your preference support difficult job placement retired athletes, send one's credentials the exercise to the grassroots
Create a diversified business platform, increase investment in venture funds
4. Establish employment information database and recruitment information private network
5. Combining employment form held in accordance with the time development training"
ORAL PRESENTATION

Research on Social Responsibility of Sports Social Organizations in China

Sport sociology

"Chen Congkan, Yang Yuanbo, Cong Ningli"

"Southwestern University of Finance and Economics, Southwestern University of Finance and Economics, Chengdu Sport University"

"CN, CN, CN"

“Background: Society is the foundation of social organizations, it is obligated and necessary for social organizations to fulfill social responsibility, and so do sports social organizations. Sports social organizations develop so fast in China in recent years, but few of them understand what social responsibility is and how to fulfill it. To help sports social organizations know social responsibility better is important for them to develop in a healthy and good condition.

Methods: Literature Review, Logic analysis and case study were used in the research.

Results: Research shows that sports social organizations in China are mainly lack of three kinds of social responsibilities from the perspective of social relationship: (1) The responsibility between organizations and their memberships. This kind of responsibility is about safeguarding the rights and interests of the members, try to make more benefits for them; (2) The responsibility between organizations and government, especially sports administration department, such as supervision and service. (3) The responsibility between organizations and society, to promote equally and sustainably public value in sports for instance. From the perspective of social responsibility contents, there is a weakness in political responsibility, legal responsibility and moral responsibility for sports social organizations

Conclusions: To realize social responsibility of sports social organizations in China, we need to take these two aspects in consideration: (1) Build the dynamic mechanism for sports social organizations. The key point is the method of service. Sports social organizations need to serve the people and society. Such as organizing sports games and offering sports venues. The goal is to develop sports and promoting health condition of people; (2) Establish the constraint mechanism for sports social organizations. The main part of it is to perfect the law, law is a great weapon for the governance of social organizations. Ensure sports social organizations realize social responsibilities by law, also their performances on social responsibility can be regulated according to law."
ORAL PRESENTATION

Research on the Characteristics and Core Idea of WuShu Culture in the Ancient Silk Road

Sport history

zhiyuguo

"Shanghai Institute of Physical Education, China"

CN

“Background: “The Silk Road” Is a Great Feat of Chinese. Now, China Has Proposed Building "The Belt and Road". Can We Make WuShu Develop to the West? Can we Promote Widespread Dissemination of WuShu Culture along with the Strategy of the Silk Road and in the Name of “WuShu”? This Is the Basis for the Argument of this Paper.

Methods: By Using Cultural Geography, History, Cultural Anthropology as Well as Literature, Logic Analysis and Other Methods, We Study on the subject.

Results: People and Things of WuShu Culture in the Ancient Silk Road All Occurred along the Westbound Road. "Westbound Exchanges" Is the First Remarkable Characteristic. There were more than Dozens of Ethnic Groups in the Silk Road and This Was the Major Reason why WuShu Culture in the Ancient Silk Road Contained Multi-Ethnic Cultural Factors. "Common Accumulation" Is the Second Remarkable Characteristic. WuShu Culture in the Ancient Silk Road Is a Multi-Ethnic Common Accumulation. It Especially Embodied in the Previous Armed struggle of Eliminating Harassment, Consolidating the Silk Road Unimpeded, Defending the Reunification of the Motherland and the Peace in the Border Areas. The Power of the Central Government and the Various Ethnic Groups to Maintain Unity Was a Strong Pillar to Open and Expand the Ancient Silk Road. They Were the Fundamental Reason of WuShu Culture in the Ancient Silk Road Highlighted the WuShu Skills. "Persisting in Reunification" Is the Third Remarkable Characteristic. WuShu Culture Here Included Adept WuShu of Different Nations along the Way such as Horse Riding, Archery, Wrestling and Afferent WuShu from east to west such as Sumo, Art of Fencing, Spear, knife and Shield, Sticks, Rimmer Knife, Whip-Cudgel, HongQuan, BaMenQuan, TongBeiChui and so on. Therefore, “Leaving behind the Traces of WuShu along the Silk Road” Is the Forth Remarkable Characteristic. The Core Idea that We Can Comprehend from the above Characteristics Is “Westbound Exchanges”, “Harmonious Resultant Force”, “Persisting in Reunification”, “All the Way to Sow”. This Is the Beneficial Enlightenment which Is Left to WuShu to Continue Moving towards the World.

Conclusions: Those Vivid Anecdotes of Wushu Culture in the Ancient Silk Road which Is Mostly the Choice of the War. Now, Times Have Changed, but the Foresight of the Han and Tang Dynasties which
Opened and Expanded the Silk Road Is Still an Important Strategic Option of “WuShu to Go to the World”. Let us Follow the “National Policy of the Silk Road Economic Belt”, Leading the Westbound Development of WuShu. WuShu in the Ancient Silk Road Was WuShu of Fighting, while Modern WuShu to Go West Should Be WuShu of Physical Education, Cultural WuShu. We Expect More Countries and Nations to Understand, Accept and Share Chinese WuShu and Besides, We Deeply Hope that the Olympic Games Will Learn more about and Adopt WuShu. In Short, To Be Deep to People’s Heart Further More Is the Arrival of High State of “Civilization” of WuShu Culture."
ORAL PRESENTATION

Research On the Communication and Integration of Olympic Movement and Traditional Sports Culture In Chinese

Sport sociology
Tian zu guo
Hu nan university
CN

“Background: Modern Olympic Games after a hundred years of development has become the world sports culture mainstream culture, people and nations become display their cultural, political, economic, science and technology of three-dimensional window in the history of human civilization have a broad and far-reaching impact significance. This study was to analyze the exchange and integration of the Olympic Movement and Chinese traditional sports culture, explore commonalities and differences between the Olympic Movement and Chinese traditional sports culture, provide a reference for the future prosperity and development of world sport

Methods: the use of literature, comparative analysis, expert interviews, logical reasoning and other research methods, analysis and study of the Olympic movement and sports exchange and integration of traditional Chinese culture, similarities and differences

Results: 1. Not only the Olympic world people of all nationalities gathered in a large family, but also the sports world many peoples absorbed into the Olympics. Reflect the man and himself, with opponents and fight nature, showing human development, progress, and create the future beyond the reality of fighting spirit, fighting to realize the value of life philosophy. 2. Chinese traditional sport even more attention to their own physical movement to show the skills to guide people to achieve mental and physical double sublimation in motion. Chinese traditional sport and the Olympic movement both in common, they have their own personality. Chinese traditional sports culture emphasizes ceremonial, performative and sexual health, the pursuit of perfect mental and physical unity. In pursuit of an individual harmony, interpersonal harmony, harmony between heaven realm. 3. Compared to just over a hundred years of history of the Olympic Games, China has a long history of traditional sports, many projects. By sixty kinds of Chinese traditional sport analysis, we found that most official events of the modern Olympic movement, its form of exercise can be found in the origin of Chinese traditional sports. 4. The Chinese traditional sport gradually identity, assimilation, technology and methods of the Olympic movement, in the past fifty years, China has basically completed the construction of modern sports system
Conclusions: 1. There are many similarities between the two sports Chinese traditional sports culture and Olympic. 2. The Olympic Games are a common value system of the world, is the inevitable continuation of China's reform and opening policy, is a sign of China into the international community. Chinese thought of the people and the concept of peace and harmony and common prosperity of Olympism. 3. The future should be the value orientation of the development of modern Olympic Movement and Chinese traditional sports culture, future-oriented, creative and learn from each other to absorb, based on the age of the field of view of both the lack of self-conscious reflection and criticism, beyond the traditional construct a thinking new world sports culture system."
Background: To research the inheritance and development of traditional minority sports project and the investigate object is the Hainan minority residents.

Methods: Document literature, expert interview, questionnaire investigation and mathematical statistics ect.

Results:

1. There are 101 kinds of Hainan minority tradition sports. They can be divided into: Run, Jump and Throw, Riding and Shooting, Dance and Drama, Strength, Water and Air, Ball Games and other 9 kinds of sports.

2. The original of Hainan minority tradition sports can be summarized as four kinds: originated from life, religious beliefs, self-defense and marriage.

3. Experiential research on the present condition of Hainan minority traditional sports project can be summarized as the following: 1) Activities: There are many regions, projects and physical education in minority schools which provide opportunities. However, the participation of condition is not optimistic. 2) Environment: Hainan is rich in natural resources and heritage of National intangible cultural provides opportunities. 3) Experience: Participants feels a lot but they have little in concept of inheritance because of economic, individual, social and environment restrict. 4) Benefits: The inheritance brings a lot of benefits for Hainan. But the difficult is that the development far away from enough. 5) Using multiple regression to build participation frequency model: $Y=2.306+0.035X_1-0.012X_2+0.85X_3+0.039X_4-0.139X_5+0.23X_6$

4. The strategy of Hainan minority traditional sports.
   1). Take the school as a platform to spread, change the traditional model of personal training, and promote PE by advanced education.
   2). Establish community, rural and festival multi-field marketing model.
3). Take the east counties as the front stage, implement commercialization development model. Take the west counties as the curtain, implement half-market development model. Take middle area counties as the back stage, implement original ecological protective development model.

4). Construct diversified network, TV media platform, provide comprehensive information. Relevant policies and regulations protect the interests of the inheritance person.

**Conclusions:**

(1) Hainan minority sports development and protection is still in infancy;
(2) Hardware and software facilities cannot meet the demand of development;
(3) Traditional minority national sports develop in disequilibrium;
(4) Traditional minority national sports development narrow.

**Recommendations:**

(1) Adhere to the people-oriented, make full use of the school;
(2) Market platform to promote the development of traditional minority national sports events;
(3) With the aid of network, television and other media to public the National Minority sports;
(4) The department of education, culture, tourism, people hall unified understanding;
(5) To speed up the pace of space equipment update.

**Keywords:** Hainan; National Minority; Sports; Evolve; Development Strategy
ORAL PRESENTATION

Research on the Development of Non-Olympic Sports from the Perspective of Polycentric Governance Theory

Sport sociology
"Zhang Tingxiao, Xiaoling, Yuwenqian"
"Dalian University of Technology, Dalian University of Technology, Dalian University of Technology"
"CN, CN, CN"

Background:
After Beijing Olympics games, the Olympic fever in China is gradually replaced by the craze for national fitness. And non-Olympic sports, with numerous participants, become one impetus for such craze. However, under the influence of the widespread concept that Olympic sports take the priority, the development of non-Olympic sports is much restrained and people’s interest in these sports is on the decline.

Methods:
By adopting such methods as literature reviews, logical analysis and expert interviews, this paper focuses on non-Olympic sports and explores problems existing in the development of these sports as to fully understand their status quo, and provide solid theoretical foundation for the study on promoting non-Olympic sports and further growth of sports cause.

Results:
It’s revealed by the research that the development of non-Olympic sports is mainly restrained by four factors including inadequate promotion, imbalanced sports policy-making, the deficiency in resource reserve of non-Olympic sports, and the lack of attention to the development of traditional ethnic sports.

Conclusions:
This paper intends to apply the polycentric governance theory to the sports field, establish the polycentric governance pattern, enhance the status of non-Olympic sports, and optimize the development structure to make non-Olympic sports develop rationally. In order to increase the publicity of non-Olympic sports, and make more and more people accept such concepts as developing these sports, improving national fitness and constructing powerful sports nation, it’s suggested to make national policies which set the polycentric governance pattern on non-Olympic sports, distribute
resources according to such pattern, promote non-Olympic sports through media, and frequently introduce traditional ethnic non-Olympic sports to the world.”
ORAL PRESENTATION

Research on the Monitoring of Physical Function and Training Load of Chinese Elite Female Judo Athletes before Competition

Elite performance
"Lianshi FENG, Jinhao WANG, Li ZHANG, Yingli LU"
"China Institute of Sport Science, Shanghai Research Institute of Sport Science, China Institute of Sport Science, China Institute of Sport Science"
"CN, CN, CN, CN"

"Background: This study monitored the body function level and the special technical training load of Chinese elite female judo athletes during the run-up to the world Judo Championships in order to provide theoretical basis and reference for the preparation of Rio Olympics.

Methods: Six athletes were selected as subjects from Chinese national women's judo team. The national team has organized a 4 weeks systematic training before 2015 World Judo Championship and trained 6 days per week, and rested on Sunday. On Monday morning of week-1 and week-4, athletes' physical function were evaluated by testing blood testosterone (T), cortisol (C), blood urea (BU), creatine kinase (CK), white blood cell (WBC), red blood cell (RBC) and hemoglobin (Hb). Everyday's special technical training course included warm up activity 40 min, technical combat 80 min, relaxation activity 30 min. We randomly picked one special technical training day of week-1 and week-4 respectively and tested blood CK, BUN and urine protein (PRO) before and after training, and in next morning to evaluate the load intensity and volume of that special technical training day.

Results: In week-4, when compared with indexes of week-1, CK decreased significantly (86.7+/-24.3 U/L vs. 166.2+/-75.4 U/L, p<0.05); RBC and HB increased significantly (4.5+/-0.3*10E12/L vs. 4.4+/-0.3*10E12/L, 137.0+/-8.3 g/L vs. 131.8+/-7.4 g/L, p<0.05). And other indicators did not change significantly (p>0.05). In the next morning after special technical training of week-1, CK did not change significantly when compared with CK after training(350.3+/-154.1 U/L vs. 430.7+/-153.3 U/L, p>0.05), BU and PRO decreased significantly when compared with that after training (6.8+/-0.8 mmol/L vs. 7.7+/-0.9 mmol/L, 17.5+/-6.1 mg/dl vs. 76.7+/-36.1 mg/dl, p<0.05). In the next morning after special technical training of week-4, PRO did not change significantly when compared with that after training (10.0+/-7.7 mg/dl vs. 39.2+/-30.4 mg/dl, p>0.05), CK and BU decreased significantly when compared with that after training (109.3+/-23.8 U/L vs. 206.2+/-88.5 U/L, 5.4+/-1.0 mmol/L vs. 7.3+/-0.5 mmol/L, p<0.05). After special technical training, CK and PRO in week-4 were significantly lower than that in week-1 (206.2+/-
88.5U/L vs. 430.7+/-153.3 U/L, 39.2+/-30.4 mg/dl vs. 76.7+/-36.1 mg/dl p<0.05), while BU showed no statistical significance (7.3+/-0.5 mmol/L vs. 7.7+/-0.9 mmol/L p>0.05).

**Conclusions:** The level of physical function of Chinese elite female judo athletes was significantly improved by the training before the competition by increasing in muscle recovery and body transport oxygen system. The adaptability of athletes on training load intensity was enhanced in the last week before competition, which was related to the level of physical function. It is recommended to increase the load intensity in the later period of training to meet the demand of the competition."
ORAL PRESENTATION

Research on the Multi-dimensional Determinants Affecting the Physical Fitness of Tsinghua Undergraduates

Physical activity and health
"Xindong Ma, Dongyi Wu, Miao YU"
"Tsinghua University China, Tsinghua University, Tsinghua University"
"CN, CN, CN"

"Background: To investigate multi-dimensional influence factors of Tsinghua undergraduates’ physical fitness, which including physical activity, routine, cognitive, family and school, and explore their contribution and interaction.

Methods: A total of 1165 Tsinghua undergraduates completed the questionnaire.

Results: The proportion of students with normal weight varies among groups of different amounts of exercise (X2=19.190, p=0.001); which in group of moderate exercise is highest(77.7%). 2. The proportion of overweight and obesity students who sleep less than 7 hours a day is significantly higher than of those who sleep more than 7 hours(X2=4.255, p=0.039). 3. students who stay up more than 4 days/wk have a significantly higher proportion of overweight and obesity (X2=5.022, p=0.025). 4. The scores of both exercise importance cognitive and exercise interest of students who have excellent physical fitness are significantly higher than others(p<0.05). 5. Weight coefficients of different factors are as follows, exercise interest(1.601), exercise importance cognitive(1.545), exercise frequency(0.901), exercise intensity(0.724), father’s exercise interest(0.545), exercise duration(0.490), sports culture of high school(0.460).

Conclusions: 1. Developing regular exercise habits as soon as possible and taking participate in moderate exercise are better for improving physical fitness. Moderate physical activity is best to keep students’ normal weight. 2. Lack of sleep and staying up too much are risk factors for overweight and obesity, which may be related to insufficient physical activity caused by fatigue and eating midnight snack when staying up late. 3. The three highest impact factors are exercise interest, exercise importance cognitive and exercise frequency."
ORAL PRESENTATION

Salidroside Inhibits Myogenesis though Activating P-smad3 Expression in a Dose-dependent Manner

Sport medicine and injury prevention

"Wei Luo, Biao Sun, Jiansong Dai"

"Nanjing Sport Institute, Nanjing Sport Institute, Nanjing Sport Institute"

"CN, CN, CN"

“Background: Skeletal Muscle Injury is Very Common in the Sports Medicine Field, and also the Important Factors Affecting the Sports Life of Athletes because Its Healing Quality is Unstable. Myoblasts are the Precursor Cells to Rebuild Muscle Tissue after Trauma in Adult Skeletal Muscle. In Recent Years, Myoblasts Show Good Prospect in Clinical Application for the Self-Repair of Injured Skeletal Muscle. However, Myoblasts are Prone to Spontaneous Differentiation and Difficult to Proliferation in Vitro, Which Greatly Reduced the Therapeutic Efficacy for Skeletal Muscle Injury. So, Looking for more Effective Myoblast Regulation Factor in Vitro has a Great Significance in Both Theory and Valuable Application. Furthermore, the Effect of Salidroside on Skeletal Muscle Cells Remains Unknown. C2C12 is a Murine Myogenic Cell Line that Proliferate Rapidly, and When Confluent and in the Presence of 2% HS (Horse Serum), They Begin to Fuse and Differentiate into Myotubes. In the Present Work, We Show that Salidroside Inhibits in Vitro Myogenesis though Activating P-smad3 Expression in a Dose-dependent Manner in C2C12 Cells.

Methods: 1. Observe the Morphology of Differential Myoblast C2C12 Which were Treated With 0, 30, 50ug/ml Salidroside to Induce Differentiation by Phase Micrographs; 2.Detect the Cell Fusion Index Affected by Salidroside Using Immunofluorescence;3.Detect the Expressions of Myogenic Differentiation-Specific mRNAs and Proteins Affected By Salidroside Using Western Blotting and Real Time-PCR.4. Detect TGF-B/Smad3 Pathway Protein Expression in Differential C2C12 Cell Treated with 0, 30, 50ug/ml Sal Using Western Blotting. 5. Inhibit Smad3 Phosphorylation with Smad3 Inhibitors(SIS3), then to Repeat Method 1-3 to Detect how SIS3 Impact the Effect of Salidroside in Method 1-3.

Results: Treated with 50ug/ml Salidroside: 1. Salidroside Inhibit C2C12 Fusion and Myotube Form in Morphological By Phase Micrographs; 2. Myosin-Neonatal Positive Area and Myogenin Positive Nuclei Decreased Significantly by Immunofluorescence（P＜0.05）, Which Inhibited Myotube Form Notably; 3. The Expressions of MyoD and Myogenin in mRNA and Protein both Decreased Notably by Real-
Time PCR and Western Blotting (P < 0.05), which inhibited cell fusion and myotube formation during C2C12 differentiation. 4. Salidroside inhibited C2C12 differentiation associated with increases in Smad2/Smad3 phosphorylation, especially P-smad3 (P < 0.01); 5. After selectively abrogated Smad3 phosphorylation, the effect of Salidroside in Result 1-3 invalidated; the results treated with 30 μg/ml Salidroside is insignificant (P > 0.05).

**Conclusions:** 1. Salidroside inhibits myogenic differentiation of C2C12 cell significantly, and promotes cell proliferation, to add satellite cells band reserve. 2. Salidroside inhibits myogenic differentiation in a dose-dependent manner, 50 μg/ml Salidroside is the best. 3. Salidroside inhibits myogenic differentiation by activating Smad3 phosphorylation.
**ORAL PRESENTATION**

**Screem for Risk of ACL Injuries in Youth Soccer Male Players**

Sport medicine and injury prevention

"LucianaAlmeida Ottoni de Luna Freire, Diogo Carvalho Felício"

"federal university of juiz de fora, federal university of juiz de fora"

"BR, BR"

**Background:** Soccer is the world’s most popular sport with most players being younger than 18 years. Soccer is a high-intensity sport with frequent changes in movement, velocity, and direction as well as high impacts and many situations of direct contact between players, which pose the risk of injury. Anterior cruciate ligament (ACL) injuries are among the most devastating injuries a young athlete can sustain, they can mean the end of an athlete’s competitive career and they have been linked with negative long-term outcomes including chronic pain and osteoarthritis. A deficiency in the neuromuscular control of the hip has been identified as a key risk factor for noncontact ACL, this deficiency will often manifest itself as a medial collapse of the knee (“dynamic knee valgus”) during tasks involving hip and knee flexion. The aim of this study is screening for ACL injuries risk in youth soccer players with bidimensional motion analysis.

**Methods:** This study is an observational, cross-sectional study. Participants were taught how to perform the dropjump task. They were instructed to drop down onto the ground from a 31-cm box and to immediately perform a maximum vertical jump. They were to keep their arms in the “stop position” (shoulders abducted 45° and elbows flexed 90°) to reduce momentum from arm swing. To minimize learning effects, 1 practice trial of the drop-jump task were allowed. Following this, 3 consecutive drop-jump trials were conducted. The camera was set up on a tripod 150 cm off the ground and 330 cm forward of the jumping box. The landing phase was defined as the period from foot contact to toe-off and was manually selected. The guidelines were as follows: “If the patella moves inwards and ends up medial to the first toe, rate the individual as high risk,” or “If the patella lands in line with the first toe, rate the individual as low risk”.

**Results:** Developed with 81 youth athletes from 12 to 17 years old with mean of 15 (.± 1, 9 ) From 81 participants 40 were identified as high risk for ACL injury, which means 49% of the team.

**Conclusions:** It is possible to conclude that screening for ACL is important to develop a preventive training programme for those specific athletes, and in this way improve the performance of the individual and the team.
ORAL PRESENTATION

Self-dependent Innovation of China's Sports Brand in the Era of Big Data

Sport development
"WANG Lei, AI Xianfeng"
"Wuhan Sport University, Wuhan Sport University"
"CN, CN"

“Background:
Sports brand is formed in the marketing or communication process. Taken as a trademark, it is used to connect such interest groups as consumers with sports products and generate new value. The core competitiveness of the sports brand lies in its self-dependent innovative technology. Therefore, the big data world of sports brand and Chinese self-dependent innovation sports brand can only be established through integrating the development of sports brand and self-dependent innovation, as well as shifting the core competitiveness of sports brand self-dependent innovation from market competition to data competition.

Methods:
Documentation method; Semi-structured interview and questionnaire; Qualitative and quantitative approaches.

Results:
1. Brand positioning is the core and centralized expression of market positioning. Most of Chinese export products are labor-intensive and low-ended with low proportion of hi-tech products. Consequently, the competitiveness of Chinese sports products is relatively weak with little influence on the international market.
2. The most typical feature of core competitiveness is its non-repeatability and the basic driving force rests with self-dependent innovation. The common failing of Chinese self-dependent innovative sports brand is the lack of innovative power. The research and development of most enterprises is still in the phase of imitation which is lack of technological incubators.
3. The largest predicament of the internationalization of China’s sports brand is the deficiency of international innovative talents which makes it hard to achieve the transition from imitative innovation to self-dependent innovation and lead to the detention of “plateau” for a long period.

Conclusions:
1. Through data mining, the new research mode of customers to discover the potential demands of customer efficiently in the available vast swaths of data, it makes possible to present a direct view of
the customer demands to the brand owners. As a result, rapid and optimal allocation of resources can be achieved through digital processing of target market.

2. Development of self-dependent innovation market through imitated crowd-funding mode; Crowd-funding could get the start-up capital of innovation project by crowd-funding means. To introduce crowd-funding as a new attempt to lower cost and potential risk could bring refined outcomes.

3. Highlighting the role of innovative talents with the help of big data technology; It is imperative for the innovative talents to integrate big data technology with brand development to realize the shifting of core competitiveness of brand from the competition of market to that of the data. It is also inevitable to embark on the road of creating self-dependent innovative sports brand with the help of big data technology and self-dependent innovative technology as the core competitiveness."
Serious leisure and sports science communication: a case study of running magazines in Brazil

Sport sociology

"Marina Gomes, Vera Regina Toledo Camargo"
"Unicamp, Unicamp"
"BR, BR"

"Background: The aim of this study is to evaluate the science content published on Brazilian running magazines. In the country there are about 5 million people who practice track and field running and at least 5 monthly magazines destined for this specific public. It was observed that the number of running events also showed a meaningful increase. While in 2001 the city of São Paulo has realized only 11 official running competitions, in 2009 these events reached the number of 300. The development of the modality has been generated a significant increase of sports magazines readers, who demands more and updated information about the activities. Therefore the attempt to include and reference scientific studies in order to endorse their journalistic pieces is being largely used in this magazines.

Methods: Trying to verify how is done the communication of science in this kind of sports magazines, we used Content Analysis to investigate it in two different running magazines. The intention was not only to analyze how to improve the science communication between scientists and journalists but also propose a reflection about the kind of lifestyle designed by this magazines. And for that we used Cultural Studies.

Results: Sport studies hasn’t been properly exposed. The dialogue between scientists and journalists is close to inexistent in Brazil, and the content of science disclosed in the magazines reflects it: the results are been published without proper contextualization, which gives the reader the idea of promises and miracles, believing they can (and should) apply the methods in their lives.

Conclusions: We found the existence of a certain type of readers who are located between the recreational practitioner and the professional athlete, that see sports activities as “serious leisure”, as defined by Stebins. So, despite this magazines adresses a public that deals with sports as a source of leisure (non-professional) topics on how to improve running based on the science of high performance encourages the reader to want to be better and faster. We also observed how it reflects in the modern man: If on one hand he has become a faster (and injured) runner, in other hand, the desire for a machinery performance is removing from the practice the freedom of a playful and unpretentious sportive activity. "
Service, Education, or Research? Sport Function in World Top Universities: A case study in IARU

Sport sociology

"Ning Li, Fuquan LU"

"Peking University, Peking University"

"CN, CN"

Background:
The purpose of this study is to investigate the functions of sport in world top universities and explore the reasons behind

Methods:
International Alliance of Research Universities, namely IARU, including 10 universities that rank top 60 in the world in US NEWS world university ranking in 2015, is selected as a case study. The relative official websites about sports of each university were screened, and a questionnaire about their daily sports activities were collected to the expertise who changing in sports. Descriptive study methods were run and then regression analysis were applied to explore the dimensions of sport functions in IARU members.

Results:
We found: 1, Mainly there are 3 major factors contribute to the sports in University: Service function as campus sports with different level of students and faculty sports club and athletic teams, Education function as compulsory or elective PE course and degree education, and Research function in sports science or physical education. 2, sports function diverse a lot while share some commons in IARU members. Campus sports is the most common function for all. Sportsmanship and fair play, and the lessons learned from competition sports is the common value for each university. No university could develop all those three functions well, 40% of the members have at least two functions, while only 20% of the members obtain all the functions. 3; The higher ranking university, the less likely to develop sports academic education. Except ETH, Tokyo University, Peking University, Copenhagen University, which rank last 3 places in the IARU members. Also, Europe Universities develop sports science academic education relative better than the university from the other continents, with different degree level from bachelor to doctoral. Moreover, those Universities that develop sports science academic education are all from countries who speak English as a second language. University Tradition and history seems the most important factor influencing the sports function. 4. Physical education,
compulsory or elective with credits, only shown in Peking University and University of California at Berkeley for non-sport major students.

**Conclusions:**

In conclusion, service is the most important and common function in the world top universities, then the academic degree education, followed by physical education the third. Developing sports science research, instead of traditional physical education, seems the best alternative way to develop sports in modern research world top universities."
Six Weeks of Sprint Interval Cycling Training Increases the Anaerobic Capacity and Blood Buffer Capacity: Differences with Two Types of Session Programs

Elite performance

"Guoqiang MA, Zhijun LI, Xiaozhong LIANG, Dahai NI"
"Shanghai Research Institute of Sports Science, Shanghai Research Institute of Sports Science, Shanghai Technical Sports Institute, Shanghai Technical Sports Institute"
"CN, CN, CN, CN"

“Background: Sprint interval cycling training (SIT) is an efficient means of improving anaerobic capacity of elite cyclist. However the effect of SIT can be affected by the riding intensity due to the different programs of training session. We compared the effect of two different types of sprint interval cycling session on anaerobic capacity and blood buffer capacity.

Methods: Firstly fourteen male trained cyclists followed the same track training (TT) programs for six weeks, then were assigned into the constant number of riding times (CG=7) and decreased number of riding times (DG=7) groups with paired design. Two sessions of track speed endurance training of every week were replaced by SIT in the following six weeks. One session included four sets of twenty times’ riding on Wattbike pro cycle ergometer (UK) totally. The riding number of CG group was constant (5+5+5+5 in four sets) and DG group was decreased (8+6+4+2 in four sets). The riding and intermittent time were 20s and 10s respectively and cadence should keep 115rpm above. There is thirty minutes of rest between two sets. The repeated sprint test (RST), 1kilometer time trial (1kmTT) and blood gas analysis during 1kmTT were performed before and after TT, and after 6-Week’s SIT respectively. Blood buffer capacity was calculated by blood gas indexes and BLa.

Results:

(1) DG’s mean power and total work of four riding sets in a SIT session were obvious higher than CG by 28.3% and 15.6% respectively. (2) Compared with the test before TT, we didn’t observe significant changes in RST and 1kmTT after the six-week’s track training. After SIT, only DG’s mean peak power of RST increased by 8.1% (from 18.6±0.6 to 20.4±0.4 W/kg). In addition, CG and DG’s total work of RST increased by 6.6% and 7.1% significantly, and [K+] of plasma at the end of RST also declined by 10% and 8% apparently. Meanwhile, both groups’ maximal power in the 1kmTT didn't change, but only DG’s mean power increased 6.1% (from 7.36±0.30 to 7.81±0.18 W/kg). Both group’s BLa recovery rate...
improved apparently, and DG was higher than CG by 31.9%. So only DG’s results of 1kmTT improved by 3.3% (from 65.8±2.40 to 63.6±1.76 sec). (3) In the 1kmTT after SIT, both group’s BLa at the 5th minute after 1kmTT improved a little. Blood total buffer capacity of CG and DG increased significantly, but the bicarbonate buffer capacity of blood didn’t change.

**Conclusions:**
Six-week’s SIT can improve the repeated sprint ability and the performance of 1kmTT through increased glycolysis and quickening BLa clearance. The SIT of decreased riding times program should be more effective than constant one to improve the peak power in RST and the power endurance in 1kmTT. The higher training intensity that the cyclists completed in twelve SIT sessions of decreased number of riding times may be the main reason."
Sleeping for success: sleep monitoring and interventions in elite female athletes.

Elite performance

"Matthew Driller, Shannon O'Donnell"

"University of Waikato, University of Waikato"

"NZ, NZ"

"Background: The role of sleep in providing adequate physiological and psychological recovery in elite athletes has become a focus area for research in the sport sciences. Sleep practices amongst elite athletes have been described in the literature as being below average in both quality and quantity due to a number of psychophysiological factors and further research is warranted. More specifically, sleep monitoring in athletes, the use of sleep education to improve sleep and the effect of napping on performance are all areas that warrant further investigation.

Methods: A series of three studies investigated different sleep monitoring and interventions in a group of ~ 12 elite female team-sport athletes: 1) the effects of sleep hygiene education on sleep indices; 2) the effect of game-day napping on performance, and; 3) the relationship between salivary stress hormones and sleep indices following training and competition. All three studies utilized wrist-actigraphy to monitor and evaluate sleep.

Results: A one-hour sleep education session resulted in significant improvements (p < 0.05) to total sleep time (+22 minutes), as well as improvements in sleep efficiency (2%, d = 0.28) and sleep latency (-2 minutes, d = -0.27). Physical and perceptual performance were improved after napping for <20 minutes when compared to no napping or napping for >20 minutes (p < 0.05). Training and competition had a significant effect on stress hormone response and sleep quality and quantity (p < 0.05).

Conclusions: This series of studies investigating the sleep practices in elite female athletes has revealed that; sleep may be improved by providing sleep education, napping prior to competition may enhance performance and stress related to night-time competition may alter hormonal responses, sleep quality and sleep quantity."
**ORAL PRESENTATION**

Social agency and football fandom: the cultural pedagogies of the Western Sydney ultras

Sport sociology

Jorge Knijnik

Western Sydney University

AU

“**Background:** The establishment of the Western Sydney Wanderers FC stands out as one of the major events in Australian sporting life since 2012. The newly-born club has not only made the two grand finals of the national tournament since its 2012 birth, but has also won the 2014 Asian Champions League in its first appearance in the major continental tournament. However, the exceptional nature of the fandomship associated with this club carries greater cultural and sociological significance; the multicultural cohort of Wanderers supporters and the so-called “Red and Black Block” (RBB) has shown Australia a totally new way of supporting a sports team. From the very beginning the RBB has embraced the team, changing the whole scenario of Australian football fandom. The RBB calls itself as the true representative of the ultras culture in Australia as they have a clear mission of supporting their club, regardless of the match results. This paper addresses key questions of social agency and cultural pedagogy within the neoliberal structures of ‘modern football’ in the Australian context. It reports on a two-year ethnographic study of the Red and Black Bloc, an Australian ultras group in Western Sydney, one of the most culturally diverse areas in Australia. The origins of the Western Sydney ultras are described, along with their struggles to build their own cultural identity and to fight for social agency within a commodified football league.

**Methods:** Building on directions suggested by previous research on sport fandom in Australia, this paper investigates the Western Sydney ultras socialization process and its cultural ramifications in the Western Sydney region - the most multi-ethnically and social tense area in Australia. A combination of a multifaceted theoretical model with a range of ethnographic data – including document analysis, participant observation and in-depth interviews - was used to describe and analyse the collected data.

**Results:** This study reveals the processes by which the Western Sydney ultras enhance members’ social cohesion toward an increased social consciousness.

**Conclusions:** The paper acknowledges the role that ultras, as authentic cultural formations, may have in the propagation of new cultural pedagogies that have the potential to enhance citizenship, communal life and participatory democracy. ”

pág. 434
ORAL PRESENTATION

Social Capital and Public Sport Service Delivery in Rural China

Sport sociology
"Lu wenyun, Lu Wenzhou"
"China West Normal University, China West Normal University"
"CN, CN"

"Background: Rural areas are underdeveloped compared with urban areas in China. Public sports service delivery is the best way to promote physical activity in rural areas. According to the theory of social capital, social capital are resources which help to solve the public dilemmas (JColeman, 1988; Nan Lin, 2001; Putnam, 2001). Previous research also shows that sports and physical activities can generate and maintain social capital (Cora Burnett, 2006; Fred Coalter, 2007; Vassilions.Ziakas, 2010). This article aims to discuss the relation between social capital and public sport services delivery in rural China, so as to provide advices for government to deliver public sport service for rural areas effectively and efficaciously.

Methods: Questionnaires were used to collect data. 30 villages were investigated to collect data about public sport service delivery in village and 767 famers were interviewed to collect data about physical activity participation, social capital and satisfaction with public sport service delivery in village.

Results: Farmers’ satisfaction with public sport service delivery in village has an impact on social capital. Specifically, trust capital and bonding capital were influenced by the satisfaction with instruction service and information service, support capital was only influenced by the satisfaction with information service. 2) On one hand, farmers’ satisfaction with public sport services delivery in village has a remarkable impact on physical activity participation. On the other hand, farmers’ participation in physical activity also has a significant impact on generating and converting trust capital, relationship capital and support capital. 3) Demographic factors have certain influence on the level of social capital. First, gender has an impact on trust capital and support capital. Second, age has an impact on trust capital, bonding capital and social norm capital. Third, educational level has an impact on trust capital, bonding capital, support capital and social norm capital. Fourth, occupation only significantly influenced social norm capital. 4) Social capital has an impact on the public sport service delivery in village. particularly, bonding capital has a remarkable impact on instruction service and information service; support capital has a significant impact on facility delivery, regulation delivery, instruction delivery and information delivery; social norm capital impacted regulation delivery and instruction delivery. 5) Public sport service delivery in village impacted physical activity participation. In terms of power of influence,
facility delivery, regulation delivery, service delivery, information delivery and instruction delivery ranked in a descending order.

**Conclusions:** 1) Great emphasis should be placed on the development and delivery improvement of public sport service in village. 2) Public sport service delivery should rest on the basis of farmers' satisfaction with public sport service. 3) Public sport service delivery should be provided in an order of facility and expenses, regulation, service, information and instruction considering the generation of social capital.
**ORAL PRESENTATION**

Social–Ecological Correlates of Preschool Children (3-6 ages) Active Commute to School of Shanghai, China

Physical activity and health
"ying zhang, wang li juan"
"shang hai university of sport, shang hai university of sport"
"CN, CN"

**Background:** As in most developed countries, levels of child obesity in China are increasing dramatically while few research only focus on preschool instead of adolescence or mixture of together that lead to deficiency clarification about the influential factors and mechanism.

**Methods:** Cross-sectional surveys with 306 preschool students' (aged 3-6) family from 3 private and 4 public kindergartens of Shanghai, China was conducted to indentify the environment, psychosocial characteristics and behavior characteristic within social-ecological frame potential influenced commute behavior.

**Results:** 5 factors affect the transportation physical activity. For caregiver, the model shows that children taken care by their parent was associated with 2.18 times odds (p=0.002) more than by both parent and grandparent/baby-sister together. Hence, children taken care by their parent were more likely to walk or cycle to school. For the traffic environment, the result showed mixture of pedestrian and motor way was 45% lower odds (p=0.01) of children walk or cycle to school, which means less mixture of pedestrian and motor way are associated with more actively commute. Food Environment was 64% lower odds (p=0.01) and safety was 42% lower odd (p=0.04) of children to walk or cycle. In another words, more food environment and more safety problems, less likely to walk or cycle of children occurred. Children in public school was 90% lower odds (p=0.00) to walk or cycle than in private school. Hence children in private school were more likely to commute to school actively.

**Conclusions:** To localize some variables according to their country characteristic gives the important hint in public health field with different background. Some results are different from the researches in adolescent, which indicates the factors affect actively commute differed from the age of children which will lead to different intervention taken for the population."
ORAL PRESENTATION

Socioeconomic Inequalities in Physical Activity and Sedentary Behavior of Schoolchildren in Shanghai, China

Physical activity and health

"Yang Liu, Yan Tang, Zheng Zhu, Zhenbo Cao, Jie Zhuang"

"Shanghai University of Sport, Shanghai University of Sport, Shanghai University of Sport, Shanghai University of Sport, Shanghai University of Sport"

"CN, CN, CN, CN, CN"

“Background:

It has been documented that regular moderate-to-vigorous physical activity (MVPA) has substantial benefits for young people’s health while sedentary behavior (SED) has many negative health effects. However, the prevalence of PA is decreasing and the prevalence of SED is rising globally. PA and SED are influenced by many social and environmental factors, among which socioeconomic status (SES) plays an important role on them. Findings from previous literatures addressed socioeconomic differences in young people’s PA and SED revealed inconsistent results and little is known concerning Chinese schoolchildren. The aim of this study, therefore, was to investigate the socioeconomic differences in PA and SED of Chinese schoolchildren.

Methods:

The data used in analyses derived from the Physical Activity and Health of Children and Adolescents (PAHCA) Survey 2015 in Shanghai, China. This large scale school survey was conducted with multi-stage stratified and random cluster sampling method. 711 primary, secondary and upper secondary schools, from all 17 districts of Shanghai metropolitan area were selected. In total, 78516 students, aged 6 to 18 years old (grade 1-12), representing 5% of the population of schoolchildren in Shanghai, participated in the survey. Finally, the present study contains 61429 participants (girl 49.3%, mean age 11.77 years). Descriptive statistics and logistical regression were used to examine the associations between MVPA, SES, and SES (parental educational level) by gender.

Results:

Of all participants, only 19.4% students meet the PA guidelines that young people should have at least 1 hour MVPA daily (boy 21.4%, girl 17.4%). Meanwhile, 76.0% young people report at least 2 hours SED per day during weekday and 88.6% during weekend. Girls have more sedentary time than boys on both weekday and weekend (p < 0.01). Compared to the high SES groups, young people in low SES groups are more likely to being at least 1 hour MVPA daily for both boys (OR=1.09, 95% CI: 1.02-
and girls (OR=1.18, 95% CI=1.09-1.28). Meanwhile, young people in low SES groups are more likely to being at least 2 hours SED during weekdays for both boys (OR=1.14, 95% CI: 1.07-1.22) and girls (OR=1.16, 95% CI=1.08-1.24), and during weekends for girls only (OR=1.28, 95% CI: 1.17-1.41).

Conclusions:
The present study demonstrated that over three quarters of young people in Shanghai are physical inactive and sedentary. Socioeconomic differences were observed in PA and SED of Chinese schoolchildren. Specific interventions and policies should be designed and implemented to promote PA and reduce SED for schoolchildren with focus on young people from different SES groups."
ORAL PRESENTATION

South African School Learners' Diverse Perceptions on Sport Participation

Physical activity and health
"Dr. J.G.U van Wyk, Prof. Dr. A.E Goslin, Prof. Dr. D.A Kluka"
"University of Pretoria, South Africa, University of Pretoria, University of Barry"
"ZA, ZA, US"

“Background:
South Africa’s political past was characterised by racial discrimination enforced through the Government’s policy of apartheid. This resulted in international sanctions against South Africa in every facet of society including participation in the Olympic Games. A whole generation of South African sportspeople, therefore, lacked opportunities to compete internationally. South Africa was reinstated into the international sporting arena in the 1992 Barcelona Games, providing the first opportunity for a diverse, democratic nation to participate. The status of and reasons influencing school learners’ sport participation in a diverse South African context has, however, not been researched and therefore calls for justification. The study aimed to investigate the status of school learners’ sport participation in South Africa and to explore on the underlying reasons for sport participation.

Methods:
This qualitative and descriptive study uses the Lifestyle Questionnaire, developed by the International Council on Sport Sciences and Physical Education as research instrument. It was administered to a stratified sample of 2000 school learners between the ages of 12 and 15 years including diverse cultural groups in Tshwane, South Africa.

Results:
Both boys and girls in the different age and cultural groups agreed that self-actualization (83.4%); enjoyment of competency (81.5 %); striving towards physical fitness (81.4 %), being part of a team (78.4 %) and the feeling of fun, enjoyment and excitement (75.1 %%) were the most important reasons for sport participation. The most important reasons for stopping sport participation include no enjoyment and loss of interest (19.1 %); clashes with other sporting codes (11.8 %), and time constraints (9.8 %).

Conclusions:
It is concluded that mass participation and involvement in sport as an extramural activity in the South African school system also remains an ideal.
It is therefore recommended that motivation for sport participation should be a collective effort of government, society, parents and school. The school subject of Life Orientation in the South African education dispensation could serve as a fundamental facilitator of sport participation."
ORAL PRESENTATION

Spatial perception after physical exertion in blindfolded athletes with and without visual disability

Neuroscience and sport

"Eliane Mauerberg-deCastro, Gabriella Andreeta Figueiredo, Gabriella Braga Crozara, Carolina Paioi Tavares, Giselle Helena Tavares"

"São Paulo State University, University of São Paulo, Brazilian Air Force Academy of Pirassununga, State University of Ponta Grossa, Federal University of Uberlândia"

"BR, BR, BR, BR, BR"

Background: The presence of a disability such as visual impairment illustrates how intrinsic factors reflect the action-perception system's particular adaptations. For blind athletes, sports performance requires an accurate sense of orientation. Additionally, when blind elite athletes deplete energy due to the demands of a strenuous sport (running, for example), they must resolve additional challenges to their navigational systems. The purpose of this study was to assess how physical exertion during navigation tasks affects spatial perception in blind athletes and athletes without visual impairment.

Methods: Parameters of spatial perception tasks included navigation (angular error) and distance accuracy (produced and estimated distance). Two groups of athletes participated in the study. Fifteen blind track-and-field (BLI) athletes (B1; B2; B3) and ten track-and-field athletes without visual impairment (VIS) volunteered for this study. A psychophysical task using a production of distance method included four distances: 6, 14, 22, and 30 meters. Each distance was tested on a separate consecutive day. Participants initially walked a straight distance with a guide, then immediately walked without the guide while attempting to reproduce the initial distance. They also verbally expressed the amount of walked distance. Two conditions included walking immediately after performing an anaerobic test (physical exertion condition, PE), and walking in a rested state (RE). Participants in both groups were blindfolded. Angular error (AE) represented the magnitude of route deviation, and relative error of distance produced (REPD) and relative error of estimated distance (REED) represented their accuracy on production and estimation of distances, respectively.

Results: An ANOVA three-way (2 groups x 2 conditions x 4 distances) using the AE variable showed that the PE condition affected navigation accuracy of both groups (p = .04). However AE was greater in the VIS group for both conditions (PE and RS) when compared to the BLI group. These VIS athletes were also affected by the PE condition, significantly increasing the REPD (p ≤ .001). They underestimated nearly half of all of the distances when compared to the BLI group in the PE condition,
and nearly 1/3 of the distances in the RE condition. The BLI group was not significantly affected by the PE and produced distances nearer to the actual testing values. In the PE condition, the VIS athletes overestimated the distances \((p \leq .001)\), increasing the REED values. This variable did not change in the PE condition for the BLI group.

**Conclusions:** Athletic experience provides optimal navigation skills for blind athletes only for the linear organization of space (i.e., distance), but not for perception of route (i.e., angular error). Such skills seemed to be resistant to physical exhaustion effects. Although the VIS group demonstrated changes in both components of spatial perception (spatial navigation and distance perception accuracy), their adaptation to the vision restriction was short-termed, which could explain their poorer performance."
ORAL PRESENTATION

Sport and Spectacle in Brazilian Printed Media’s Speech: the Case of London’s Olympics Games 2012

Sport sociology
Ary José Rocco Jr
School of Physical Education and Sport of University of São Paulo (EEFE/USP)
BR

“Background:
The culture of the sport worldwide, with the support of the mass media, aims victories, records, the fastest spotsmen, human beings without limit. Nowadays, sports idols are signs of consumption (Boyle; Haynes, 2009). According Bourdieu (1997), the symbolic construction of the sports press is made of professional athletes, especially in time of Olympics, it seeks to turn these athletes into heroes, conquerors made of unusual representative of what the company wants to achieve. The major sports event and athletes are seen as elements of consumption, as a culture, entertainment and spectacle (Van Bottenburg, 2001). One of the strands used by the media to build, in its speech, of legitimizing the sport as spectacle, is the development of the athlete’s sporting image, elevation to celebrity status (Horne; Whannel, 2012; Boyle; Haynes, 2009; Bourdieu, 1997). Guy Debord (1997) calls it “the spectacle society”.

Methods:
For 76 days, from July 24 until October 07, 2012, 3 major print media outlets were followed in Brazil - three daily newspapers (O Estado de São Paulo, Folha de São Paulo and O Globo) of national circulation. We selected all the materials that was related to the 2012 Olympics, in general, and also about soccer, volleyball, judo and sailing. The subjects were classified into five broad categories: a) sports apparel; b) economic fact; c) behavioral fact; d) real show; and, e) political fact and/or national identity. For this classification, we used the method of content analysis developed by Lawrence Bardin (1977). We also had the purpose of showing that the culture of the spectacle and the world of celebrities are more important for the Brazilian media than the sports competitions and the disputes between nations in arenas, stadiums and gyms of London.

Results:
During the period considered, 4618 were obtained news about the Olympics in all its aspects. Of this total, 1.319 (29.46% of the total) were classified as sports apparel; 1.194 (26.67%) as spectacle; 1.047 (23.39%) of behavior; 673 (15.03%) of a political nature and / or national identification; and only 244
(5.45%) were classified as economic fact. When you add the news agendas of spectacle presented to subjects behavioral approach, we have a total of 2,241 newspaper reports, totaling 50.06% of all content published on the Olympics in three major Brazilian newspapers of national circulation. Thus, we can say that, every two reports published by Brazilian daily, one stood out spectacular and or behavioral aspects of the mega event, leaving the sporting events in the background. All the results and their analysis will be presented in ICSEMIS Conference.

**Conclusions:**
The sports heroes become, alongside famous artists and established rock stars, personalities in imaginary universe of consumers of the growing entertainment industry. We are witnessing today the sports news turned into a commodity for consumption and entertainment. Otherwise, the sportive aspects of major events are set aside by the media. Everything happens in the name of the consumption."
Sprint performance of elite wheelchair-rugby players on an instrumented wheelchair ergometer

Elite performance
"Riemer Vegter, Barry Mason, Tom Paulson, John Lenton, Lucas van der Woude, Vicky Goosey-Tolfrey"
"University of Groningen, University Medical Center Groningen, Loughborough University, School of Sport, Exercise and Health Sciences, Loughborough University, School of Sport, Exercise and Health Sciences, British Cycling, University of Groningen, University Medical Center Groningen, Loughborough University, School of Sport, Exercise and Health Sciences"
"NL, GB, GB, GB, NL, GB"

Background:
Sprinting performance is a key aspect of wheelchair rugby, since accelerating faster than your opponent is essential to be free to catch the ball—preferably in the end zone. To improve sprinting ability individual measurement of sprint performance is a necessity. Therefore, during a season athletes are regularly tested on their physical capacity and sprint performance on a court is usually one of them. However, not all biomechanically relevant parameters can be easily measured on a court, such as detailed measurement of power output and acceleration. On an instrumented wheelchair ergometer this can be measured, while keeping the wheelchair-user combination unaltered. Moreover, since steering is not an issue, asymmetries between the left and right side can be evaluated. In this abstract a comparison is made in sprint abilities between elite wheelchair rugby athletes of different classifications by performing a wheelchair sprint in their own wheelchair rugby chair on an instrumented wheelchair ergometer over a court length of 28 m.

Methods:
18 Athlete’s of a National team performed an all out 15s sprint in their wheelchair-rugby chair on an instrumented wheelchair ergometer (VP100, France). The left and right roller are independently capable of measuring force and the angle of rotation at 100 Hz. Custom written Matlab algorithms were used to analyze relevant biomechanical parameters. Asymmetry was defined as the difference between the distance covered left and right when the best side reached 28m. Athlete’s were divided in a low-point (LP) (class 0-1.5, n=8) and high-point (HP) (class 2-3, n=10) group. T-tests were used to compare the groups on relevant parameters.

Results:
On average high-point athletes had faster sprint times than low-point athletes (HP: 6.95s ± 0.89 & LP: 8.03s ± 0.68, p<0.01). This corresponded with a higher top-speed (HP: 4.8m/s ± 0.7 & LP: 4.1m/s ± 0.5, p<0.05) and peak power output (HP: 667W ± 108 & LP: 357w ± 78, p<0.01). At the time the best player finished, the high-point players had covered a larger distance (HP: 22.9m ± 3.2 & LP: 18.9m ± 1.8, p<0.01). High point players did have more asymmetries between the left and right arm (HP: 2.0m ± 1.4 & LP: 0.7m ± 0.7, p<0.05).

**Discussion:**
The aim was to assess wheelchair-rugby athletes on their sprint performance. High-point players had faster sprint times over 28m, which they achieved by a higher power output leading to higher acceleration and consequently higher top speeds. Yet, high standard deviations show the heterogeneity within the two groups and some low point players were better than high-point players. This is in line with the aim of classification to minimize the impact of impairments on sport performance. Probably training status, wheelchair fitting and total mass of the wheelchair-user combination also contribute to sprinting on court. Surprisingly, more asymmetries were found in the high point group. Quantification of these asymmetries is important, since addressing them through training and/or wheelchair fitting could lead to better performance.
ORAL PRESENTATION

Status and Trend of Physical Activities Epidemic of Adults in China

Physical activity and health
"MEI WANG, YANFENG ZHANG, PEIHONG LI"
"China Institute of Sports Science, China Institute of Sports Science, China Institute of Sports Science"
"CN, CN, CN"

"Background: To survey and evaluate physical activity level of Chinese adults, and analyze characters of physical activity patterns in 2014 compared with that in 2010, for providing scientific basic for public health policy-making and health promotion.

Methods: In 2014, the General Administration of Sport of China and related departments conducted the 4th national physical fitness surveillance, which covered 31 provinces and valid sample size of 20-59 year-old adults was 146703, including 73104 males and 73599 females. “Physical Activity Questionnaire for Chinese urban and rural residents” was used which based on IPAQ questionnaire with good reliability and validity. The core contents of questionnaire were sociological characteristics, daily routine, physical activity status of transportation, work, housework, leisure time. Each physical activity firstly performs METs value assignment then calculated. All data were processed by descriptive statistics and independent t-test.

Results: The average overall PAL of Chinese adults in 2014 was 7519.18 MET•MIN/week, female was higher than males, increasing with ages before 50-year-old, quite lower than that in 2010 (-1034 MET•MIN/week), and 71.3% of Chinese adults had met Japanese PA guideline recommendation (3800 MET•MIN/week) declined by 1.9%, may partly explained ascending trend of overweight and obesity rate (+1.6%) and lower rate of high level of physical fitness (-0.9%) in 2014.

Analyzing the characteristics of PA pattern found: occupational physical activity was main part of overall PA, contributed 61.36%, decline with age. The amounts of adults’ occupational PA was 5373.72 MET•MIN/week, male was higher than female, but significantly lower than 2010, decreased by 943.7 MET•MIN/week (-1.1%)

Housework physical activity ranked the 2nd, nearly 17.48%, and the amounts were 787.98 MET•MIN/week, rising steadily with age, female was higher than male. Although 46.95 MET•MIN/week lower than 2010, but percentage were higher (+4.68%).

Average amounts of transportation physical activity was 722.18 MET•MIN/week, which counted 14.61%, similar rising trend with age, also 47.52 MET•MIN/week lower than 2010.
The last parts were physical exercise physical activity and leisure physical activity, constituted 5.89% and 5.78% respectively. Amounts of physical exercise PA was 311.88 MET•MIN/week, slightly lower than 2010, but the proportion increased 0.85%. Leisure PA was 323.42 MET•MIN/week, a bit higher compared with that in 2010.

**Conclusions:** Physical activity level of Chinese adults in 2014 showed a sharp decline trend, mainly due to low amounts of occupational and active transportation physical activity. Domestic physical activity also decreased, fortunately, awareness and amounts of physical exercise increased. It is urgent to improve overall physical activity level of Chinese adults, especially females, e.g. reducing daily sedentary time and breaking-off 5 min after 1 hour work, choosing active transportation, doing aerobic exercise 30 min per day, basically improve physical fitness and health status."
ORAL PRESENTATION

Strength-training-like effects of low level 810 nm laser irradiation on regular endurance training of female Wistar rats (18 months old)

Physical activity and health

"Timon Cheng-Yi Liu, Fang-Hui Li, Yan-Ying Liu, Tao Li, Jing-Gang Chen, Quang-Guang Zhang"
"South China Normal University, Zhaoqing University, Zhaoqing University, South China Normal University, South China Normal University, South China Normal University"
"CN, CN, CN, CN, CN, CN"

"Background: A signal transduction pathway is relatively signal-specific, but may become different in the study of regular training. The training-specific signal transduction pathways (TSPs) in rat regular endurance training (RE) and their modulation with low level laser irradiation (LLLI) were investigated with quantitative difference (QD) in this study.

Methods: (1) The golden logarithm was defined as the logarithm to 0.618. The QD of two sets of data was defined as the absolute value of the golden logarithm of the ratio of their mean values. The process logarithm (PL) of each group was the golden logarithm of the ratio of the early day data and the late day data, and its absolute value was called the resistance logarithm (RL). The QD was significant or very significant if it is equal to or larger than a or b. The a/b of the cellular/molecular QD or the QD of PL/RL (PD/RD), the organ/tissue QD and the body QD were 0.80/1.27, 0.47/0.80 and 0.27/0.47, respectively. (2) Forty female Wistar rats (18 months old) were randomly divided into four groups: control-sedentary (C) group, RE group, LLLI-sedentary (L) group, and RE group with pre-LLLI (LR). Trained rats performed an 8-week treadmill running. Each exercise session was carried out immediately after 30 s LLLI (810 nm, 200 mW/cm2, spot size 0.5 cm2) on the gastrocnemius muscle. Insulin-like growth factor 1 (IGF-1) protein and the messenger ribonucleic acid (mRNA) of peroxisome proliferator activated receptor-γ coactivator-1α (PGC-1α), nuclear respiratory factor 1 (NRF-1) and mitochondrial transcription factor A (TFAM) were determined by Western blot and reverse transcription and polymerase chain reaction (RT-PCR) 24 h after final treatment, respectively. The data was analyzed with QD, PD and RD.

Results: (1) IGF-1/mTOR (mammalian Target Of Rapamycin) pathway is the TSP for regular strength training (sTSP) to increase the related skeletal muscle mass, and AMPK(5’-adenosine-monophosphate-activated protein kinase)/PGC-1α pathway is the TSP for regular endurance training (eTSP) to increase the number of mitochondria in the related skeletal muscle. (2) Gastrocnemius muscle mass, the muscle relative mass and IGF-1 were significantly increased in the LR group, but not
in the L and RE groups, compared to sedentary group. (3) NRF-1 mRNA was very significantly increased in the RE group, while significantly increased in the L and LR groups.

Conclusions: Training-specific signal transduction pathways may be activated in the regular training. The eTSP may be fully activated in the RE rats, and LLLI may further activate the sTSP and its cross-talking with the fully activated eTSP in rats, which may play an important role in anti-aging. "
**ORAL PRESENTATION**

**Study of 100m sprint in disabled athletes**

Sport eligibility and inclusion
"de Fuentes, M., Torralba, M.A., Calvo, J., Braz, M., Jorba, M., Martínez, J."
"Barcelona University, Barcelona University, Barcelona University, Barcelona University, Barcelona University"
"ES, ES, ES, ES, ES, ES"

"Background:
This study evaluates the differences between several categories in the 100m sprints (2014 IPC Athletics European Championship, Swansea). The analyzed parameters (according to Hay, 1986) are exposed in the methods section.

**Methods:**
A kinematic analysis of the 100m sprint was conducted (using the videos posted on the official web site) taking into consideration gender and disabilities: visual impairment (VI T11/12, T13); cerebral palsy (CP T34, T35/36, T37/38); physical disability (PD T42, T43/44, T51, T52, T54).

Analyzed races: final (excluding athletes who did not enter de camera focus); 65 male races (9VI; 26CP; 30PD) and 40 female races (5VI; 24CP; 11PD).

Variables (mean and SD): official time [OT] (s), average race speed [Sp] (m/s), number of steps [SN], average frequency [Fq] (Hz), average step time [ST] (s) and average step amplitude [SA] (m).

Data analysis: MS Office Excel.

**Results:**
Ambulant

**Men**
- VI T11/12 n4 OT11.38±0.51 Sp8.8±0.4 SN50.8±2.22 Fq4.46±0.1 ST0.22±0.01 SA1.97±0.09
- VI T13 n5 OT11.48±0.2 Sp8.71±0.16 SN48.7±1.3 Fq4.24±0.11 ST0.24±0.01 SA2.05±0.05
- CP T35/36 n9 OT12.84±0.34 Sp7.79±0.2 SN52.9±5.84 Fq4.12±0.45 ST0.25±0.03 SA1.91±0.19
- CP T37/38 n9 OT12.01±0.34 Sp8.33±0.24 SN52.1±5.11 Fq4.34±0.4 ST0.23±0.02 SA1.93±0.17
- PD T42 n5 OT14.01±1.07 Sp7.17±0.52 SN54±6.52 Fq3.85±0.35 ST0.26±0.03 SA1.88±0.24
- PD T43/44 n8 OT12.22±0.67 Sp8.2±0.45 SN55.3±3.11 Fq4.53±0.23 ST0.22±0.01 SA1.81±0.1

**Women**
- VI T11/12 n5 OT13.21±0.82 Sp7.59±0.48 SN55.7±4.09 Fq4.22±0.14 ST0.24±0.01 SA1.8±0.13
- CP T35/36 n8 OT16.33±1.1 Sp6.15±0.41 SN64.9±7.94 Fq3.96±0.27 ST0.25±0.02 SA1.56±0.19
<table>
<thead>
<tr>
<th>Group</th>
<th>CP Grade</th>
<th>N</th>
<th>OT (cm) ± SD</th>
<th>Sp (cm) ± SD</th>
<th>SN (cm) ± SD</th>
<th>Fq (cm) ± SD</th>
<th>ST (cm) ± SD</th>
<th>SA (cm) ± SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>CP T36/37</td>
<td>11</td>
<td>4</td>
<td>14.36 ± 0.63</td>
<td>6.98 ± 0.3</td>
<td>57.6 ± 3.98</td>
<td>4.01 ± 0.21</td>
<td>0.25 ± 0.01</td>
<td>1.74 ± 0.12</td>
</tr>
<tr>
<td>PD 43/44</td>
<td>4</td>
<td>2</td>
<td>13.6 ± 0.41</td>
<td>7.36 ± 0.22</td>
<td>54.8 ± 3.69</td>
<td>4.03 ± 0.26</td>
<td>0.25 ± 0.02</td>
<td>1.83 ± 0.13</td>
</tr>
<tr>
<td><strong>Wheelchair</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Men</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CP T34</td>
<td>8</td>
<td>5</td>
<td>17.19 ± 0.78</td>
<td>5.83 ± 0.26</td>
<td>35.9 ± 4.52</td>
<td>2.08 ± 0.2</td>
<td>0.48 ± 0.04</td>
<td>2.82 ± 0.32</td>
</tr>
<tr>
<td>PD T51</td>
<td>6</td>
<td>4</td>
<td>25.57 ± 2.02</td>
<td>3.93 ± 0.29</td>
<td>41.7 ± 2.42</td>
<td>1.63 ± 0.06</td>
<td>0.61 ± 0.02</td>
<td>2.41 ± 0.14</td>
</tr>
<tr>
<td>PD T52</td>
<td>5</td>
<td>4</td>
<td>19.61 ± 0.71</td>
<td>5.11 ± 0.19</td>
<td>40.8 ± 3.63</td>
<td>2.08 ± 0.12</td>
<td>0.48 ± 0.03</td>
<td>2.47 ± 0.24</td>
</tr>
<tr>
<td>PD T54</td>
<td>6</td>
<td>5</td>
<td>15.01 ± 0.75</td>
<td>6.68 ± 0.33</td>
<td>35.2 ± 1.94</td>
<td>2.35 ± 0.14</td>
<td>0.43 ± 0.02</td>
<td>2.85 ± 0.15</td>
</tr>
<tr>
<td>Women</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CP T34</td>
<td>5</td>
<td>5</td>
<td>21.02 ± 2.26</td>
<td>4.8 ± 0.49</td>
<td>45.4 ± 3.51</td>
<td>2.17 ± 0.2</td>
<td>0.46 ± 0.04</td>
<td>2.21 ± 0.17</td>
</tr>
<tr>
<td>PD T54</td>
<td>6</td>
<td>5</td>
<td>18.16 ± 0.51</td>
<td>5.51 ± 0.16</td>
<td>41.3 ± 4.59</td>
<td>2.27 ± 0.21</td>
<td>0.44 ± 0.04</td>
<td>2.45 ± 0.31</td>
</tr>
</tbody>
</table>

**Conclusions:**

**Men**

In VI, those with lower grade of disability show lower space perception; and get better OT through greater Fq. Either in PC and in amputees, those with lower level of disability show greater Fq and better OT. In wheelchair, male athletes keep high Fq, except for T51 (the category with greater disability). So, it can be observed that the greater the disability, the lower the Fq; and the lower the disability, the greater the SA. Those who show better OT also show a greater Fq and SA.

**Women**

In PC, OT improvement is achieved through greater SA (not through greater Fq). In PD, those who show a good OT are those who show a good balance between SA and Fq. In wheelchair, there is not enough data to reach significant conclusions, so the results are only exposed for future research.
ORAL PRESENTATION

Study on Current Cultural Communication of Olympic Games ——Take Beijing and London Olympic Games as examples

Sport sociology
Zou Yun Jin
Peking University
CN

"Background: Modern Olympic Games has become one global communication behavior under internationalization social background. The successful hosting of Olympic Games is not only one global sports event, but also cultural event. From major elements of Olympic Games such as promotion videos, opening ceremonies, closing ceremonies, torch relays and relevant cultural festivals, etc. carried out systematic studies on connotation, features, structural forms, operational mechanism and future trend of cultural communication in large-scale sports events, so as to provide reference models for cultural communication of large-scale sports events in the future, and to provided advices and suggestions for constructing national image.

Methods: 1. Literature Review: Consulted and sorted academic data and paper literature related to cultural communication and cultural exportation of Olympic Games in recent ten years. 2. Interviews: Interviews on relevant personnel of Publicity Department of Beijing Municipal Committee, to know propaganda work for Beijing Olympics in early/medium/latter period.

Results:
Basic Strategies of Cultural Communication of Olympic Games: 1. Promotion Videos: Beijing Olympic Games Promotion Video lasts for 5m17s, and consists of more than 200 shots through classification and clipping. London Olympic Games Promotion Video, Make London Proud was started from the scene of a girl's morning run. The general idea of the video: London, a city with passion for sports, and such passion can be found at every corner here. 2. Opening Ceremonies: The Opening Ceremony of Beijing Olympic Games took "Harmony" as its corn concept, and represented 5,000 years of long history and splendid culture of China. "Isles of Wonder", the theme of the London, was inspired by The Tempest of Shakespeare. 3. Cultural Festivals: Olympic Cultural Festival was held by Beijing Organizing Committee for the Olympic Games once every year. "2012 London Festival" was lasted for 12 weeks, with more than 12,000 activities and 9,000 sites in total. It was the longest and largest cultural event in Britain on record.
Basic Structure of Cultural Communication of Olympic Games:

1. Main Forces of Cultural Communication: Governments, Social Organizations and Individuals.

Conclusions:

1. Construct Mass Culture and Elite Culture of the Host Country. The cultural communication of Olympic Games may combine them well.
2. Construct Traditional Culture and Modern Culture of the Host Country. The cultural communication is a new round construction of traditional culture and modern culture.
3. Improve International Prestige and Reputation of the Host Country. By celebrating the Olympic Games, China and Britain have improved their international prestige and reputation to a certain extent.
4. Enhance “Soft Power” of the Host Country. The successful celebration of large-scale sports events has greatly improved the “Soft Power” of the host country.
ORAL PRESENTATION

Study on the Role of Catecholamine in the Regulation of Immune System Function in Women Volleyball Athletes

Sport medicine and injury prevention

wangzhe
ShangHai Research Institute of Sport Science
CN

“Background: Exercise-induced immunosuppression is a troublesome problem in athletes. This study investigated the effect of precompetitive anxiety on catecholamine and on the role of catecholamine in the regulation of immune system through the analysis of catecholamine, Immunology index and precompetitive anxiety state.

Methods: This study includes a longitudinal test and a randomized controlled experiment involved eighteen elite women volleyball players in Shanghai. In the former, Urinary catecholamine, Plasma immunoglobulin(IgG, IgM, IgA), T lymphocyte and subsets(CD3, CD4, CD8) were determined in the adjustment phase of four months of conventional training period each month(T0), four weeks (T1), one week(T2) before the national women's volleyball championship. At the same time, according to the CSAI-2, scores of cognitive state anxiety (S1), somatic state anxiety (S2) and the state of self-confidence (S3) were obtained. In the controlled experiment, eighteen volleyball players were randomly divided into control group(G1) and experimental group(G2). In the experimental group, athletes supplemented the nutritional supplement which could relieve anxiety every day, but the control group did not. The indexes involved in the longitudinal test were all determined in this experiment four weeks(T3), one week(T4) before the national game.

Results: The first: CD4 in T2 decreased significantly as compared with that in T1, IgA and CD4/CD8 as well. The second: In T2, IgA were correlate with S1, S2, adrenaline and dopamine, and also IgG were correlate with and the latter three indexes. But there were no correlation between IgA and S3, and IgA and arterenol, this is also the case for CD4/CD8 and S3, and CD4/CD8 and arterenol. The third: There were no significant difference both morning urinary epinephrine and dopamine between G1 and G2 in T3. In G2 urinary epinephrine and dopamine decreased significantly in T4 compared with that in T3, the same was S1 and S2, but S3 didn’t change significantly. In addition, IgA and CD4/CD8 increased significantly in T4 compared with that in T3 in G2, which was just the opposite in G1.
Conclusions: The first: IgA and CD4/CD8 can be used as a sensitive index to reflect the immune function of women volleyball athletes when they face precompetitive anxiety state. The second: Antianxiety nutritional supplements can relieve anxiety, regulate secretion of catecholamine, so as to keep the level of the immune function. The last: It is vital significant for regulation of women volleyball athletes in good condition that catecholamine as a key monitoring indicator to assess their immune function."
Background: Athletics is one of multiple disabilities modalities of Paralympic program. The technique of secured throwing is used in the modality of releases and throwing by athletes with different degrees of impairment in the trunk function, lower and upper limbs. The throwing frames are used to execute the throwing from the sitting posture. The projection of the implements in a sitting posture requires stability and freedom of movement for the athlete, characteristics which are determined also by the throwing frame. Therefore, it’s important to use the principles of seating and biomechanics in order to adjust the equipment to the individual characteristics of each athlete. The literature highlights the importance of adaptation of wheelchair sports or daily use to provide adequate sitting posture with comfort, safety and function to its users. However, the principles of seating and biomechanical are little used and studied in throwing frames. The aim of this study was to identify the main throwing frames used by national paralympic athletes and how these devices fit their sitting postures. Methods: The survey of the characteristics of throwing frames was carried out during the Brazil Caixa Circuit Lotteries - Regional Center-East Athletics Phase 2014 and 2015. In this official competition of the Brazilian Paralympic Committee the best athletes ensure positions in the national circuit stages, where they will compete with the best-ranked country Paralympic athletes. Were made photographic records of athletes during the use of the throwing frame and the main features observed were described. Results: The throwing frames used in these competitions are quite simple and often were shared between several athletes. Most presented a configuration with four legs, footrest and backrest fixed, vertical bar to supporting hand without adjustments and belt system to secure the athlete to the bank. In 2014, the throwing frame had a modular structure in iron or aluminum without adjustments and the athlete was fixed to the device through belts with Velcro®. In 2015, the devices were predominantly modular structure in iron with rear castors for easy transport. The shared use of the same throwing frame between athletes and the lack of adjustments led to inadequate sitting posture in most cases. The depth and excessive width of the seat doesn’t provide a stable basis for the hip and insufficient support foot height contributed to instability in the posture of the athletes. Conclusion: This study showed that most national throwing frames has a simple configuration and don’t use individual anthropometric
measurements of athletes in its construction, affecting the stability of sitting posture. The athlete’s performance depends on the interaction between the throwing techniques, the athlete’s characteristics, and the throwing frame characteristics. The adoption of new technologies is imminent to assist the development of the sport in Brazil."
ORAL PRESENTATION

Swimming can increase the expression of the BDNF in hippocampus of aggressive behavior rat

Neuroscience and sport

"Baiping, Hu, Feng, Qu, Yanfei, Lin"

"Shannxi normal university, Shannxi normal university, Shannxi normal university"

"CN, CN, CN"

"Background: The survey showed that about 60 percent of American people have some mood disorders and suicide attempts, and the annual number of suicides has risen to 10 million in the world. More importantly, a large part of the patients with severe depression will show a noticeable anger / aggressive. WHO (World Health Organization) reported that about 143 million people worldwide die from suicide or violence between people (not including the armed combat) in a year, and most is non-fatal violence. Previous studies have confirmed: moderate-intensity aerobic exercise can effectively mitigate attacks in rats. In this study, swimming is used as a means of intervention, to explore the effect of swimming in the expression of PGC-1α, FNDC5, BDNF in aggressive behavior rat hippocampus.

Methods: 8-week-old rats were randomly divided into five groups: C (Control) (8), T (Tested) (10), E (Exercise) (12), TE (Tested + Exercise) (12), A (Attack) (8). Using live-intrusion of modeling, carried out four weeks swimming training three weeks later.

Detection indicators and Methods: Western blot were used to detect the expression of hippocampal BDNF, PGC-1α, FNDC5, RT-PCR to detect the expression of BDNF mRNA, PGC-1α mRNA, FNDC5 mRNA in hippocampal of rats.

Results: (1) The results of space exploration experimental: The group T VS group E, the percentage of the total distance there was a significant difference (P < 0.05). The target quadrant time of group E compared with the group T showed a significant difference (P < 0.05). Four groups of cross platform number did not appear differences.

(2) Paired samples T-test to test indicators of water maze after modeling and exercise: there was a significant difference in four groups(P < 0.01) between before and after exercise in 4 days positioning heading experiment incubation period. There was a significant difference in four groups between before and after exercise in space exploration experiment (P < 0.01).

(3) Western Blot analysis showed: after four weeks swimming, there were differences in the expression of hippocampus PGC-1α between group C, group T and two swimming groups, respectively, compared to the group E (P < 0.05) and group TE (P < 0.01). Swimming can raised the expression of FNDC5 in hippocampus, there was a difference between group C and group TE and group T (P < 0.05).
expression of BDNF in hippocampus, there was differences between group E and group C (P < 0.01), and a difference between group E and group T (P < 0.05). The group TE compared with the group C, there was a significant difference (P < 0.01), there was a significant difference (P < 0.05) compared with the model group T.

(4) Four weeks’ swimming can improve the expression of PGC-1αmRNA, FNDC5mRNA and BDNFmRNA, and there is a significant correlation (P < 0.01) in the expression of BDNFmRNA and FNDC5mRNA.

**Conclusions:**

(1) 4 weeks’ swimming training can improve the aggressive behavior rats in exploring the surrounding environment and the attention to themselves, change the state of excitement and fears in rats.

(2) Four weeks after modeling, Rats without intrusion stimulation could make the expression of hippocampal BDNF levels returned to normal levels. But long-term solitary
ORAL PRESENTATION

System Nokachi: the virtual instrument to measure the velocity in combat sports

Technology in sports

"Keith Sato Urbinati, Matheus Aguiar, Eduardo Mendonça Scheeren, Percy Nohama"

"PUCPR, PUCPR, PUCPR, PUCPR"

"BR, BR, BR, BR"

“Background: In combat sports of percussion (kicks and punches), the velocity of the technical actions are a differential to the sporting success. Technique and strategy chosen by the athlete are velocity dependent. The quick access to the cinematic variable, is a great tool to the coach and their athletes to the training of planning. So, in order to assess the athlete’s velocity performance, the Virtual Instrument System (VIS), named Nokachi System, described in this article, was developed.

Methods: The VIS was built integrating a triaxial accelerometer CMA 3000 – D01 (VTI Technologies) included at Chronus EZ 430 device, Texas Instrument, with a graphical user interface developed in LabView plataform. The VIS presented relative error of 1%, relative reliability and repeatability of 0.59% and 66.6%, respectively. It was evaluated forty-five karate athletes, male gender, 23 ± 3.4 y.o, 75 ± 12.3 kg, 1.74 ± 0.21 m, 13.2 ± 2.1 % fat mass, splitted into three groups: (G1) fifteen athletes of beginner level (from white up to red belt), (G2) fifteen for intermediate level (from orange to purple belt) and (G3) fifteen for advanced level (from brown up to black belt). The accelerometer was placed on the wrist of the athletes and they performed five punches (gyako zuki) with the dominant limb, with an interval of 5 s. of rest. The bandwidth of the acceleration signal varied from 100 Hz up to 400 Hz. Velocity values were obtained by calculating the modulus for x, y and z velocity vectors of the punches 2 (P2), 3 (P3) and 4 (P4). We applied Manova test, with the post hoc Bonferroni test (p<0.05).

Results: The maximum velocity among all punches performed were 12.1 ± 2.3 m/s. One by one, the results were: P2 = 10.7 ± 1.3 m/s; P3 = 12.5 ± 3.5 m/s; P4 = 11.9 ± 4.5 m/s for all the groups. Comparing the groups, we observed higher velocity (P3 and P4) in G3 (F(3, 21) = 34, 2; p=0, 001) than in G1 (p=0, 002) and G2 (p=0, 001), indicating that senior athletes have higher speed stroke. There were difference between G1 and G2 (F(3, 21)=25, 2; p=0, 02), specially for the P2 (p=0.02), with higher stroke speeds to G2.

Conclusions: The developed VIS estimates the execution velocity of punches in combat sports, especially for gyako zuki punch in karate. In the assessed sample, athletes of advanced level have presented higher velocity on punch execution. The VIS is an important tool to the coaches and athletes with a good biofeedback in the training sessions, facilitating the training prescription."
ORAL PRESENTATION

Ten Percent Body Mass Loss is Required to Improve Flexibility in Obese Women After Interdisciplinary Therapy

Physical activity and health


"Federal University of Sao Paulo, Federal University of Sao Paulo, Federal University of Sao Paulo, Federal University of Sao Paulo, Federal University of Sao Paulo, Federal University of Sao Paulo, Federal University of Sao Paulo, Federal University of Sao Paulo, Federal University of Sao Paulo, Federal University of Sao Paulo"

"BR, BR, BR, BR, BR, BR, BR, BR, BR, BR"

“Background:

Several functional activities that need adequate levels of strength, balance, coordination and flexibility are daily performed. In obese, due to the increase of body fat, those items are reduced, would causing decrease in functional tasks [1]. The aim of this study was to compare the functionality in obese women according to body mass loss, after the interdisciplinary therapy (IT).

Methods:

Thirty three women (total mean age 40.8±7.9 years and mean body mass index 34.9±3.05) performed the interdisciplinary therapy lasting 32 weeks involving combined exercise training (aerobic plus resistance training), nutritional, psychological and physiotherapy support. Before and after treatment were carried out anthropometric and functionality measurements. Dynamic balance, flexibility, difficulty on performance of daily tasks and simulation in daily activities were evaluated with star excursion balance test, seated reach test, health assessment questionnaire (HAQ), walking up-down stairs test and 30-second chair stand test, respectively. After the treatment, according to body weight loss, subjects were divided into three groups: less than 5% (group1 - n=12), 5-10% (group2 - n=13) and more than 10% (group3 - n=8). The paired Student t-test was applied to assess the data. In addition, a comparison between delta variations (Δ) was performed by using the non-paired Student t-test. The alpha error considered was p<0.05.

Results:

The IT promoted significant changes on dynamic balance, difficulty on performance of daily tasks and simulation in daily activities in all groups. Only group 3 has a significant flexibility improves. Comparing...
the Δ values, flexibility and simulation in daily activities showed significant differences when comparing group 3 with groups 1 and 2.

**Conclusions:**

The IT promoted the improvement of functionality in obese women, independent of the body mass loss. A reduction of more than 10% body mass is necessary to improve flexibility.
ORAL PRESENTATION

Test-retest reliability and minimal detectable change scores of twelve functional fitness tests in adults with Down syndrome

Physical activity and health
"Pieter-Henk Boer, Sarah"
"North West University, North West University"
"ZA, ZA"

“Background: The purpose of the study was to explore the test-retest reliability and minimal detectable change of selected functional fitness test items in adults with Down syndrome. Methods: Forty-three adults with Down syndrome (24 men and 19 women) aged 18–50 years completed a battery of tests twice in a two-week period. The battery of tests consisted of two balance items, two flexibility items, five muscular strength and endurance items, two aerobic items, and one functional task. All items were considered valid and reliable tests in a general elderly or intellectually disabled population. The test-retest relative reliability for all repeated tests was assessed with intraclass correlation coefficient performing one-way analysis of variance. The test-retest absolute variability was measured by using the standard error of measurement (SEM) to calculate the minimal detectable change at the 90% confidence interval (MDC90). Reliability data was visualised with a Bland-Altman plot. Results: All tests showed excellent intraclass correlation coefficients (ICC’s>0.9). All SEM values demonstrated acceptable measurement precision (SEM<SD/2). Values for MDC90 are provided for all 12 tests. The analyses indicated that there was no major systematic bias in the plots. The scatter around the Bland-Altman was distributed randomly. Conclusions: All twelve functional fitness tests demonstrated adequate feasibility and relative and absolute test-retest reliability in adults with Down syndrome in South Africa. Information of this nature will help to monitor performance alterations over time and success of training interventions."
ORAL PRESENTATION

The amount and efficiency of basketball technical-tactical actions was positively related to the intensity represented by %HRpeak

Elite performance

"José Francisco Daniel, Vagner Roberto Bergamo, Carlos Roberto Padovani, Paulo Cesar Montagner, João Paulo Borin"

"Pontifical Catholic University of Campinas, Pontifical Catholic University of Campinas, Paulista State University, State University of Campinas, State University of Campinas"

"BR, BR, BR, BR, BR"

"Background:
The basketball game is developed for carrying out the technical-tactical skills in high intensity, intermittently and according to the momentary needs. In official matches, the control of the occurrences number (ON) of these actions is done by game stats. To complement the analysis, it is also used a comprehensive index called efficiency ratio (ER). In the game, these actions occur randomly, and their combination generates high physical demands on players, however, these components (technical, tactical and physical) are analyzed independently. In this sense, the knowledge of these ON and ER, related to the physical demands placed on athletes can contribute to the understanding of the context and qualification training. The aim of this study was to relate the sum of the occurrences number of the match (ΣON), the ER (both obtained by the statistics of the game) and the intensity represented by the percentage peak heart rate (%HRpeak), by match period (MP) and the whole game (WG).

Methods:
Ten elite basketball male players (27.6±5.54 years; 91.61±11.51 kg; 1.93±0.08 m), from a specific team, were observed in six games of the National Basketball Championship, in the adult male category. Before the beginning of the competition were performed anthropometric measurements and physical tests. The ΣON was obtained from official statistics of games by adding the field goals, free throws, rebounds, assists, steals, turnovers, blocks made, committed and received fouls. ER was obtained from the same official statistics determined by the following formula: ER = (field goals made + free throws made + rebounds + assists + steals) - (field goals missed + free throws missed + turnovers). To check the physical demand athletes played with HR transmitter. Data were stored in a computer database, organized by match period (MP) and whole game (WG) and produced descriptive information. Spearman’s correlation coefficient was used between ON, ER and %HRpeak (p<0.05).
Results:
The main results point to significant associations between variables, ranging weakening, from the 1st MP to the 4th MP. The associations between ΣON vs ER were: 1st MP = 0.763 (p<0.001), 2nd MP = 0.763 (p<0.001), 3rd MP = 0.686 (p<0.001), 4th MP = 0.639 (p<0.001) and WG = 0.798 (p<0.001); between ΣON vs %HRpeak: 1st MP = 0.551 (p<0.001), 2nd MP = 0.678 (p<0.001), 3rd MP = 0.451 (p<0.005), 4th MP = 0.383 (p<0.01) and WG = -0.005 (p>0.05); and between ER vs %HRpeak: 1st MP = 0.355 (p<0.005), 2nd MP = 0.500 (p<0.001), 3rd MP = 0.398 (p<0.01), 4th MP = 0.283 (p>0.05) and WG = -0.047 (p>0.05).

Conclusions:
There are positive direct relationship (significant) between variables, which will weaken over the course of the MP, except for 4th MP between ΣON vs %HRpeak and the 4th MP and WG between ER vs %HRpeak."
ORAL PRESENTATION

The Application of Quantified Self Theory of Health Management Products in The Monitoring of physical activity

Physical activity and health
"张军, 陆大江"

"Shanghai university of sport, Shanghai university of sport"
"CN, CN"

"Background: Due to people ignore the daily health management, Physical inactivity has been identified as the fourth leading risk factor for global mortality causing an estimated 3.2 million deaths globally. The new health reform in 2010 pointed out: the current development trend of world medical should be change from medical treatment to preventive medicine. The function of traditional health management products can not meet the health needs of people. Especially in recent years, smart device into our daily life, people begin to realize the importance of personal health management. so the magazine《wired》first proposed the theory of "Quantified self" in 2007, then a series of papers have been published in《The New York Times》about the automatic collection of personal exercise data. "Quantified self" is gradually being concerned by the public. Wearable smart device has now become the new favorite in People's life, such as smart watches, smart phones, smart glasses, making everyone can quantified personal life. Therefore, this abstract aims to explore the application of "Quantified self" health management products in the monitoring of physical activity.

Methods: "Physical activity, health management and quantified self" as keywords are searched in CNKI and web of science, we analysis the status of health management products, through the comparison of traditional and quantified self health management products, to explore the application prospects of wearable smart device as a representative of quantified self theory of health management product.

Results: Wearable smart device has the following advantages: 1) monitoring is not subject to time and space constraints: Wearable design is not restricted by time and space, can be used at everywhere or carry, to facilitate the user to complete the monitoring, management and other functions. 2) The product has the function of monitoring and data interpretation, which belongs to the improvement of traditional personal health monitoring products. 3) The perfection of the management process: the ultimate goal of health management is to prevent occurrence of disease, traditional health management products is only monitoring, and quantified self health management product can help users to identify and
understand health problems, finally to solve the health problems through the use of products, to reduce maximum incidence of the disease.

**Conclusions:** “Quantified self” health management products have occurred fundamental changes so the user experience obtained in process of using also changed accordingly. The traditional health management product only provides simple exercise management function, the user experience is a passive sense of using, especially when users lose freshness to use the product, it is very easy to be abandoned by the user. However, quantified self theory of health management products exist in the form of wearable device and analysis software. Its comfortable monitoring method and Interactive management brings Good use experience to users, and the process of Users participated in the whole management greatly improves the enthusiasm of the active participation of users.”
ORAL PRESENTATION

The Biomarker of Inflammatory and Oxidative stress Associated with Myocardial Damage Induced by Training in Plateau Environment

Sport medicine and injury prevention
"jingmei dong , li Xia, Jiaying Lang, Jibing Wang"
"Tongji University, Tongji University, Tongji University, Tongji University"
"CN, CN, CN, CN"

“Background: It is a fact that high altitude training can induce inflammatory and oxidase stress, which is lead to myocardial damage and dysfunction. The diagnosis of exercise-induced minor myocardial damage was difficult due to the lack of cardiospecific markers. The aim is to investigate the correlation between the exercise-induced oxidase stress and myocardial damage in high altitude environment and to find a sensitive marker of inflammatory and oxidative stress associated with myocardial damage for preventing the occurrence of heart diseases caused by high altitude training

Methods: 30 Subjects (male, age 19.3 ± 4.0 yr, weight: 69.1 ± 5.4 kg, BMI: 21.0 ± 1.2 kg/m2, VO2 peak 36.6 ± 6.2 mL•kg•min•1) were randomly assigned to altitude training (group A) and plain training (group P) with a progressively increasing load cycle ergometer for 8 days. Whole blood was taken for the haematological profile after training every day. The inflammatory markers Cytokine (interleukin-6 (IL-6), Myeloperoxidase (MPO), high sensitivity C reactive protein (hsCRP)) in blood plasma were measured by ELISA.; Cardiac troponin T (cTnT) and N-terminal pro-brain natriuretic peptide (NTproBNP) were determined using electro chemiluminescence technology employed within the Modular analytics E170 analyzer. The oxidative stress markers malondialdehyde (MDA) and conjugated dienes (CD) were determined both by High Performance Liquid Chromatography (HPLC) respectively. Polymorphonuclear elastase (PMNelas) was determined using a quantitative enzyme immunoassay. Plasma creatine kinase (CK) and creatine kinase MB (CKMB) activity was measured using anautomatic analyzer.

Results: MDA and CD as oxidative stress markers increased significantly. Furthermore, IL-6 and hsCRP as components of the APR as well as PMNelas and MPO as markers of the cellular inflammatory response rose significantly in group A. Cross-Matching regression analysis showed that there was no significant correlation between cTnT and NT-proBNP immediately after high altitude training in group P. the strong correlation that was observed between these parameters the day after training in group A include the correlation between cTnT or NTproBNP and any parameter reflecting
inflammatory (IL-6, hsCRP, MPO, PMNelas) or oxidative stress (MDA, CD). The parameters reflecting peripheral muscle stress (CK, CKMB) were positively correlated with cTnT.

**Conclusions:** It has been demonstrated that training in Plateau environment is associated with an increase in biomarkers for myocardial stress even in healthy trained subjects without signs for myocardial disease. Increased concentration of the inflammatory markers Cytokine acutely modulate cardiac function may induce cardiomyocyte damage. Therefore, there is a rational background to study the association between the inflammatory response biomarkers for cardiomyocyte stress. In addition, measuring oxidative stress markers and inflammatory factor may provide further information for preventing myocardial damage in high altitude training.
ORAL PRESENTATION

The Compound Dinucleotide Repeat Polymorphism of the ALAS2 Gene mighting be the genetic markers of the elite long-distance runners in Northern Han nationality Chinese

Genetics and sport
"Yang HU, Jingning Lin"
"Beijing Sport University, Henan University"
"CN, CN"

"Background:
ALAS2 is a rate-limiting enzyme in the Hb biosynthetic pathway and expressed specifically in erythroid cells. The compound dinucleotide repeat, (CA)5T(GC)2(AC)4GTA(CA)23 (GA)3CA(GA)8, within intron 7 of the human ALAS2 gene has been used as a polymorphic marker for the sideroblastic anemia syndromes and an index marker for linkage mapping. So the purpose of our study is to investigate the distribution characteristics of this polymorphism and its relationship to the aerobic endurance in northern Han nationality Chinese.

Methods:
For the case-control studies, 123 northern Han elite long-distance running athletes, including 62 male and 61 female, vs. 134 normal northern university students controls, including 70 male and 64 female, were genotyped by using the genescan and sequencing methods.

Results:
(1) Ten genotypes, 157 bp, 162 bp, 164 bp, 166 bp, 168 bp, 170 bp, 172 bp, 174 bp, 176 bp, 178 bp, 180 bp, were observed in the subjects. (2) When 166 bp length genotype were used as the cut point, the distribution frequency of ≤166bp length genotype was significantly higher in athletes than in controls.

Conclusions:
The result reveals that the compound dinucleotide repeat polymorphism of the ALAS2 gene is associated with the aerobic endurance capacity in northern Han nationality Chinese. And the ≤166bp length genotype can be the genetic marker for selecting elite long-distance runners."
ORAL PRESENTATION

The Current Investigation on Sports Lifestyle of the Elderly in Shanghai and the Study on its Service and Guarantee

Sport sociology
"Sun Han, Liu Jichao"
"Shanghai Jiao Tong University, Shanghai Jiao Tong University"
"CN, CN"

“Background: In terms of sports, people are often reminded of the competitive sports and school physical education. However, it has entered aging society in China and the situation is quite severe. It is a long-term, fundamental and comprehensive task to deal with this problem.

Methods: In this essay, people aged 60 or more are studied as the subjects with the methods of literature, questionnaire, logical analysis, mathematical statistics and so on. It serves to discuss the current situation and existing problems of elderly people’s sports life and put forward service strategies concerned in hopes of setting a constructive example for elderly people’s sports life and promoting the development of aged sports.

Results: First, the spending behavior of elderly people and its promotion.
The consumption level in Shanghai elderly people is relatively low and they have accepted the concept of buying health with money.
Second, physical activity pattern and its structure.
The old people’s sports life is centered and the awareness of physical exercise is weak.
Third, the elderly physical exercise load and its monitoring.
The form of sport activities in the elderly should be aerobic exercise with low intensity, density and difficulty.
Fourth, the elderly exercise prescription and its formulation.
The items should mainly be ones with low intensity, slow motion.
Fifth, sports competition for the elderly and its organization.
Competitions should be diverse, interesting, entertaining, relaxing, safe, reliable and simple with little antagonism, intensity and duration.
Sixth, the elderly sports activities and its guidance.
The awareness of the elderly in Shanghai city is still in the theoretical understanding level, which cannot be put into practice.
Seventh, the risk of physical activity of the elderly and its prevention.
The risk of physical activity increases with age and it is important to protect the elderly when doing sports.

**Conclusion:** Aged sports mean physical activities specially for elderly people who are involved in directly or indirectly for the purpose of fitness. Organizing sports for elderly people, promoting their fitness, enriching their spiritual and cultural life are of practical significance for the society and the whole nation."
The Development of Ski Industry in China—Towards the Transformation of National Economy

Sport development
Lin Xianpeng
Beijing Sport University
CN

“Background: In last three decades, the great leap forward of Chinese economy has been witnessed by the international community. Until 2010 China had already risen to be the second largest economic power. Traditionally, Chinese economy was dragged by three economic engines, investment, heavy industry and export. But the problems of the Chinese economy and industrial structure appear notably. Heavy pollution and big cost of energy has greatly hindered the confidence of the economists. Under this situation, the tertiary industry or service industry has drawn attention from the decision makers. On Oct 20th, 2014, the State Council of the People’s Republic of China released Doc 46 to promote sport industry and inspire sport consumption. Especially Beijing’s successful bid for 2022 Winter Olympics has strongly triggered the expectation to upgrade the Chinese economy through the development of ski industry.

Methods: 1. Case study: More 96 ski resorts and venues have visited regarding their operation, revenue and economic outcome. 2. Literature Review: the data of Sixth National Census of Sports Venues carried out by the State Sport General Administration of China was adopted from which more 298 ski venues were analyzed.

Results: Until 2015, there were more than 523 ski venues in China. Provinces including Heilongjiang, Hebei, Jilin, Liaoning, Xinjiang, Inner Mongolia and Beijing owned 76 percent of the total ski venues in China. More 3000 million people skied on the slopes of those venues generating more 600 million RMB (1 billion Dollars roughly) to the ski venues. The successful bid for 2022 Winter Olympics greatly facilitated the development of ski industry in Beijing and Hebei Province. Even though, there were only 22 ski venues in Beijing, those venues contributed more 30 percent of total revenues in Chinese ski industry. Ski industry in China enjoys great potential for future development with the revenue and visitors both exceeding 25% annual increase. In most of the traditional industrial provinces like Liaoning, Hebei, Heilongjiang, Jilin and Inner Mongolia, the developmental model of ski industry needs to be improved and bettered.

Conclusions: Ski industry in China reveals very great potential to help transform the national economy and grow into a big industry. Ski industry in China enjoys large margin to induce the development of
other related industries. In next decade, the economic development of traditional industrial provinces will get on momentum from ski industry. Mega sport events like winter Olympic Game as an attention economy can greatly facilitate the development of sport industry and related industries. How to leverage the general economic assets of Winter Olympic Games needs to be further investigated from multi theoretical bases.”
ORAL PRESENTATION

The Effect of compound donkey-hide gelatin mixture on Taekwondo Athletes’ saliva immune function

Sport nutrition
"Rihui Zhang, Changwei Liu, Feng Guo, Hongwei Liu"
"Shenyang Sport University, Shenyang Sport University, Shenyang Sport University, Shenyang Sport University"
"CN, CN, CN, CN"

“Background: Timely and proper exercise helps to improve athletes’ immune function, but overexercise leads to immunosuppression. Reasonable arrangement of exercise and systematic training supplemented by sports nutrition supplements can avoid the happening of immunosuppression after fatigue. Therefore, this study uses taekwondo athletes as subjects to examine and analyse the content of taekwondo athletes’ mucosal immune globulin sIgA, sIgM, sIgG in their saliva. It observes the effect of compound donkey-hide gelatin mixture on taekwondo athletes’ saliva immune function and helps to provide a theoretical reference basis for its reasonable use in athletes’ nutrition which has important theoretical and practical value.

Methods: According to the principle of randomized double blind grouping, sixteen male and sixteen female taekwondo athletes were selected from Shenyang Sport University and were assigned to male control group (MCG), male experimental group (MEG), female control group (FCG) and female experimental group (FEG). Each group had eight athletes. The experimental group athletes took compound donkey-hide gelatin mixture and the control group athletes took placebo. Athletes in the experimental and control group both took 20ml half an hour before meals, lasting for eight weeks. Compound donkey-hide gelatin mixture consists of donkey-hide gelatin, ginseng, rehmannia glutinosa, sucrose, hawthorn and other Chinese traditional medicine processed by modern technology. We tested the content of athletes’ salivary immunoglobulins before the experiment and the same tests were taken after taking compound donkey-hide gelatin mixture for two weeks, four weeks and eight weeks.

Results: Main immunoglobulins in saliva is sIgA and sIgG, sIgM is rare compared to those two. sIgA is an important immunoglobin of the mucosal immunity and overexercise will lower the content of sIgA. The content of sIgA and sIgM of the MEG had increased significantly after 8 weeks experiment (p<0.05), the content of sIgM was significant higher than that of the men in the control group(p<0.05). The immunoglobulins sIgA and sIgG, sIgM have no obvious change in the MCG. The content of sIgG of the FCG had decreased significantly after 4 weeks and 8 weeks’ experiment. However, there was
no obvious change before and after the test in the content of slgG of the athletes in the FEG. In addition, the content of slgA in both the FCG and FEG had an increasing tendency after 8 weeks’ experiment.

**Conclusions:** Compound donkey-hide gelatin mixture can improve the content of athletes’ saliva slgA, slgM, promote athletes’ physical recovery, reduce the immunosuppression after exercise, and has certain effect on the improvement of immune function.

**Key words:** compound donkey-hide gelatin mixture; Taekwondo; Athletes; Mucosal immune; immunoglobulin

**Acknowledgements:** The authors are grateful for funding from the DONGE E-jiao CO., LTD (09-2013-5)."
**ORAL PRESENTATION**

**The Effect of Functional Music on Athletes’ Mental Training**

Sport psychology

"Zhongqiu Zhang, Binbin Jia, Zhao Zhu"

"China Institute of Sport Science, China Institute of Sport Science, China Institute of Sport Science"

"CN, CN, CN"

**Background:**

Based on the previous researches claimed that music has an effect on human boy in many ways, the purpose of this article is to study how different types of music affect athletes physically and mentally. Plus, to offer an innovative way to help athletes relax, manage emotion via functional music mental training.

**Methods:**

Based on the three mechanisms of the psychological effects of music (the physiological regulation, the principle of resonance, and the psychological perspective), the purpose of this paper was focus on the way and effect of functional music mental training. It mainly adopted the following six kinds of experiment materials and equipment: POMS, BFS, Mental Arousal Scale for Athletes, Biofeedback 2000 x-pert biofeedback machine, Intelligent music-relax hypnosis treatment system II, Intelligent Auto-Relax Wi-Fi music training system of group.

This paper mainly completed following two parts of research work. During the first phase, 12 college athletes participated in the basic experiments, including male and female each 6, the average age of 24.5 years old. In this phase, we conducted mental experiments in laboratory, demonstrated the function and influence of functional music mental training on subjects. Then we serviced to training athletes during the 2nd phase. There were 48 teen diving athletes from provincial teams participated our study, including male 22 and female 26, the average age was 12.6 years old. In this phase, we serviced to training athletes, helped athletes relax, and got a better state of mind by functional music mental training.

**Results:**

The result showed that during the process of relaxing music training, skin conductance of non-dominant hand and pulse decreased significantly, skin temperature of non-dominant hand increased significantly. Compared the anaphase with prophase of this training, the 3 physical indexes showed significant changes. Compared the results of per-test and post-test, we found that participants’ mental state
occurred significant change in tension, anger, and fatigue these three dimensions. During the process of arousal music training, skin conductance of non-dominant hand and pulse showed a rising trend, but did not reach a significant level. During the process of personal performance music training, skin conductance and temperature of non-dominant hand and pulse showed a rising trend, but did not reach the significant level. The results of 3 times binaural beat music training exhibited consistency. Binaural beat of brain wave traction had good effects to athletes’ tension, panic, fatigue and energy. As for the physical indexes, both of B, HB, pulse and respiratory quotient were different significant in 3 times of training, suggested that each time of music training could let the players to relax, and alleviate the mental discomfort.

Conclusions:
The following conclusions were arrived based on the result of study: The relaxing music training can effectively help athletes to alleviate fatigue in mental and physical, arousal music training, personal favorite music training and active personal favorite music training can effectively help athletes improve arousal and pos"
ORAL PRESENTATION

The Effect of Ibuprofen on Rat's Skeletal Muscle Inflammation Process and Satellite Cell Proliferation after a Single Eccentric Exercise

Sport medicine and injury prevention

"LeiAi, LingLiu, XiaoMeiZhu, YueZhou"

"JIANGSU RESEARCH INSTITUTE OF SPORTS SCIENCE, JIANGSU RESEARCH INSTITUTE OF SPORTS SCIENCE, JIANGSU RESEARCH INSTITUTE OF SPORTS SCIENCE, BEIJING SPORT UNIVERSITY"

"CN, CN, CN, CN"

Background: Muscle Damaged is so Common in Sports that every Professional Athlete may be Suffered from it. So many Athletes Taking NSAIDs (such as Ibuprofen) to Ease the Pain and Accelerate the Recovery Process when They are Suffered from Injury in their Usual Training Period. But some Studies' result Confused us that the use of NSAIDs may Inhibit the Proliferation of Satellite Cell and Delay the Repair of Injured Muscle. Therefore, the Aim of this Study is to Observe the Size of Inflammatory Response Impact on the Plasma Inflammatory Factor TNF α and IL-6, as well as its Effect on the Satellite Cell Proliferation and Differentiation. Provide Theoretical Support to how can We Shorten the Period of Inflammatory Response and Speed up the Muscle Regeneration after Injury, then Guiding Athletes to Treat Muscle Damage.

Methods: Sixty-Six Male SD Rats were Randomly Divided into Four Groups: Quiet and Lavage Physiological Saline Group (CS), Excise and Lavage Physiological Saline Group (ES), Quiet and Lavage Ibuprofen Group (CI), Excise and Lavage Ibuprofen Group (EI). Rats of Group ES and EI were Submitted to Eccentric Exercise at a Speed about 20 ± 1m/min on a Treadmill which set at down 16° Decline for Ninety Minutes. All of the Arts were Hocussed by Inject 3% of Sodium Pentobarbital into its Celiac, Then Centrifuged the Blood of Abdominal Aortic to get Plasma for Test the Level of IL-6 and TNF α, and took the Rat’s Plantaris (Fast-Twitch) and Soleus (Slow-Twitch) Apply for Measure the Expression of Myod and M-Cadherin in Muscle.

Results: (1) All Rats’ Plasma IL-6 Level were Significantly Increased Compare with Quiet Group after the First, the Fifth, and the Seventh Day (P < 0.05), but its not Reached Significant Level in the Second Day. (2) All Exercised Rats’ Plasma TNF α Level were Significantly Increase Compare with Quiet Group after the First and the Second Day (P < 0.05), only the Group of ES in the Fifth day Reached Significant Level in the Rest Groups. (3) The Expression of Muscle Myod Increased Significantly in Group EI Compare with Group CI in the Frist day (P < 0.05), but all Groups’ Expression of Muscle M-Cad didn’t
appear Significant Change at the same time. Almost all Exercise Groups’ Expression of Muscle Myod were Increase Significantly Compare with Control Group in the Second and the Fifth Day, but only Group EI’s Expression of Muscle M-Cad were Raised Significantly Compare with Group CI (P < 0.05). The Group ES’s Expression of Muscle Myod and M-Cad almost all Raised Significantly Compare with Group CS (P<0.05), but the Group EI Appeared to Down-Regulated Expression of Muscle Myod and M-Cad at the same time.

**Conclusions:** (1) There may be exist Antagonism Effect between Plasma IL-6 with TNFα, and Plasma IL-6 may relate to the Regeneration of Damaged Muscle Fiber. (2) Satellite Cells begin to Proliferate in the First Day after Exercise, and Activated Satellite Cell Entered into the Peak Value of Differentiation in about Fife to Seven Days after Exercise. (3) A Certain amount of Inflammation Cells may be Beneficial for the Proliferation of Satellite Cell."
ORAL PRESENTATION

The Effect of Value Profiles on Antisocial and Prosocial Attitudes and Achievement Orientations in Youth Sport

Sport psychology
Jean Whitehead
University of Brighton
GB

“Background:
Unethical behaviour in sport is a growing cause for concern. Value theory (Rokeach, 1973; Schwartz, 1992) provides a paradigm for exploring value conflict through an understanding of personal value priorities and a circumplex model based on value content. Values are central beliefs, ordered by importance, which guide decisions and behaviour and transcend situations. Martin Lee pioneered the study of values and attitudes in youth sport over two decades (Whitehead, Telfer & Lambert, 2013).

Playing well (a competence value) and playing fairly (a moral value) are compatible, but playing fairly (moral) and winning (a status value) may conflict when there is pressure to win at all costs. Individuals may then respond differently according to their value priorities. This study tested the prediction that competitors with contrasting value profiles would differ in antisocial and prosocial attitudes and achievement orientations; in particular, competitors who reported relatively high moral values and low status values (HiMLoS) would have higher ethical attitudes and different achievement orientations from competitors with low moral values and high status values (LoMHIS).

Methods:
Youth sport competitors (n=892) aged 12-15 years completed the Youth Sport Values Questionnaire-2 (YSVQ-2; Lee, Whitehead, Ntoumanis & Hatzigeorgiadis, 2008), the Attitudes to Moral Decision-making in Youth Sport Questionnaire (AMDYSQ; Lee, Whitehead & Ntoumanis, 2007), the commitment and conventions scales of the Multidimensional Sportspersonship Orientations Scale (MSOS; Vallerand, Brière, Blanchard & Provencher, 1997) and the children’s version of the Perception Of Success Questionnaire (POSQ; Roberts, Treasure, & Balague, 1998). The correlation between YSVQ-2 moral and status values (r = .15) showed them to be orthogonal hence 4 value-profile groups (High/Low x Moral/Status values) were formed by selecting participants more than +/- 1 SD beyond the mean. A one-way MANOVA examined the effect of profile group on 6 dependent variables (cheating and gamesmanship scales from AMDYSQ, commitment and respect for conventions scales from MSOS, and task and ego orientation scales from POSQ.)
Results:
The multivariate effect was significant, Pillai’s $F (18, 243) = 8.50$, $p < .001$, $\eta^2_p = .39$. All univariate effects were significant at $p < .001$. Cheating $F (3,84) = 15.21$, $\eta^2_p = .35$, gamesmanship $F (3,84) = 8.94$, $\eta^2_p = .24$, commitment $F (3,84) = 26.02$, $\eta^2_p = .48$, conventions $F (3,84) = 26.92$, $\eta^2_p = .49$, task orientation $F (3,84) = 28.07$, $\eta^2_p = .50$, and ego orientation $F (3,84) = 15.09$, $\eta^2_p = .35$. Post hoc pairwise comparisons using the Games-Howell method for unequal variances (alpha = .008 for 6 comparisons) showed the HiMLoS and LoMHiS groups differed on all 6 variables.

Conclusions:
Competitors with contrasting value profiles differed in ethical attitudes and achievement orientations as predicted and further effects were found for other profiles. This implies that coaches and teachers should identify dominant values in young competitors and act to promote ethical value profiles. Future research should extend the study to examine behavioural effects."
The Effects of Arch-supported Functional Insoles on Plantar Pressure Offloading during Race Walking

Sport medicine and injury prevention

"Qipeng Song, Cui Zhang, Wei Sun, Dewei Mao"

"Sports Science Research Center of Shandong Province, Sports Science Research Center of Shandong Province, Sports Science Research Center of Shandong Province, Shandong Sports University"

"CN, CN, CN, CN"

**Background:** Race walking has grown in popularity in recent years and is rapidly becoming the favored pastime of recreational athletes. This trend possibly results from the belief that race walking is a sport that provides valuable health and fitness benefits and has low risk of injury. However, researchers consider race walking as a sport event with a high risk of injury. A 67 kg individual walking 50 km must absorb 2016 tons on each foot. Thus, race walkers are prone to overuse injuries, such as blisters, metatarsalgia, stress fractures, and knee pains, in their lower extremities. During race walking, walkers have to recurrently undergo plantar compressive loading for 1 h to 4 h, when the musculoskeletal system is overloaded, overuse injuries may occur. In this study, arch-supported functional insoles (International Biomechanics Limited, Hong Kong) were used to reduce plantar pressure loading during race walking.

**Methods:** Participants: A total of 20 male race walkers aged 21.19 ± 3.66 years were recruited from the provincial race walking team of Shandong, China. Testing Protocol: Each participant did race walking (1) with functional insole (functional insoles placed in both shoes), and (2) with normal insole. Data Collection: Plantar pressure insoles (Rs-scan International, Olen, Belgium) were used to collect plantar pressure data. Data Reduction: Eight anatomical sub-regions were identified as the medial heels, lateral heels, medial arch, lateral arch, MPJs 1 to 5 and the hallux. Data Analysis: Two-way ANOVA with mixed design was used to compare plantar pressure among ten different parts of the foot and between two conditions.

**Results:** With normal insoles, the highest pressure was found on the MPJs and heels. The functional insoles reduced the pressures in these areas and increased the pressure of medial arch. With functional insoles, the peak pressures significantly decreased in Hallux, MPJ1-4, Medial and lateral heel compared with those with normal insoles, but increased in Medial arch, and did not change in MPJ5. Functional insoles similarly affected the impulse. With functional insoles, the impulses significantly
decreased in Hallux, MPJ1-4, lateral arch, Medial and lateral heel compared with those with normal insoles, but increased in Medial arch, and did not change in MPJ5. Meanwhile, the first peak of GRF decreased but the second peak remained unchanged.

**Conclusion:** During race walking, the peak pressure and impulse in the MPJs and heels were reduced by arch-supported functional insoles. As such, functional insoles can prevent overuse injuries by offloading the peak pressures and impulse in the MPJs heads and heels and reduce the risk of overuse injuries in these parts. The reduction in the first GRF peak also suggests that the insoles absorb the vertical shock during the strike phase of the heels and thus prevent the potential injury risks in the foot and leg."
ORAL PRESENTATION

The Essential Characteristic of Sports Commentary

Sport sociology
ZHANG Desheng
Wuhan Sports University
CN

"Background
As the Olympic Games and the World Cup becoming the global “media events”, media around the world are flocked to high-demand events. Providing public signals for the accredited media has become the practice of International Olympic Committee, FIFA and other sports organizations and events organizing committee. Practice shows that, the dissemination of results from the same signal copyright bought by different radio and television media coupled with their own sports commentary varies greatly, which indicates the importance of sports commentary is second only to the game screen in sports live. In the era of mixing communication, it is necessary to conduct a comprehensive study on the essential characteristics of sports commentary.

Methods:
literature, expert interviews, questionnaires, etc. and contains both qualitative and quantitative research.

Results:
1 Sports commentary as a working link
Sports live is a systematic project involving the purchase from copyright to the user watching, and other dozens of links. Commentary is just one of the many links; its main task is to carry out timely and appropriate supplementary explanation in order to help the audience better to watch the game based on the game screen form the monitor.
2 Sports commentary as a post
Posts related to sports commentary can be divided into three categories: announcer and reporter series, whose main task is to broadcast news and information; host and narrator series, whose main task is to control the topic, act as a go-between; commentator and guest series, whose main task is to clear up doubts and do the finishing touch.
3 Sports commentary as an information dissemination activity
Sports commentary must be news dissemination activities first, and then may be the art of communication. From the perspective of journalism and communication, the sports commentary is a
news dissemination activity using broadcast television as the main media platform that gives oral immediate description, interpretation and evaluation of sport events to the sports audiences, and is also a speech communication activity.

4 Sports commentary as a language art
Some scholars believe that TV sports commentary is an application language art that uses TV as the media to give narrative, description, explanation, comment and contrast to sports events relying on screen and verbal language, and is a professional field belongs to the television art from the theatre and film TV studies.

A high level of sports commentary provides not only timely information and wonderful reviews, but also the enjoyment of the arts to the audiences.

Conclusions:
First, the sports commentary is a news dissemination activity that uses audio-visual as the main media platform to provide oral immediate description, interpretation and evaluation to the audiences to help them better watching the sports events.
Second, in sports commentary, service is the starting point; news, commentary and entertainment is the basic essence; artistic commentary is the highest pursuit."
**ORAL PRESENTATION**

The Impact of Non-Steroidal Aromatase Inhibitors on the Steroid Profile in Chinese

Sport medicine and injury prevention

"Yanyi Xing, Xin Liu"

"China Anti-Doping Agency, China Anti-Doping Agency"

"CN, CN"

"**Background:** Aromatase inhibitor is a substance that can suppress the conversion of androgens into estrogens. An increase in the serum testosterone concentration level has been observed after oral administration of aromatase inhibitor. Therefore, aromatase inhibitors were prohibited by WADA since 2001. Aminoglutethimide, Letrozole and Anastrozole are the most popular non-steroidal aromatase inhibitors in the market. With the aim to investigate the impact of aromatase inhibitor intake on steroid profile, human subjects of above three drugs were carried out. As a consequence, some new biomarkers for the evaluation of Athlete Steroid Passport (ASP) were found due to the influence of exogenous substances on the metabolic pathways.

**Methods:** Six male and six female volunteers received an oral dose (500 mg) of Aminoglutethimide a day and consecutively administered for 3 days. Another two groups of volunteers took Letrozole (2.5 mg/day) and Anastrozole (1 mg/day) for 5 consecutive days respectively. Urine samples were collected prior 7 days (blank) up to 28 days post administration. 23 biomarkers (steroid profile concentrations and their ratios) were estimated by GC/MSD. Statistical analyses were performed accordingly.

**Results:** The graph analysis displayed the concentrations for endogenous androgen biomarkers such as T, ET, AN and ETIO were increased remarkably and the levels of estrogens such as Estrone, Estradiol and Estriol were decreased notably. The concentrations for all endogenous biomarkers were back to normal within 28 days after administration. T/Estrone, AN/Estrone and ETIO/Estrone ratios were found to be impacted most significantly by aromatase inhibitor intake employing statistical analyses. Therefore, they could be used as the new biomarkers of ASP for aromatase inhibitor abuse. In addition, the detection windows for these new biomarkers were more than 20 days after drug administration.

In addition, the negative threshold of above new biomarkers with an appropriate level of confidence (95% and 99% separately) using blank urines was established and these thresholds were utilized to evaluate samples after aromatase inhibitor administration. By using these thresholds, the suspicious sample rates were increased sharply and displayed as following: 44.41% for male and 55.49% for female in the level of 95% confidence; 41.62% for male and 41.34% for female in the level of 99%
confidence. By contrast, using WADA EAAS TD, the suspicious sample rates were 6.49% for male and 5.4% for female in the level of 95% confidence; while the rate were 3.64% for male and 1.03% for female in the level of 99% confidence. Therefore, the new biomarkers could be a supplement of ASP evaluation due to their influence on steroid profile. Conclusions: Three new biomarkers have been identified to monitor aromatase inhibitor misuse and more suspicious urine samples could be detected. It can probably remedy the limitation of current WADA EAAS TD. More validations for this new approach are still underway."
ORAL PRESENTATION

The Influence of Exercise and Resveratrol on the Ultrastructural Structures and Apoptosis in T2DM Rats

Sport medicine and injury prevention

"Han Li, Yun Chang"
"China Institute of Sport Science, China Institute of Sport Science"
"CN, CN"

“Background: Type 2 Diabetes Mellitus (T2DM) is a metabolic diseases which characterized by hyperglycemia resulting from insulin secretion defects or insulin action disorders. The hippocampus as one of the most important brain regions, is really easy to be impaired by T2DM. Resveratrol and exercise training have been considered useful measures for treating T2DM. However, the definite mechanism is still unknown.

Methods: 75 Male mature T2DM SD rats were divided into RE, R, E and Control groups. Both RE group and E group rats were arranged to loaded swimming 5 days/week, 1hour/day. At the same time, RE group and R group rats needed to take resveratrol with the dosage of 45mg/kg/day, 7 day/week, but the Control group without any treatment. After 8 weeks, we examined the content of Bal-2, Bax, Caspase-3, and the apoptosis rate of all the hippocampus. Meanwhile, we investigated the changes of hippocampal nerve cells' morphological and ultrastructural structures in CA1 district.

Results: (1)When compared with other 3 groups, the content of Bax, Caspase-3, and the apoptosis rate in the Control group rats decreased with extreme significance (p<0.01), but the quantity of Bal-2 increased significantly (p<0.05). (2) When compared with other 3 groups, the nerve cells' morphological structures became more worse in Control group rats(p<0.05). It showed that all the cells' deformation degenerated remarkably, the cell nuclei became smaller, and the nuclear condensation stained more seriously(p<0.05). Simultaneously, the ultrastructures of neurons in CA1 district showed that the amount of the key organelles decreased significantly (p<0.05). The mitochondria and endoplasmic reticulum became edema, and the abnormal myelin structure damaged evidently (p<0.05). (3) RE, E, R group rats could improve the injury degree of hippocampal neurons, but the RE group showed more effective (RE vs. E, RE vs. R, p<0.05).

Conclusions: Exercise training or/and resveratrol could ameliorate the hippocampus of the T2DM rats. The results showed two remedies could ameliorate effectively than the single treatment. The possible reason was, SIRT1 as an important NAD+ dependent histone deacetylase, exercise training or/and resveratrol could adjust the transcription of these substrates to regulate a series of biochemical process.
containing gene silence, life span, cell cycle and apoptosis, glucose and lipid metabolism, inflammatory response and resistance to stress and strengthen the susceptibility of hippocampus cell to insulin.”
The Influence of Goalkeeper Position in Efficacy of 7-meters Throw in Handball

Background: The throw in handball is influenced by the goalkeeper presence affecting the motor action, the ball speed and accuracy of shot. Specifically in 7-meters throw, it has recently been shown that the accuracy tends to decrease with the goalkeeper presence and when it is positioned on the goal line. The accuracy and an important factor for the throw performance and it is expected that the presence and position of the goalkeeper may also influence negatively the efficacy in 7-meters throw. Therefore, the aim of this study was to analyze the influence of the goalkeeper position on the 7-meters throw efficacy in handball

Methods: Adult handball players (n = 10) of the regional level in São Paulo state, was part in these study. Each volunteer performed 36 attempt of 7-meters throws, in three different situations: without goalkeeper; with the goalkeeper in the goal line; and the advanced goalkeeper (2 m in front of the goal line). The shots were performed in random order, aiming to hit the top left (TL), top right (TR), lower left (LL) and lower right (LR) of the goal. The efficacy of the throws was determined by video analysis, calculating the ratio of number of attempts and goals.

Results: The best efficacy was without goalkeeper (75.8%). With the goalkeeper positioned in line was 35.0% and 48.3% to advanced goalkeeper. Therefore, the lower efficacy was with the goalkeeper positioned on the goal line. According to the proposed targets, which had the best efficacy was 66.7% (LR), followed by 58.9% (LL), 44.4% (TL) and 42.2% (TR).

Conclusions: The throw against goalkeeper positioned on the goal line is less effective than advanced, suggesting that remain under the goal increase save chances on the 7-meters, considering the competitive level of this sample. These results may contribute to the goalkeepers define their positioning strategies.
The Influence of Sport Club Participation on Students’ Practical Professional Skills of Physical Education Related Majors

Weishu Dai, Chengdu Sport University, China

Background: Practical professional skills refer to the competence of employing learned knowledge and using available resources to solve practical problems. For physical education (PE) related major students, practical professional skills consist of competence in teaching, refereeing, training, coaching, organizing tournament, and directing outdoor physical activities, as well as research and application skills. Traditional training of practical professional skills typically relies on classroom education only. However, this was found to be problematic and ineffective. Therefore, we strategically attacked this problem by involving students in sport clubs to help students to develop practical professional skills at Chengdu Sport University (CSU). The purpose of this study was to examine the effects of sport club participation on practical professional skills of PE related major students.

Methods: The participants of this study were college students studying PE related majors at CSU in China. Questionnaire survey and field interview methods were used to collect student club participation and professional performance data. There are a total of 17 sport clubs (i.e. basket club, volleyball club, football club, badminton club etc.) with 2000+ student members. With institutional approval, a total of 500 questionnaires were randomly sent to CSU students who were studying in a sport related major. Field interview of professional teachers were carried out to collect information about the influence of sport club participation on students' learning and professional performance.

Results: The participation rates of freshman, sophomore and junior/Senior students for different majors are: athletic training: 96%, 86%, and 65%; physical education: 94%, 81%, and 57%; sport studies/sport management: 90%, 72%, and 48%; recreational sport: 92%, 79%, and 56%; martial arts and traditional Chinese sport: 89%, 68%, and 52%, respectively. Student performance data were also collected, the excellence rate for students of club members and non-club members for different majors are: athletic training: 80% and 56%; physical education: 85% and 52%; sport studies/sport management: 82% and
49%; recreational sport: 84% and 51%; martial arts and traditional Chinese sport: 80% and 50%, respectively. The data indicate that participation rates in clubs decrease as student’s seniority increase. Compared with those who didn’t participate in sport clubs, those students who did have higher excellence rates of professional performance across all different PE related majors.

**Conclusion:** Based on the results and data analysis, it is clear that participation in sport clubs is very beneficial for college students with PE related majors. The participation of such club activities could: 1). Improve professional learning interest; 2) Enrich learning diversity; 3) Increase learning resources; 4) Improve academic performance; 5) Facilitate skill application in practical situation. 
ORAL PRESENTATION

The McDonaldization of Society in Sports facilities and megaevents

Sport sociology

"Ary José Rocco Jr, Leandro Carlos Mazzei"

"School of Physical Education and Sport of University of São Paulo, University Nove de Julho of São Paulo"

"BR, BR"

"Background: Brazil built and/or remodeled 12 football stadiums to host the FIFA World Cup (WC) 2014. The Brazilian government and the organization committee taken through the strategies for the constructions of facilities that should follow technical recommendations and requirements called “FIFA standards”. In worldwide, football stadiums have been incorporated important changes to facilitate the sport consumption, which now are treated as entertainment spaces. Paramio et al. (2008) draw attention to the fact that the post-modern stadiums, arising from 1990, were born to be more functional and improve their design, the safety, accessibility and comfort for the spectators and especially the possibilities of economic exploitation of the facilities, including the promotion of others activities than football (arena concept, Crompton, 2004). It is possible to contextualize this phenomenon as part of the “McDonaldization of society”, based in Ritzer (2010). The objective of this study was to evaluate the fan-consumer perception of the quality of services offered by the FIFA 2014 arenas.

Methods: A questionnaire to evaluate the fan-consumer perception were applied in three different moments: a) first in the first-half of 2014, before the WC in the “old” stadiums (not used for the FIFA event); b) second, during the WC, in the new stadiums and arenas, used in FIFA 2014 WC; and, c) third, in the second-half of 2014, in the new stadiums and arenas used FIFA 2014 WC, but during the local competitions, managed by Brazilian football organizations. In this study, the SPSS was used for analyses descriptive statistics, in order to identify the main differences among the three different moments. The analyzes involved accessibility and hospitality; field alignment; security services and first aid service; parking and distance towards the stadium; barriers that separate the field and fans; public comfort; areas inside the stadium and ticket purchasing areas among others.

Results: A total sample of 11,052 people were answered the questionnaire in of the three moments (4,602 in the first, 2,794 in the second and 3,656 in the third moment). In the first/third moments do not matter the quality of services offered of the facilities and event, but emotional aspects (related to football clubs) that to make consumers watch football matches. On the other hand, it was identified good prospects for better utilization of the facilities. The entertainment was the main issue identified...
fan-consumer perception during the WC 2014 (second moment). It was identified high satisfaction rates and 93.19% said they would like to return to the facilities stadium, which can be explained by the experienced lived.

**Conclusions:** All of results and others suggest that the new sports facilities and the quality of services they provide collaborate to further football “entertainmention” in the worldwide context. The Ritzer (2010) concept “McDonaldization of society” was confirmed during the FIFA WC 2014. Futures studies could analyze and confirm this trend exist in other mega-events sport facilities, mainly in Olympic Games."
ORAL PRESENTATION

The Physiological and Biochemistry Indicators’ Evaluation of Chinese National Canoeing Team

Elite performance
"Shen Lifen, Yu Yin"
"Wuhan Technology and Business University, Wuhan Sports University"
"CN, CN"

"Background:
This research is based on the changes of biochemical indicators of four periods: pre-training, while-training, race and plateau for China’s national canoeing team, meanwhile, they will have effective monitoring. The results show: the blood urea (BUN), serum testosterone (T) and cortisol (C), hemoglobin (HB), Serum creatine kinase (CK), and other indicators can effectively reflect the reality of the functional status athletes. Besides, CK and T reflect the most sensitive in training and competition. In addition, through the study, we established a single biochemical index evaluation standard and evaluation standard. The level of evaluation standard is simple and is easy to use. It also can be used into training and monitoring for the national team in a certain period of time.

Methods:
The literature material method, experimental method, mathematical statistics method

Results:
During the detection, test indexes such as CK, BUN and T show the characteristics of the discrete are in a large degree, especially the BUN variation coefficient of 45.15%, which should take individual differences into consideration. By testing, national team athletes HB values is between 13.22 ~ 16.5 g/dL, altitude training phase, HB maintained at a value between 15.04 ~ 15.28 g/dL , T, C and T/C is relatively stable, Only one athlete shows low serum testosterone, indicates that the athlete may have accumulated fatigue, should adjust. Above the five indicators, MCH, RDW, SF, all at a normal level, only MCV, MCHC in altitude training phase 1 slightly out of the normal range. Comprehensively, the athletes are overall in good condition.

Conclusions:
In order to determine the reasonable training goal and the corresponding training plan, before training, athletes should have a comprehensive functional testing, coaches and athletes can pass this topic to establish the level of biochemical indicators evaluation criteria to evaluate athletes in individual or comprehensive evaluation, and know the athlete’s individual indicators or the overall state of reality. In the longer term, the coaches should fully know the function characteristics of athletes, and deal with...
the relationship between fatigue and recovery after the game timely and reasonably. And ensure the recovery of body function status before the game. The biochemical indicators show that the characteristics of discrete degree is high, in the real status of athletes by biochemical indexes evaluation should be fully considered when there are some differences between athletes. For a long time of training and competition, athletes can establish personal files, fully understand the function of athletes in a relatively long period of time, and pay attention to the longitudinal comparison, so that we can make accurate and rational judgments for the functional status.”
The Principle and Application of “Systematic training monitoring”

"JIE LI, LiXian Wang, Fang Su"
"GuangDong provincial sports bureau P.R.C China, Guangdong provincial Institute of Sports Science, GuangDong provincial sports bureau"
"CN, CN, CN"

Background:
The quantitative analysis and evaluation of performance’s changing process is a main route for coaches to learn training effect, revise training plan and control training process systematically. By the application of document material, logical analysis and experimentation, based on the system complexity and Self-organized theory of complex biological systems, this article located the cognitive development of competitive training system’s demand for training monitoring and logics, and carried on a profound research on the theory of “Systematic training monitoring”

Methods:
Literature method, experimental method and logical analysis was adopted. The study included: 2004-2012 part of the Olympic national team athletes, and part of the provincial level athletes. the monitoring index including: on-site sports training indicators, biological indicators including routine blood, energy metabolism, immune index, brain index. Test adopt routine clinical standard. The following main research work team including collaborative coaches, researchers and managers to participate in a form of multidisciplinary team.

Results:
years of sports practice tells us that the high testosterone (T), hemoglobin (Hb) and erythropoietin (EPO) or other derivative index, doesn't mean the athlete must have high level of competitive ability (performance). System training is a experience self organization process of load information, The performance only can be expressed by the athlete state of the human body finally, Training monitoring omics reflect index group of sports training system , its researching object is the training load caused dynamic change of human body system state relationship. It refer to training study, psychology, biology, neuroscience, genomics, transcriptome, proteomics and other related system index group, it from the system effect of process integration time index group of relevant data. From above, The emphasis is on training monitoring as below: 1.the core of training monitoring is to evaluate and control the sequence effect which performance target training’s relevant factors put on training process. 2. To
locate the state of competition target is the logical basis of training monitoring planning. 3. The state Location and sequential biological effects of competition target constitutes the multidisciplinary index group of systems of monitoring.

Conclusions:
1. The core of training monitoring is to evaluate and control the sequence effect which performance target training’s relevant factors put on training process. 2. To locate the state of competition target is the logical basis of training monitoring planning. 3. The state Location and sequential biological effects of competition target constitutes the multidisciplinary index group of systems of monitoring, and made an in-depth theoretical analysis on the difference between “homeostasis” and “competition target system state”. This article promoted scientific thinking of training monitoring from the perspective of theory and application, and provided a basic scientific understanding for scientific control of competition training."
ORAL PRESENTATION

The Relationship Between Thoracoabdominal Mobility and Lung Volume is Improved in Tetraplegic Athletes after One Year of Wheelchair Rugby Training

Sport medicine and injury prevention

"Karine J. Sarro, Juliana Viana Paris, Marlene A. Moreno, Ricardo M. L. Barros"

"University of Campinas, University of Campinas, Methodist University of Piracicaba, University of Campinas"

"BR, BR, BR, BR"

"Background: Impairment in the respiratory muscles of tetraplegic persons is reflected by alterations in the rib cage and abdominal motion patterns during breathing, as well as decreases in lung volumes. Since wheelchair rugby is an intense physical activity for disabled persons, its practice could lead to positive improvements in the respiratory system of people with spinal cord injuries. The purpose of this study was to analyse the effect of one year of wheelchair rugby training on thoracoabdominal mobility and its relationship with lung volume in adults with tetraplegia.

Methods: Seven male adults with chronic spinal cord injury at cervical level underwent to regular training in wheelchair rugby. At the beginning of the protocol and after one year of training, lung volume and tridimensional thoracoabdominal mobility were obtained simultaneously by spirometric testing and kinematic analysis, respectively. Spirometric testing followed standard recommendations. For the kinematical analysis of thoracoabdominal motion, six synchronised Basler cameras were used to record the subjects during quiet breathing as well as maximal breathing. The 3D coordinates of 30 markers positioned on the chest wall surface were used to calculate the mobility of four chest wall compartments (superior and inferior thorax, superior and inferior abdomen). Improvements in thoracoabdominal mobility and lung volumes were tested using the Wilcoxon Signed Rank Test. The relationship between thoracoabdominal mobility and lung volume was verified by linear regression analysis.

Results: Significant improvements were observed for the tidal volume (16.9%; p=0.04), and superior thorax (61.3%; p=0.04) and inferior thorax mobility (83.7%; p=0.01) during quiet breathing. No significant relationship was found at the beginning of the protocol. After training, there was a significant linear relationship between tidal volume and mobility of the superior thorax (r²=0.61; p=0.04) and inferior thorax (r²=0.82; p=0.01). During maximal breathing, significant improvements were found for the vital capacity (24.8%; p=0.01) and superior thorax mobility (31.5%; p=0.04), and there was a significant linear relationship between the vital capacity and mobility of the superior thorax (r²=0.79; p=0.01), inferior thorax (r²=0.79; p=0.01) and superior abdomen (r²=0.76; p=0.01).
Conclusions: Wheelchair rugby training leads to improvements in respiratory function parameters. These findings could support the practice of wheelchair rugby to reduce respiratory dysfunction in tetraplegics."
The Role of Novel Interactive Media in Stress Management in Olympic Athletes

Neuroscience and sport

"Prof. David Baron, Marientina Gotsis"
"Univ. of Southern California, Usc School of Cinematic Arts"
"US, US"

Background: Despite being at the peak of physical health, Olympic athletes are affected by emotional stress which negatively impacts on their athletic performance and overall physical health. The culture of sport often results in athletes not seeking treatment or appropriate intervention to control symptoms of stress and depressed mood. Studies conducted at USC have demonstrated the therapeutic value of viewing video games specifically developed for stress reduction. This type of clinical intervention has no adverse side-effect profile, and is not associated with the stigma experienced by athletes seeking mental health interventions. Advanced neuroimaging data has demonstrated the efficacy of these interventions in athletes of all ages and skill levels. The extant data have demonstrated improvement in sleep, athletic performance, and overall quality of life in athletes who engage in playing these games. Many of these games are not yet commercially available, but will be in the near future. The role of specific games for specific disorders, such as ADHD, is emerging in ongoing clinical trials. This brief oral presentation will present the existing data, and games in development, to assist athletes in controlling emotional stress, especially before high-level competitions.

Methods: Ongoing work from the Creative Media lab for Behavioral Health, in the School of Cinematic Arts at the Univ. of Southern California in collaboration with the Global Center for Exercise, Psychiatry and Sport of USC, has produced a series of stress-reducing games. Other games have been developed to assist with the core symptoms of ADHD. Published data has demonstrated the higher than expected level of ADHD symptoms in many athletes, including Olympic caliber competitors. The ability for the athlete to maintain full control of this type of intervention, even before major competitions, has added to its overall effectiveness as a stress-reducing strategy. VAS self-reports have documented a clinically significant decrease in perceived stress, which has been maintained after cessation of the intervention.

Results: A clinically significant lowering of acute stress levels after engaging in this user-friendly strategy, without fear of drug testing issues and stigma associated with mental health treatment, has been demonstrated.
Conclusions: Making available specific stress-reducing video games for athletes can improve athletic performance and overall physical health, while eliminating the stigma associated with seeking professional mental health interventions.”
ORAL PRESENTATION

The Status and Transfer of Knowledge of Sport Students Relative to the Olympic Movement and the 2016 Rio Olympic Games

Sport pedagogy

"Dr. J.G.U. van Wyk, Prof.Dr. A.E. Goslin, Prof. Dr. D.A Kluka"
"University of Pretoria, University of Pretoria, Barry University"
"ZA, ZA, US"

Background:

Olympic Academies in member countries of the International Olympic Committee, including South Africa, are tasked with promoting and transferring desired values and virtues for sport and life in general. It is assumed that students enrolled in sport related degree programmes have been exposed to and have internalized Olympism through either formal education systems or sport programmes. This assumption has been tested empirically in South Africa prior to the 2008 Beijing Olympic Games. Those results suggested that students as future decision makers in the South African Sport industry are inadequately equipped to transfer knowledge and moral reasoning skills in terms of the Olympic Movement to sport participants.

The research aims to do a follow up investigation on the status of knowledge on the Olympic Movement, the status of transfer of knowledge and the knowledge base of the upcoming 2016 Rio Games and compare progress on transfer of knowledge over a period of 8 years.

Methods:

The Olympic Movement Questionnaire as developed by Telama, Naul, Nupponen, Rychtecky and Vuolle (2002) was used as research instrument using open – ended questions. This case study involved 75 first year students in Sport and Leisure Studies at a South African University.

Results:

Overall findings of the research projects of 2008 and 2016 indicated that sport students responded incorrectly or in a descriptively inadequate manner to conceptual questions regarding the varying levels of their knowledge of the Olympic Movement. This could be contributed to the lack of information about the Olympic Movement taught at schools or universities. It seems if the main source of knowledge is the social media. Contextual knowledge regarding Rio de Janeiro as host of the 2016 Olympic Games were reported in an adequately manner by 80 % of the respondents.

Conclusions:
It is concluded that the conceptual knowledge of the Olympic Movement regarding Beijing (2008) and Rio (2016) as host cities were inadequate whilst the contextual knowledge of the host cities were reported in an adequate manner.

It is recommended that the lack of knowledge of the Olympic Movement could be improved by integrating learning programmes focusing on knowledge of the Olympic Movement on primary, secondary and tertiary levels."

Elite performance
"Takahisa Ide, Sadafumi Takise, Yutaka Yoshimura, William F. Johnson, Kohei Kawamoto"
"Osaka University of Health and Sport Sciences / Grand Canyon University, Osaka University of Health and Sport Sciences, Chuo University, Texas A&M University, Phoenix Swim Club"

Background: We focused out analysis on the straightness of the knee for the butterfly kick. The effectiveness of using a straight knee kick for the world class swimmers during 100 meter butterfly competitions kick. We compare the performance of the Asian record holder in 2005 (53.86 in 100Fly) to 2009 (51.00 in 100Fly) angle of butterfly kick, and find the straightness of the butterfly kick significantly improves the performance. Beginning in 2006, we coached the subject to change his butterfly technique, employing a straightness butterfly kick, which resulted in a more horizontal stroke. The subject’s initial butterfly kick technique previously employed a bent knee butterfly kick technique, but was changed to a more straight knee technique. The technique of straightness knee butterfly kick slows kick speed, makes more lactate. The straightness knee butterfly kick makes to increase one stroke velocity, Distance per stroke and max speed.

Methods: The subject, the men’s 100 meter butterfly FINA (Federation Internationale de Natation Amateur) world ranking 9th in the history, and FINA world record (FINA, 2014). The subject kick speed analyzed with Kinovea (0.8.15, 1GHz, 256Mo) in regards to the butterfly kick speed by 1/500sec, and underwater high speed HD camera (Panasonic HDMI:1080i 720p 480pHX-WA30). The lactate test was 50seconds wall kick; tempo was 1.10sec/stroke by FINIS tempo machine. The subject lactate generated by the Lactate ProTM LT-1710 (Arkray, 5μl, Kyoto, Japan) meter for on-farm determination of the blood lactate of teleost fishes (Vescovi, 2010). A Swimming Speed Meter (Vine, VMS-003, AC100V, 1/500sec, 0.2mm/pulse) using a wire attached to the swimmer, exported the analogue signals via an RS232C post to a computer. These signals were used to calculate swimming speed with Microsoft Windows Excel and a Wilcoxon Signed Ranked Test.

Results: The DartTrainer and Kinovea measures the kick speed and reported the straight knee butterfly kick speed was an average of 1.18m·s⁻¹, while the bending knee butterfly kick average speed was 1.61m·s⁻¹. The lactate Acid test revealed that the bent knees test result at 4.3mmol/l compared to the straight knee test at 6.7mmol/l. Swimming Speed Mater shows the 2009 and 2005 max speed was 2.5m/sec to 2.7m/sec at the second kick phase respectively. The distance pre stroke (DPS) results

ORAL PRESENTATION

were different resulting in a, $2.204m\pm0.131$ for 2009 and $1.894m\pm0.062$ for 2005 (DPS (m) Wilcoxon.: $p=0.006061$, 1 stroke (velocity) Wilcoxon.: $p=0.7748$).

**Conclusions:** This paper reveals the relationship between efficiency and effectiveness of the straight knee butterfly kick. Although straight knee technique results in high speeds and better body position, it also creates more lactic acid. Swimmers using this technique should be aware of the potential benefits of using a straight knee kick, but also the potential shortcomings. The results of this paper reveal that with proper training and technique, the straight knee butterfly kick can result in much faster 100 meter butterfly times for swimmer able to mitigate the increase in lactic acid production during competition."
Thermoregulatory risks of competitive wheelchair rugby match play

Elite performance

"Vicky Goosey-Tolfrey, Katy Griggs, Michael J.Price, Barry S Mason, George Havenith”
"Loughborough University, Loughborough University, Coventry University, Loughborough University, Loughborough University”
"GB, GB, GB, GB, GB"

“Background: This study compared the thermoregulatory responses and activity profiles of elite wheelchair rugby (WCR) players with a cervical spinal cord injury (SCI) to those players with a non-spinal related physical impairment (NON-SCI) during competitive match play. The aim was to identify which WCR players are at the greatest risk of potential heat injury enabling coaches and medical staff to improve player safety during match play.

Methods: Seventeen WCR players were divided into two groups depending on their physical impairment; SCI (n=10) or NON-SCI (n=7). In addition to match play activity profiles, determined using an indoor tracking system, all players were monitored for core temperature, skin temperature, heart rate, subjective ratings of perceived exertion and thermal sensation.

Results: Total and relative match play distances were lower and mean speed slower in SCI than NON-SCI (p<0.05). In contrast, the change in core temperature (1.6°C ± 0.4°C vs. 0.7°C ± 0.3°C for SCI and NON-SCI, respectively) and body heat content during match play were found to be significantly greater in SCI than NON-SCI (p<0.05). There were no differences between groups for mean skin temperature or perceptual responses.

Conclusions: Players with a cervical SCI were under greater thermal strain than NON-SCI, even though they covered less distance and displayed slower mean speeds. Therefore, coaches should be aware that these players are at a heightened risk of heat injury predominantly due to their thermoregulatory impairment and not their activity profile during WCR match play. "
ORAL PRESENTATION

Time-dependent Expression of IL-6, Irisin and Bdnf in Response to Exercise in Rats

Physical activity and health

"Tao Yu, Guo Liang Fang, Feng Fei Li, Liang Li, Xing Ya Yang, Yue Meng Wen, Yan Guo, Zi Hong He, Jie Xiu Zhao, Ye Tian"

"China Institute of Sport Science, CISS, China Institute of Sport Science, CISS, China Institute of Sport Science, CISS, China Institute of Sport Science, CISS, China Institute of Sport Science, CISS, China Institute of Sport Science, CISS, China Institute of Sport Science, CISS, China Institute of Sport Science, CISS, China Institute of Sport Science, CISS, China Institute of Sport Science, CISS"

"CN, CN, CN, CN, CN, CN, CN, CN, CN, CN"

"Background: Irisin, Bdnf and IL-6 Are Exercise-induced Myokines Which Exert Their Effects in Driving Brown-Fat-Like Development (Irisin) and Regulating Fat Oxidation. However, Their Dynamic Expression in Response to Exercise Is Not Fully Known. Here We Examined the Level of Irisin, Bdnf and IL-6 As Well As the Activation of AMPK and Akt at Different Time Points following Exercise, in Order to Explore the Pattern of Their Expression and Biological Functions.

Methods: Sprague-Dawley Rats Were Subjected to Downhill Running at 17m/Min for 90 Minutes. Serum Creatine Kinase (CK) Activity Was Tested at Day 1, 3, 5, 7, and 14 following Exercise to Evaluate Skeletal Muscle Injury. the Serum Level and Skeletal Expression of Bdnf, IL-6 and Irisin Were Measured by Elisa and Real-Time RT-PCR, Respectively. The Activation of AMPK and Akt Signaling Pathway Was Confirmed by Western Blot. To Compare the Difference Between Two Groups, T-Test Was Employed using SPSS Software and p < 0.05 Was Considered Statistically Significant.

Results: An Increase of CK Activity Was Observed at Day 3 and Day 5 following Exercise, Confirming Exercise-Related Skeletal Muscle Injury. We Didn’t Find Any Increase of IL-6 in the Rats following Exercise Compared to Sedentary Group, Although It Is Reported that IL-6 Level Is Elevated Dramatically during Exercise. The Level of Irisin and Bdnf Was Increased Both in the Serum and in the Skeletal Muscle in Day 1 and Day 3 following Downhill Running; Then, While Irisin Level Returned to the Baseline, Serum Bdnf Level Was Continuously Elevated. Besides, AMPK Activation Was Found at Day 1 and Day 3, but Akt Was Kept Activated Over All the Time Points.

Conclusions: Although IL-6, Irisin and Bdnf Are All Exercise-Induced Myokines, Their Expression Is Regulated Differently. Irisin and Bdnf Are Both Reported to Be Involved in the Activation of AMPK Signaling Pathway. However, We Found That the Increase of Irisin Was in Accordance with AMPK Activation, While Bdnf Increase Is in Accordance with Akt Activation. Our Results Suggest that Bdnf
May Participate in Skeletal Muscle Regeneration via Akt-Mediated Pathway in Addition to Fat Oxidation. Therefore, Exercise-Induced Myokines Are Regulated Precisely and Sequentially, Which in Turn Exert Different Functions at Different Time following Exercise."
ORAL PRESENTATION

Training Prescribed by the Peak Speed And Velocity Corresponding to the Occurrence of the Maximal Oxygen Uptake for Moderately Trained Endurance Runners

Sport development

"Francisco de Assis Manoel, Danilo Fernandes da Silva, Cecília Segabinazi Peserico, Geraldo Ângelo Nogueira, Fabiana Andrade Machado"

"State University of Maringa, State University of Maringa, State University of Maringa, State University of Maringa, State University of Maringa"

"BR, BR, BR, BR, BR"

“Background: The peak velocity (Vpeak) has proven to be an excellent predictor of performance; but, it is necessary to test its applicability in prescribing training. The objective of the study was to evaluate the effect of four weeks of training prescribed by the Vpeak and velocity corresponding to the occurrence of maximum oxygen uptake (vVO2max) in moderately trained endurance runners.

Methods: Study participants were 16 runners aged between 18 and 35 years old who were randomized into two groups: GVO2 that held four weeks of training prescribed by vVO2max and its respective time limit (tlim) and GVP that held training prescribed by Vpeak and its respective tlim (GVP). Four tests on a treadmill (Inbramed Super ATL, Porto Alegre – RS, Brasil) were performed: two maximum incremental tests to determine the Vpeak and vVO2max and two for the determination of their tlim, and a performance of 10 km in official running track. All initial evaluations were also conducted after a period of four weeks of training. Participants performed a total of 20 race training sessions, divided into continuous and interval training sessions. The variables are presented as mean ± standard deviation. Data normality was verified by the Shapiro-Wilk test. The comparison between the pre- and post-training for the two groups was made by mixed ANOVA for repeated measures. Correlations between the variables with 10-km running performance were performed using the Pearson correlation coefficient. The significance level was set at P < 0.05.

Results: There was effect of training on the variables for the same group: Vpeak GVP (16.7 ± 1.2 vs 17.6 ± 1.5 km.h-1), GVO2 (17.1 ± 1.9 vs 17.7 ± 1.6 km.h-1); vVO2max GVP (16.4 ± 1.4 vs 17.0 ± 1.3 km.h-1), GVO2 (17.2 ± 1.7 vs 17.5 ± 1.9 km.h-1); the time to complete 10-km GVP (41.3 ± 2.4 vs 39.9 ± 2.7 min), GVO2 (40.1 ± 3.4 vs 39.2 ± 2.9 min) end 10-km mean speed (MS) GVP (14.6 ± 0.9 vs 15.1 ± 1.1 km.h-1) GVO2 (15.1 ± 1.3 vs 15.4 ± 1.2 km.h-1). The Vpeak showed high correlation with the performance in both pre and post-training times GVP (r = -0.97 vs -0.86) and GVO2 (r = -0.95 vs -0.94),
which was also observed for vVO2max GVP (r = -0.82 vs -0.88) and GVO2 (r = -0.99 vs -0.98). No difference was observed between the GVP and GVO2 for the variables.

**Conclusions:** It is concluded that the training prescribed by Vpeak promoted similar improvements to the training prescribed by vVO2max in moderately trained endurance runners. Thus, we suggest the use of Vpeak for prescribing and monitoring endurance training, due to its practical application and low cost (i.e., no need for high cost of equipment) for its determination."
Trunk flexion during the first pushes of a 12 meter sprint in wheelchair basketball

Elite performance

"A.M.H. de Witte, M.A.M. Berger, R.M.A. van der Slikke, L.H.V. van der Woude, H.E.J. Veeger"

"The Hague University of Applied Sciences, The Hague University of Applied Sciences, The Hague University of Applied Sciences, University Medical Centre Groningen, Delft University of Technology"

"NL, NL, NL, NL, NL"

“Background: In wheelchair basketball, trunk function is the key-indicator for classification. A higher trunk strength is related to higher propulsive force. Trunk strength and trunk flexion seems to impact performance in wheelchair basketball but limited evidence was found in the literature about the impact of trunk impairment on wheelchair activities. Therefore, the aim of this study is to describe the relationship between trunk flexion and 12 meter wheelchair sprint performance.

Methods: The relationship between trunk flexion and 12m sprint was investigated by measurement of 44 elite level wheelchair basketball players. Classifications were grouped; classification 1 and 1.5 were group 1 (n=8), 2 and 2.5 were group 2 (n=8), 3 and 3.5 were 3 (n=10) and 4 and 4.5 were group 4 (n=18). Players performed a 12 meter sprint in their own sports wheelchair ending in a full stop. The 12 meter sprint contained both acceleration and braking. All measurements were performed on the same synthetic soft-top basketball court. Sprint time and trunk flexion was recorded based on video-analysis. Sprint time commenced when the wheelchair started to move and stopped when the wheelchair was stationary at 12 meter. Trunk flexion was analyzed for the first five pushes from standstill and was defined as the difference in degrees between the trunk at the beginning and the end of a push.

Results: A one-way ANOVA showed the mean sprint time (s) for group 1 (5.11±0.53 s), group 2 (4.89±0.29 s), group 3 (4.72±0.38 s) and group 4 (4.72±0.34 s) but these small differences were not significant (p=0.103). However, trunk flexion during the first pushes was significantly different for the different classification groups (p=0.03). Group 1 moved their trunk somewhat backward (-7.25±19.70 degrees) during the first push while group 2 (8.50±8.45 degrees), group 3 (6.30±11.67 degrees) and group 4 (15.61±12.87 degrees) flexed their trunk. The trunk flexion in the subsequent pushes was rather uniform for both pushes and classification groups.

Conclusion: The results of this study showed a difference in trunk flexion for the first push between the groups while there is no significant difference in the 12 meter sprint times. There was no difference in performance between athletes with partial trunk function and athletes with full trunk function. Based on these data, it can be concluded that trunk flexion does not influence sprint time. Further research is...
required to investigate the impact of trunk function on other performance variables and to investigate the impact on the current wheelchair basketball classification system.”
Twenty Years from Physical Education NCP’s and from Transversal Theme: Do We Really Teach Ethics Through Sport?

Sport pedagogy

"Monique Marques Longo, Karine Ferreira Jorge Aragão, Amanda Rei, Lara de Castro Ramos"
"University of State of Rio de Janeiro, University of State of Rio de Janeiro, University of State of Rio de Janeiro, University of State of Rio de Janeiro"
"BR, BR, BR, BR"

"Background:

The National Curricular Parameters (NCP) presented by the Law of Directives and Bases of Education (1996), proposed the inclusion of some Transversal Themes in every educational area, having as conduction the Ethics. Even twenty years after been decreed, we can notice a big difficulty to approach such theme, or even, a complete lack of knowledge by some teachers regarding the proposals presented by the law ruling the Brazilian Educational System.

As to the possibility of fomenting moral development through sport, Bento (1998, p. 61) refers to sport as “a place where it is possible to reflect about moral practice in sportive acts”. Bento (1998) ratifies the need of Physical Education practice is not limited to the improvement of motor capacities, but become an instrument for improving student’s needful capacities to social, emotional and moral acquaintanceship.

This research has as objective to present a proposal for the practice of the Transversal Theme of Ethics at School Physical Educational classes. We are presenting an Axiological Understanding of the moral development of a child aged from 7 to 10, a Phenomenological Comprehension of Physical Educational Classes as a practical means of research and a Phenomenological Comprehension of the Ethics Transversal Theme.

Methodology:

The methodology adopted had as typology an argumentative dissertation, what means, a philosophical and bibliographic study. As methodologic strategy for operationalization, we employed Husserl’s phenomenological method (1990), preserving the description and eidetic steps, and replacing phenomenological reflection by ontognoseologic reflection of axiological reflection, proposed by Reale (1988).

Results:
The main considerations raised were: (1) the inherent competition of sport foments the understanding of the concept of justice, based on equity; (2) the stimulus by docents for the whole participation of pupils in folkloric activities, as capoeira and several other styles of dance, promotes the respect for identity and cultural differences, respect necessary for democratic and pluralist acquaintanceship; (3) an integration among students of different personalities in gymkhanas and cooperative activities promote valorisation of dialogue as way of clarifying conflicts and making collective decisions, necessary assumption to move to the Kohlberguian stage 6 of moral autonomy, and (4) the incentive by the teachers towards their students helping them to surpass their own limits operates the fifth objective proposed by the NCPs of “building a positive image of themselves, the self-respect translated into the trust in their capacity to choose and accomplish their project of life” (PCNS, 1997, p.97).

Conclusion:
The hypothesis serving as base to the research was proven. An Axiological Understanding of the moral development of a child, a Phenomenological Comprehension of Physical Educational Classes as a practical means of research, and a Phenomenological Comprehension of the Ethic Transversal Theme has became sufficient for a possible proposal for the practice of the Transversal Theme of Ethics defended by NCP’s in physical education classes."
ORAL PRESENTATION

Two Weeks of High Intensity Interval Training Decreases Area Under the Curve of Glucose and Insulin and Improves Performance in Young Sleep Deprived

Physical activity and health

"Jorge Fernando Tavares de Souza, Murilo Dátillo, Marco Túlio de Mello, Hanna Karen Moreira Antunes"

"Federal University of São Paulo, Federal University of São Paulo, Federal University of Minas Gerais, Federal University of São Paulo"

"BR, BR, BR, BR"

"Background: Sleep deprivation is an increasingly common condition in modern society and has negative consequences for glucose metabolism, such as insulin resistance. To reverse or minimize these effects, the practice of physical exercise is advised. In this scenario, the high intensity interval training (HIIT) emerges as an effective strategy in terms of volume/intensity and time saving, bringing acute and chronic benefits for glucose homeostasis. Thus, the aim of this study was to investigate the effects of HIIT on glucose and insulin in healthy young after 24 hours of total sleep deprivation.

Methods: Eleven young healthy, physically active, with regular eating habits and sleep duration 7-8 hours/night were recruited. The volunteers were submitted to Oral Glucose Tolerance Test (OGTT) for 4 hours after a regular night's sleep (RS group) and after a night of sleep deprivation for 24 hours (SD group). Then the volunteers were submitted to HIIT for 2 weeks (6 training sessions, 8 to 12 bouts at 100% maximal potency) on a cycle ergometer. After the last training session, volunteers were deprived of sleep for 24 hours and repeated the OGTT (HIIT + SD group). Before and after the training period the volunteers performed two time-trial tests (4km and 30km). Shapiro Wilk’s test was used to verify the normality, ANOVA two-way was used to compare the Area Under Curve (AUC) of experimental conditions, and Student's t-test was used to compare pre- and post-training variables. The study was approved by Ethics Committee of UNIFESP (#522.163) and was registered in Clinical Trials (NCT02125656).

Results: The AUC of glucose was 18% higher in SD group when compared to RS group (RS = 497.9 ± 78.5; SD = 587.5 ± 104.6; HIIT+SD = 547.7 ± 45.4) and the AUC of insulin was 61% higher when compared to the others conditions (RS = 95.9 ± 52.6; SD = 153.1 ± 72.9; HIIT+SD = 102.7 ± 48.4). In the time-trial test 4km, post-training time was 6.68% lower when compared to pre-training (pre = 299 ± 51.55 seconds; post = 279 ± 45.60 seconds). In the time-trial test 30km, post-training time was 11.92% lower when compared to pre-training (pre = 60.30 ± 11.13 minutes; post = 53.11 ± 5.89 minutes)."
Conclusions: HIIT for 2 weeks is a non-pharmacological strategy to minimize the negative impact of sleep deprivation on glucose metabolism, and is an efficient method to improve the performance in healthy young.

Acknowledgments: AFIP, CAPES, CNPq and FAPESP."
Understanding the Para Sport Athlete Pathway: Focus on Participation

Background: The vision for the International Paralympic Committee is ‘To enable para-athletes to achieve sporting excellence and inspire and excite the world.’ Incumbent within this is having a firm understanding of the various elements that could impact a person with disability being physically active, pursuing sport and ultimately becoming a high performance athlete.

A model that has attempted to create such an understanding in the able bodied sport system is known as SPLISS (Sport Policies Leading to International Sporting Success). To date, however, nothing has been created within a disability context.

Within the larger SPLISS approach is recognition that participation is a key pillar. This is likely also the case in a Paralympic context although perhaps with many unique qualifiers.

It is this area that the International Paralympic Committee’s Sport Science Committee is particularly interested identifying ‘determinants of Paralympic participation’ as one of three key research projects. Guiding the pursuit of this understanding is the unpublished and still evolving Legg-Higgs Model of Enablers / Barriers to Participation in Disability Sport.

In this model the authors propose that enablers are divided into: disability sport knowledge / access to coaching, facility and transportation structure, and cultural attitudes and beliefs about the nature and meaning of disability. This model was tested in focus groups in Spring 2016 in a range of cultural contexts, to better understand why persons with disability are, or are not, participating in physical activity.

Methods: Facilitated focus groups in Africa and the Caribbean, and analysis of participants perceptions of enablers and barriers to participation

Results: Preliminary analysis indicates that the Legg-Higgs model of enablers and barriers has applicability across a range of cultures and can help identify potential interventions that have the potential to increase participation of person with a disability in sport and physical activity.

Conclusions: That barriers to participation are universal, although the strength and importance of specific identified barriers differed between countries.”
ORAL PRESENTATION

Using Long-Term Athlete Development to Integrate Athletes with a Disability: The Canadian Experience

Sport development
"Colin Higgs, David Legg"
"Memorial University, Mount Royal University"
"CA, CA"

"Case Study

Background: Since 2005 all National Sport Organizations (NSOs) in Canada have created Long-Term Athlete Development (LTAD) Framework (guidelines) for their sport participants. Since the mid-1990s those same NSOs have been responsible for athletes with a disability, and their LTAD frameworks were meant to address the development needs of persons with impairment, and thereby increase diversity of participants. The developed LTAD frameworks were designed to support both population health through mass participation, and the development of elite athletes. Consideration of development of athletes with impairment was not a high priority for many sports, and depth of coverage was inconsistent.

Process used: An exemplar generic (not sport specific) LTAD framework was developed by a group of experts who then mentored National Sport Organizations to develop their own sport-specific framework based on the generic template. Using this approach 55 NSOs were assisted to develop sport-specific frameworks that to a lesser or greater degree integrated persons with a disability into both high performance sport pathways, and population health pathways. The original sport-specific LTAD frameworks were completed between 2005 and 2010, and served to highlight athlete development gaps and programming shortcomings. As a result almost all sports modified (a) their programs, (b) their competition structure, and (c) their coaching materials.

Many sports are now revisiting, reviewing, updating and expanding their LTAD framework documents, and under pressure from a major Sport Funder (Sport Canada) and from the Canadian Paralympic Committee) are more fully integrating persons with impairment into their development pathway and programming. Current development pathways for individuals with congenital and acquired impairments will be presented.

Lessons learned: 1. NSOs benefit from both exemplar pathways for developing athletes with impairment, 2. Articulating the athlete development pathway for persons with impairment in official National Sport Organization (Federation) documents validates para-sport, increases awareness of...
para-sport, and helps identify sport development gaps for persons with impairment, and, 3. When NSOs present a development pathway for persons with impairment, individuals with impairment can hold NSOs accountable for the delivery of pathway programs.

**Conclusions:** Mentoring of individual sports to adapt exemplar LTAD frameworks to meet para-sport-specific needs is an effective mechanism for increasing awareness of disability sport, increasing sport opportunities for persons with impairment, and providing guidance on increasing participation for health and wellness and guidance on developing high-performance athletes.”
ORAL PRESENTATION

USING THE OPTIMUM TRAINING LOAD TO INCREASE MUSCLE POWER IN OLYMPIC BOXERS

Elite performance

"Irineu Loturco, Lucas Adriano Pereira, Ronaldo Kobal, Felipe Romando, Katia Kitamura, César Cavinato Cal Abad, Fábio Yuzo Nakamura, Emerson Franchini"

"NAR - Nucleus of High Performance in Sport, NAR - Nucleus of High Performance in Sport, NAR - Nucleus of High Performance in Sport, Brazilian Boxing Confederation, NAR - Nucleus of High Performance in Sport, NAR - Nucleus of High Performance in Sport, NAR - Nucleus of High Performance in Sport, University of São Paulo"

"BR, BR, BR, BR, BR, BR, BR"

**Background:** Muscle power (MP) plays a determinant role in boxing performance. Therefore, coaches and sport scientists have been using different training approaches to develop this capacity in boxers. More recently, the “optimum training load” (OTL) (i.e., the load capable of maximizing the power output) has been used to increase the MP in top-level athletes. Additionally, it was showed that the OTL is strongly related with punching impact in elite boxers. Therefore, this study aimed to evaluate the effectiveness of this range of loads as a specific strategy to enhance the MP ability in this group of combat athletes.

**Methods:** Eleven male and female boxers from the Brazilian National Team (mean ± SD, age: 21.6 ± 4.5 years; height: 171.8 ± 9.0 cm; body mass: 71.5 ± 15.8 kg; practice time: 7.8 ± 4.7 years) volunteered to participate in this study. The athletes were evaluated during their specific preparation to the Olympic Games (Rio-2016), pre and post a 7-week training program. During this period, the athletes performed 2 power-training sessions per week (amounting 14 sessions), as follows: 6 x 6 jump squats (JS) and 6 x 6 bench press (both at the OTL) per session. MP was evaluated using a linear position transducer (T-Force, Dynamic Measurement System; Ergotech Consulting S.L., Murcia, Spain). For testing, the athletes were instructed to execute three repetitions at maximal velocity, with a 5-min interval provided between sets. The test started at a load corresponding to 30% of the body mass (BM) for BP and 40% of the BM for JS. Increments of 5% of BM for BP and 10% of BM for JS were gradually added in each set until a decrement in the MP was observed. The load correspondent to the highest value of MP achieved by each athlete was defined as the OTL. To avoid misinterpretation of the data, the outputs were normalized by the individuals' BM and expressed as relative values of MP (MP REL). The mechanical measures related to the propulsive phase of the lifts (i.e., mean propulsive power) were
considered for analysis purposes. The differences (pre- and post-intervention) were tested via magnitude-based inferences.

**Results:** It was observed a very likely improvement in the MP REL for both exercises (JS and BP) (pre: $8.35 \pm 2.54$ W.kg$^{-1}$ vs. post: $9.07 \pm 2.62$ W.kg$^{-1}$; 96/04/00, for JS; and pre: $6.07 \pm 1.44$ W.kg$^{-1}$ vs. post: $6.84 \pm 1.64$ W.kg$^{-1}$; 99/01/00, for BP).

**Conclusions:** Training at the optimum power zone (i.e., using the OTL) may be an applied and practical strategy to elicit positive changes in MP capacity in elite boxers. Coaches and sport scientists who work in the field of combat sports are strongly encouraged to adopt this novel neuromuscular training approach."
ORAL PRESENTATION

Validation of two Coordination tests in CP-Football Athletes: A Pilot Study

Physical activity and health

"Claudio Diehl Nogueira, Fernando Rosch, Márcia da Silva Campeão, Ivaldo Brandão Vieira, Raul Vallío Reina, José Irineu Gorla"

"Castelo Branco University - Rio de Janeiro, State University of Campinas - UNICAMP/SP, UFRRJ - Rio de Janeiro/RJ, Brazilian Paralympic Committee - Brasília/DF, 7.

Universidad Miguel Hernández - Elche/Spain, State University of Campinas - UNICAMP/SP"

"BR, BR, BR, BR, ES, BR"

“Background:

CP-Football is a Paralympic sport that provides opportunities for individuals with neurological impairment with a motor control impairment of a cerebral nature causing a permanent and verifiable activity limitation. In order to compete in CP-Football, an athlete must be affected by at least one of the following impairments: Hypertonia, Ataxia and/or Athetosis/Chorea. These impairment types are associated with a range of conditions including, but not limited to, cerebral palsy, traumatic brain injury, stroke, Friedreich's Ataxia, Spino-cerebellar Ataxia, Hereditary Spastic Diplegia/Paraplegia, and Dystonia. The level of neurological impairment associated with these conditions must disadvantage athletes as far as competing in high performance elite able-bodied sport. CP-Football athletes are expected to possess morphological and physiological characteristics applicable both for the sport, for the specific playing position and for the Functional Classification. Taking in consideration the functional classification in CP-Football, athletes will present a variation on spasticity, balance and movement coordination, which will compromise their motor control level in different ways but having a common denominator, coordination. Since the new view of the classification is Classification Based on Evidences, the objective of this study is to validate two coordination tests for CP-Football athletes called Side Stepping Jump and Split Jump.

Methods:

A total of seventeen elite CP-Football athletes have performed a twenty-five complete cycle, in each jump test, in two assessments moments (test and retest) by three evaluators in a forty-eight hours time difference between test and retest, which allowed the analysis of objectivity, reliability and internal consistency. To evaluate objectivity we used the Variance Analysis one factor test (parametric) and Kruskal-Wallis (non-parametric). Reliability was evaluated by the procedures of Pearson correlation (parametric) and Spearman’s correlation coefficient (nonparametric). The internal consistency was
analyzed using the Intraclass Correlation Coefficient. The significance level was set at $p \leq 0.05$.
Analyses were performed using the statistical package R-Plus 2.10.0.

Results:
No differences were found between results from different raters ($p$ values ranging from 0.371 to 0.831) and the values of intraclass correlation coefficient found (range from $r = 0.93$ to $0.97$, $p < 0.00$) indicate that the tests were consistent and reliable.

Conclusions:
The results of this study indicate that the criteria of scientific authenticity to Side Stepping and Split Jump tests are valid for this group."
ORAL PRESENTATION

Which countermovement jump height measure is most sensitive in detecting fatigue?

Elite performance

"João Claudino, John Cronin, Bruno Mezêncio, Rafael Soncin, João Pinho, Alberto Amadio, Julio Serrão"
"USP, AUT, USP, USP, USP, USP, USP"
"BR, NZ, BR, BR, BR, BR, BR"

“Background: The countermovement jump (CMJ) has been one of the most used movements for monitoring neuromuscular fatigue in athletes. Usually the highest jump of three CMJs has been used to monitor the responses to specific training load. However, researchers have found that using the highest jump to detect fatigue during the competition phase was not as sensitive as using the average of multiple CMJs. There is minimal research investigating the benefits and limitations of reporting highest vs. average values when monitoring performance, a limitation of research in this area being the failure to quantify the magnitude of the differences (e.g. the effect size synthesized by meta-analysis). Therefore, the purpose of this study was to validate via a meta-analysis, whether best or average CMJ data were more sensitive in detecting fatigue.

Methods: The following keywords were used during the electronic search: “countermovement jump” or “vertical jump” (in PubMed, Scopus, and Web of Science). The main inclusion criteria were as follows: i) studies tested CMJ at baseline and post-intervention and the results represented as mean and standard deviations; ii) used the highest and/or average jump height; iii) the duration of the intervention was greater than or equal to three weeks. Heterogeneity of the included studies was evaluated by examining confidence intervals and $I^2$. $I^2$ values of 25, 50, and 75 indicate low, moderate and high heterogeneity, respectively. Random effects were analysed using the DerSimonian and Laird approach. Data were analysed using CMA v3.

Results: Ten studies satisfied the inclusion criteria for the meta-analysis: a) seven studies utilized the best CMJ height (n=130 subjects; from 13±1 to 27±1 years old; ~7 w of training in combat sports and soccer; and, b) three studies used the average of multiple jumps (n = 59 subjects; from 19±1 to 27±1 years old; ~7 w of training in athletics and soccer). The CMJ height was sensitive to fatigue [Overall: ES=-0.27 (-0.48 – -0.05), p=0.01; $I^2$=39.8, p=0.06], however the best performance data was not sensitive [Highest: ES=-0.04 (-0.33 – 0.24), p=0.76; $I^2$=33.5, p=0.15]. On the other hand, the averaged jump height was sensitive [Average: ES=-0.56 (-0.89 – -0.24), p=0.00; $I^2$=00.0, p=0.50].
Conclusions: From the meta-analysis it is evident that averaged CMJ height would seem the best variable to monitor neuromuscular fatigue. Furthermore, based on the normal distribution of the Gauss curve, the researcher or practitioner has a much higher probability of finding the true score when the average value is used over the highest value. Finding the true score is essential when monitoring an individual’s “real” performance change. In addition, the average CMJ height proving to be sensitive in detecting fatigue, means that relative cheap and easy to use equipment such as a jump mat can be used to monitor performance, which is of great practical efficacy to the practitioner."
World Gymnaestrada: A Non-Competitive Mass Sports Festival

Goverance and policy

"MICHELE VIVIENE CARBINATTO, MARCO ANTONIO COELHO BORTOLETO"
"USP - University of São Paulo, UNICAMP - University of Campinas"
"BR, BR"

"Background: World Gymnaestrada is one of the largest sports festival organized each four years by the International Gymnastics Federation (FIG) in partnership with a National Gymnastics Federation. The last edition was held in 2015 (Finland) within 53 national federations and 20,473 participants. FIG is the oldest sports federation in the world and one of the few who include a non-competitive event on its official calendar which motivated us to present it in this paper.

Methods: A bibliographical and documentary review was done to bring information about the history, purpose and information of WG.

Results: The WG was proposed in the year of 1953, influenced by Lingiada - a gymnastics festival hosted in Sweden in honor of the gymnastics master Pier Ling. Since then, the purpose of the event is mainly to bring people together by gymnastics movements- from different levels, gender, abilities, styles, with or without apparatuses- and embrace cultural background, as dance, music and folklore. The success of the event was so evident, that during 1970s, FIG authorities discussed the necessity of reinstate the philosophy of Gymnastics for All (GfA), and, in 1984, the Gymnastics for All Committee was created to spread the idea that gymnastics classes and training have to follow the four “F’s” principles: fundamentals (spring, locomotion, rotation, swing, balance and support), friendship, fitness and fun to firstly improve physical, social, intellectual and psychological well-being and secondly, recognize and value the history and diversity of cultures. WG is considered as a moment to celebrate the F’s principles in seven days of full mixed gymnastic program: opening and closing ceremony; group performances (choreographies between 10 to 15 minutes within, at least, ten active performers); large group performance (choreographies with no less than 200 active performers with maximum 15 minutes); national performances (designed to enable FIG Member Federations an opportunity to present the range of GfA activities in one and a half hours; FIG Gala (teams selected by FIG GfA Committee). To participate in a WG, the group should be registered by its own federation. Brazilian delegation took part in thirteen of the fifteen editions of the WG, and at the last edition had fourteen groups and around four hundred participants. WG contributes significantly to popularize gymnastics by using no strict enforcement of codes/rules and score. The interest is in the atmosphere of reconciliation,
exchange and recognition that the world is made by different cultures, where diversity must be guaranteed.

Conclusions: We believe that this sort of event should be stimulated in different sports federation to improve, not only the quantity of people practicing sports but motivate more people to have an active lifestyle. In conclusion, GfA follows strengthened, attracting thousands of practitioners to be part of their gymnastics national federations, being an important tool for the promotion of sport in the twenty-first century.
A 3D Kinematic Analysis of the Competitive Cyclists During Progressive Exercise: Knee Joint and Foot Movement Pattern

Technology in sports

“Ana Luiza de Castro Lopes, Claudio Pintavalle, Niccolò Bertoli, Gustavo Ramos Dalla Bernardina, Guido Baroni, Pietro Cerveri, Amanda Piaia Silvatti”

“Universidade Federal de Viçosa, Politecnico di Milano, Politecnico di Milano, Universidade Federal de Viçosa, Politecnico di Milano, Politecnico di Milano, Universidade Federal de Viçosa”

“BR, IT, IT, BR, IT, IT, BR”

“Background:
Since the cycling movement involves the flexion and extension of the hip, knee and ankle joints, normally the sagittal plane is the one that is more explored. Nevertheless, the literature already reported a significant movement of the knee on the frontal plane and a correlation of it with pain. Therefore, this study aims to present preliminary results of the 3D movement pattern of the knees joint and feet during progressive cycling.

Methods:
Three male competitive cyclists (age: 28±7.2, more than two years of Mountain Bike training) participated in this study. For the 3D kinematic analysis, we used eighteen OptiTrack Prime 17W cameras (240Hz) around the subjects. Thirty retro-reflective markers were fixed on the lower body (IOR Gait protocol). They performed a progressive exercise test using their own bicycles on a stationary cycling trainer. The motion analysis assessment consists of one minute in each intensity: 70% maximal heart rate (MHR), 80% MHR and 100% MHR. We used the equation to determine the MHR (Tanaka et al. 2001) and a FT4 Polar to control it during the test. The 3D coordinates of the markers were processed in the Visual3D software (C-Motion Inc.) and were smoothed using a low pass digital Butterworth filter (cut off frequency 8 Hz). In order to define the pedal cycle, we referred the knee joint center to the pelvis and used the maximum values of the z coordinates. In order to perform a qualitative analysis, we plotted the left and right knee joints and feet trajectories in each plane (sagittal, frontal and transverse). The range of motion of the knee joints (flexion/extension) was also calculated. For each subject we analyzed the symmetry between right and left limbs and the influence of the progressive intensity on it.

Results:
The knee joint centers and feet trajectories of all the subjects were in agreement with the literature (sagittal plane) and the right and left knees RoM presented similar values. A comparison between the right and left knee joint centers revealed larger amplitude values of the left knee in all the intensities (subject 1). Furthermore, in high intensity (100%MHR) the movement pattern of the left knee and left foot were changed (frontal and transverse), and this could be related with muscle fatigue or with a limbs dominance. The intensity did not show influence on the knees and feet movement patterns for both sides in the subject 2. However, in the low intensity, we found smaller amplitudes values in the left knee (frontal and transverse plane). Both knees and feet movement patterns were influenced by the high intensity (subject 3) and the movement variability was also increased, suggesting a fatigue effect.

**Conclusions:**

We can conclude that different intensities can change the knees and feet plane movement patterns in diverse ways. This fact, highlight the importance to perform a 3D analysis to evaluate the cycling symmetries and try to prevent injuries."
POSTER PRESENTATION

A brief history of Chinese sports TV broadcasting development

Sport history
Kang Tan
Chengdu Sport University
CN

“Background: The development of television live broadcast on sports is under the influence of the prosperity of sports and television industry in China. In the past 58 years, the practice of live sports events broadcasting increased tremendously, leading the technology of China Central Television (CCTV) is now capable of any international level of live sports events. This essay is to study the development of live sports events broadcast in China and hopefully to give a vision of a healthy future development afterwards.

Methods: The research method of this dissertation mainly include literature analysis, expert interviews, questionnaire survey method, case study method, mathematical statistics method. In this paper, always adhere to the principle of combining qualitative and quantitative analysis, to the scientific and objectivity which research results.

Results: The history of live sports events broadcasting on television could be chronologically divided into five stages: the embryonic stage, the tortuously developing stage, the recovering stage, prosperity stage, and the monopoly stage. The embryonic stage (1958-1965): In this time period, both equipment and technology are very limited. There is no stable and consistent broadcast hours whatsoever. The tortuously developing stage (1966-1976): During the cultural revolution period, the whole sport industry including live broadcasting is under the great influence of political content. Although equipment and technology were improved, very little live sport events broadcast has been made in this time. The recovering stage (1978-1991): The economic reform of China in late 1970s brought greatest opportunity to live sports broadcasting industry and TV stations like CCTV started proficiently producing live sports broadcast ever since. In 1990, China produced mass live sports broadcast using its own signal during the Asian Games, which was providing enough experience and practice to the development of live broadcast industry in the 1990s. The prosperity stage (1992-2004): The golden age of live sports broadcasting in China started from 1992. In this year, CCTV firstly participated the making of international television signal of three sport events including table tennis in the Athens Olympic Games, meaning the live technology of China has reached the international standard and accepted by the international live television industry. The monopoly stage (2005-present): Because of different reasons
including policy, capital, program resources, CCTV has seized the absolute leading role in live sports events broadcasting in China while other smaller local television stations struggled and perished.

**Conclusions:** CCTV will maintain the monopoly in live sports events broadcasting in China in a long time due to the lacking of free market and competition in television industry. However, nowadays sports media including the world’s famous ESPN are trying to make a break through. And the live broadcast industry in China would certainly reform and self-improve alongside with the development of sports industry."
POSTER PRESENTATION

A Critical Analysis of the Brazilian Athletics: Characteristics of Jumpers and Throwers Athletes and their Performances

Elite performance

"Júlia Barreira, Darci Ferreira da Silva, Denise Vaz Macedo, René Brenzikofer"

"State University of Campinas, State University of Campinas, State University of Campinas, State University of Campinas"

"BR, BR, BR, BR"

"Background: The data available on the website of the Brazilian Athletics Confederation (CBAt) contain valuable information about the Brazilian athletics which, when analyzed with the proper tools, can guide the training and investments for the modality. However, few studies have explored this database. In order to fill this gap, the aim of this study was to characterize the Brazilian elite athletes and their performances in jumping and throwing events of athletics, and to compare them with the scores achieved at international competitions.

Methods: The sample was composed by 1226 marks obtained by the top three finishers in Brazilian official competitions of pole vault, high, distance, triple jumps and shot put, discus, hammer and javelin throws of the adult category that took place in the period from 2000 to 2014. All data were collected at the CBAt website, from which were also extracted the ages of the athletes in the moments of competitions and the world records in these events. We compared the Brazilians athletes' ages in jumping and throwing events with the international ones. After identifying the best Brazilian performance in each event, we analyzed its evolution over the years and we compared them with the actual world records.

Results: The data show that the Brazilian jumpers are approximately two years younger than the throwers, reproducing the difference found in international athletes. However, national podiums athletes are three years younger than the international ones. Brazilian performances in women's discus and hammer throws are the most distant from world records and remained stable in the studied period, not being competitive on the international scene. The best Brazilian performances in women's events were in triple jump and pole vault, with positive developments in recent years. In relation to the male performance, Brazilian performance in the men's javelin throw is the most distant from the world record with no performance improvement in the analyzed period. The Brazilian performance in the other three male throwing events presented a significant improvement in recent years, following the evolution of the world records. Brazilian performances in male jumping events are close to the international ones,
highlighting the long jump and pole vault whose performances have improved significantly in recent years.

**Conclusions:** The results of our study show that the Brazilian elite athletes in jumping and throwing events are younger than the international podiums athletes. Longer permanence of these athletes in the sport, with increased governmental assistance and sponsorships, may allow the improvement of the technique and experience, enabling even better progress in performance. If the performance evolution in male and female jumping events is maintained in the coming years, possibly the Brazilian athletes will become more competitive on the international scene. It is necessary a review of the training and investments for the women's discus and hammer throw and for men's javelin throw, whose performance is stable and very distant from the international records."
A Rational Thought on the Teaching Reform of the Professional Training Course of Sport Training Majors in China’s Sports Colleges from the Perspective of Social Needs

Sport sociology
Luxiang Cui
Shenyang Sport University
CN

“Background:
Professional training course has always been the key course of sport training majors in Chinese sports colleges. According to statistics, the ratio of technical courses and theoretical courses of sport training majors is 1:1. And the professional training course, which accounts for 1/2 of technical courses, lasts for the longest time among all the courses. Therefore, such factors of teachers who teach this course as the teaching concept, ideas, methods, and assessment exert important influence on students’ learning attitude and even life values. Thus, this study is to enlighten and provide References to the reform of sport training majors’ professional training course and the cultivation of them.

Methods:
Questionnaires are used in this paper to survey sport training teachers and students.

Results:
1. Motivations of the reform of professional training course
The training objectives of sport training students in sports colleges are developing from a single goal to multiple goals.

2. Problems of professional training course
To begin with, the teaching ideas of sport training teachers are still restricted by intensive training mode. Secondly, most teachers are not sufficiently aware of the multiple goals of training objectives. Thirdly, more than half of the students deem that the structure of teaching content is not appropriate enough. Additionally, traditional teaching methods that have been adopted for years still influence teachers’ educational and teaching concepts. Finally, the course assessment still put much emphasis on the results and quantification instead of the process and quality.

3. Reform strategies of professional training course
The teaching ideas of professional training teachers should be transformed into those that are people-oriented and emphasize comprehensive development.

Conclusions:
1. The motivations of professional training course reform mainly include the training objectives, student structure, employment prospects and students’ preference of choosing courses.

2. The professional training course has several problems. Firstly, traditional teaching ideas of training athletes no longer fit the practical needs of sports training students. Secondly, teaching objectives are not comprehensive, emphasizing the technical training but ignoring the cultivation of other abilities such as the ability to adjust to the society. Thirdly, the teaching content is not optimal, lacking systematization and continuity. Teaching contents of different terms overlap and overemphasize technical training while neglecting the cultivation of comprehensive abilities to adapt to the society. In addition, the traditional teaching method cannot boost students’ enthusiasm of learning. Finally, the course assessment puts too much emphasis on technical sport skills and relies on the results instead of the process.

3. Some reform strategies are proposed in this paper, including transforming teaching ideas of teachers, adjusting teaching objectives, reforming teaching content, optimizing class organization and teaching methods and improving the course assessment.”
POSTER PRESENTATION

A Research on the Conflicts among the Players of the Masses Basketball Games in China

Physical activity and health

Zhen Bin Tan
Capital University of Physical Education & Sports
CN

“Background:

In Recent Years, with the Development of a Series of Competitive Basketball of Professional Basketball League in US and China, More and More People favorite Basketball for Its Unique Charm. The people involved in basketball are no longer satisfied merely as a basketball game, the Various Forms of Mass Basketball Game Came into Being. However, Long been Plagued by Conflicts of Athletic Basketball Players also Widespread in the Basketball Game of the Mass. A Small Disputes Quarrel between Teammates and Fight to Team Members All the Time Played outs in the Masses Basketball Game. If These Players Conflict not handled properly, not only may bring about physical and Mental Damage for Players, Severe Cases may Make an Adverse Social Impacts of the Masses of the People, Evenly Paste Barbaric, Rude Label for Basketball. It is not Conducive to the Development of Basketball and More Inconsistent with the Requirements of Building a Harmonious Society.

Methods:

The Authors Used the Methods of Literature, Questionnaire, Interview, Mathematical Statistics and Logical Analysis Method for a Comprehensive and Detailed Study of Conflict Phenomenon of the Masses Basketball in China

Conclusions:

1. From the People Universal Understanding of Conflict, the Majority of Participants Lack of Knowledge of Universality in Conflict within the Team. The Conflict within the Team is not a Normal Phenomenon, and Most People for Universality in Conflict between the Team has Correctly Recognized. From the Conflict Point of View, Whether It is a Conflict within the Team or between the Team, People's Opinion is Traditional and Backward.

2. From the Current Conflict Situation, Regardless of the Conflict within the Team or between the Team, the Reality of Conflict between Individuals is the Main Types of Conflict. In Concrete Forms of Conflict, the Majority of Conflict within the Team and between the Team are Psychological Conflict and Verbal Conflict. The Conflict between the Team is Greater than within the Team in the Number and Intensity of Conflict.
3. The Cause of the Conflict is Multifaceted. In General, Information Gene, Personality Differences, Basketball Characteristics, Understanding Gene, Environment Gene, Differences in Values and Standard Gene is the Main Reason of the Conflict within the Team. Cause of the Players, the Characteristics of the Basketball as well as Third-Party Causes is the Main Reason of Conflict between the Team.

4. The Management of the Conflict within the Team and the between the Team are to be Improved. In the Event of a Conflict, a Positive Initiative for Conflict Management is not Strong and the Management Level is not High. In addition, to Manage Conflict Concept is Relatively Backward and Passive.

5. The Current Player Conflict Phenomenon Impact in the Basketball Game of the Masses is Multifaceted. The Conflict within the Team Come into being Negative Influence for the Players Psychology, Interpersonal, Coaches Psychology, Coaches Work and Team Level Play on."
A RESEARCH ON THE DIFFERENCE OF THE LEFT AND RIGHT ARMS IN FRONT-CRAWL

Technology in sports
"Ya-Qian Qi, Hong-Hui Yang"
"Shanghai Research Institute Of Sports Science, Shanghai Research Institute Of Sports Science"
"CN, CN"

Background: It is difficult to know exactly what the differences were between the right and left hand when swimming. As there is a flume providing steady flow and the 3 Line Analysis and Testing System. It can be used to train athletes, capture the videos and analyze the speed. The coach can know more about the athletes’ performance in the flume, which can provide more effective information to improve the athlete’s technique. In that case, we did some research on the difference of the left and right arms in front-crawl in the flume with the 3 Line Analysis and Testing System.

Methods: Participants: Six girl young athletes (age 14.8±2.8 years, height 1.66±0.21 m, body mass 49.6±3.1 kg; m±s).

Swim trials: In the flume pool, each swimmer performed swim trials with 1.45m/s and 1.55m/s using the front-crawl. In each trial, the swimmer was required to swim 30 seconds and the relative speed was recorded by the 3 Line Analysis and Testing System.

Dynamic analysis: One camera filmed the swimmer from a side view with the frequency of 25 Hz. The 3 Line Analysis and Testing System was used to record the speed. The movement of the arm was broken down into four phases to describe the whole process of stroke. The efficiency index was defined as velocity plus length of every phase to estimate the efficiency of left or right arms in different phases.

Results: 1. The percentage of each phase

The analysis of the percentage of each phase in time domain showed that no matter swimming in 1.45m/s or 1.55m/s, phase T1 cost more time than other phases, and phase T2 cost the least. Also, with the speed increasing, phase T2 and T3 cost more time, while the percentage of phase T1 and T4 decreased. On the opposite, Li’s research showed the percentage of T2 and T3 decrease with the flow going faster

2. The efficiency index of different phases

We compared the efficiency index of different phases. The result showed when the speed was low, the efficiency index was nearly the same. When the speed increased, it showed differences between
the left and right arms. And with the flow’s speed increased, the efficiency improved, which was the same as reported.

3. The average speed of each phase. The body speed increased with the flow going up, and in phase T3 the body speed was higher than that in other phases. When swimming in 1.45m/s or 1.55m/s, athletes had the lowest average speed in phase T2. While in phase T1, the speed increased most, about 6.6%. We thought it may be hard to control the arms technique well when swimming on low speed, so when swimming on 1.45m/s the difference between the right and left arms were more than that in the speed of 1.55m/s.

Conclusions:
1. When swimming in low speed, the left and right arms showed fewer differences in each phase.
2. When swimming in higher speed, it showed differences between the left and right arms, especially in phase T1.
3. The reality differences between the left and right arms depend on athletes. More researches were needed to make further analysis in order to improve the young athletes’ technique."
A Study of the Transitional Development of China’s Physical Education Majors from the Perspective of “New Normal State”

Sport pedagogy
“zhijun yang, zhijun yang”
"Shangqiu normal university, Shangqiu normal university”
"CN, CN"

“Background:In 2014, Chinese president Xi Jinping proposed the term “new normal state”, which promotes the inclusive growth of China physical education and the transitional development of colleges. To make local colleges physical education serve local economic growth, to make colleges physical education meet the need of physical education culture diversity. To implement The Outline of China’s Middle and Long Term Education and Development (2012-2020), the Education Ministry promulgated The Directing Suggestions for Universities Transitional Development in 2014.

Methods:
This study is conducted by the methods of documentation, questionnaire survey, field research, and mathematical statistics. And SPSS is used to analyze the influencing factors.

Results:Three components are selected after the 17 influencing factors are analyzed. The first component, connected with majors, courses, textbooks, teaching methods and training plan, is called teaching factor; The second component, connected with leaders’ developing concepts, leaders’ lack of originality, education policy and social environment, is called policy factor; The third component, connected with education funds, educational facilities, students and teachers’ enthusiasm, and employment rate, is called school internal factor. The teaching factor refers to the fact that physical education majors are organized unreasonably without regard to market need, and that out-of-date textbooks cannot attract the interests of students. The policy factor lies in the fact that the teaching concepts and original thoughts of leaders should be combined with education development plan and with the reality of the region so as to emancipate thought. The internal factor refers to the small outlay on physical education due to the lack of funds, poor teaching facilities and students’ low enthusiasm influenced by social mood low employment.

Conclusions:The elements influencing the major transition of colleges’ physical education are teaching factor, policy factor, and school internal factor. The backward training objective, major setup and courses cannot keep up with the flow of the times and cannot meet the need of the market. Colleges physical education develops blindfold. Students trained with poor practical abilities cannot fit society,
economy and physical education culture. Leaders of colleges physical education cannot carry out education and teaching policy completely and they adopt a perfunctory attitude to national evaluation. So, the transition of physical education is urgent and unavoidable. A new training plan should be made to develop physical education talents for society. Colleges should cooperate with firms, governments and other universities. Teaching methods should be reformed. Teachers should be trained frequently and the training of teachers with double certificates should be intensified. Core teachers are to be appointed to go out for further education. And the evaluation system incentive mechanism of teachers should be reformed so as to stimulate their enthusiasm in talents training."
A Study on Students Physical Fitness Test Results Using to Elementary and Secondary Schools in China

Sport pedagogy

"Huilin Wang, Wei Yan, Wanyong Lei, Yinyin Lei"

"Tianjin University of Sport, Tianjin University of Sport, Tianjin University of Sport, Tianjin University of Sport"

"CN, CN, CN, CN"

"Background:
With the National Student’s Physical Fitness Test(NSPFT) system implemented widely around schools in China. Its assessment efficacy has been paid a lot of attention. NSPFT results using is one of the important aspects of implementing the system. The purpose of paper is to put forward the direction of the effective of the NSPFT result suing. In order to promote the understanding of NSPFT system from the angle of multi-dimensional and provide certain reference and reference for the system implementation.

Methods:
An investigation and analysis reveals the NSPFT result using in practice and utilization condition through 32 provinces (autonomous regions and municipalities) 3162 primary and middle schools at all levels (. Sample distribution is as 2331 in urban areas, 575 in township, 256 schools in rural areas; 2990 public schools, 168 private schools, 4 mixed-system schools; 860 boarding schools, 2302 non-boarding schools.) in China. The data obtained frequency analysis, descriptive statistical analysis data with statistical methods.

Results:
According to the survey found NSPFT results using behavior at various levels schools and mainly: “as a reference to arrange the teaching content “, “put into the student physical education scores”, “public to encourage students to participate in sports activities”, “evaluation of teaching effect”. The data percentage reached more than half. There are more than fifty percent of the schools take concrete actions play important role to use NSPFT results. And using the results of most high schools and elementary schools average using the test result as “put into the student physical education scores”, the number accounted for nearly seventy percent; the most middle school and secondary vocational schools using the results of as “to as a reference for arrangement physical education teaching content “, the number accounted for nearly eighty percent; and “Used to evaluate the teaching effect “, and
public it to encourage students to participate in sports activities "the proportion are higher than fifty percent in all kinds of schools at all levels. In a certain extent determines the NSPFT to promote the students carrying on the regular physical activities and improvement of teaching levels. In addition, only nearly one third schools choice "give to the students' parents. Nearly ten percent schools chose "never using". The situation of school NSPFT result using is slightly different with different classes, properties, types and areas schools, the difference was not significant. Data showed that there is a certain distance away from the relevant national requirements currently, suggested that need to make efforts to change this situation.

**Conclusions:**
The status of NSPFT results using is active. The utilization ways focus on three aspects: students, physical education teachers and parents. Students’ physical fitness test results using behavior also show the ways through the three aspects. "Using for teaching" is most using behavior. The mode and scope of students’ physical fitness test results using needs to be further expanded."
A Study on the Theory and Methods for Strength Training on Lumbar Dorsal and Abdominal Muscles for Chinese Teenager Basketball Players

Technology in sports

ZHENG BIN TAN
Capital University of Physical Education & Sports
CN

"Background: Strength plays an important role in the building of basketball player’s physical ability. Each basketball skill has direct correlation with the strength of lumbar dorsal and abdominal muscles and the skill of basketball player is restricted by specific strength. The purpose of this paper lies on the theory (training principle, contents and requirements) and training ways and methods for strength training on lumbar dorsal and abdominal muscles for Chinese teenager basketball players. Furthermore, the evaluation index system and standard for the training are constructed in order to improve the strength training for Chinese basketball.

Methods: 1. Theoretic analysis: This paper analyzes the theory of strength training for Chinese teenager basketball players by methods of logic analysis.
2. Testing method: In order to frame the evaluation index system and standard for the strength training of lumbar dorsal and abdominal muscles for Chinese teenager basketball players, the author pre-tested and post-tested 60 players during the period of winter-training in 2009 and 2010 and obtained first-hand data.
3. Statistic method: The author constructed the evaluation index system and standard for the strength training of lumbar dorsal and abdominal muscles for Chinese teenager basketball players based on the data and statistical theory.

Conclusions: 1. The basic theory and principles for basketball players’ strength training are as follows:
A. theory and principles of Stimulation-acclimation. B. theory and principles of unification between training quantity and intensity C. theory and principle of strength training-first D. theory and principle of combination of strength training and basketball skills training.2. The training contents and methods were consisted of two main parts: One is non-specific training contents and methods (fundamental strength training), the other is basketball-oriented strength training. 3. The evaluation index contents and index system of strength training for Chinese teenager basketball player are consisted of first-level indexes and second-level indexes. The author picked the first-level indexes firstly according to the evaluation purpose, requirements, objects and training level. 4. The evaluation index system and standard of strength training for Chinese teenager basketball player is of important practical value."
Accessibility and Inclusion in Sport Participation: the Experience with the “Manual of Practical Actions” of Sesc São Paulo

Sport eligibility and inclusion

"Ana Paula Martins Vicentin, Luciana Itapema Alves Melher, Regiane Galante, Paulo Verardi "
"Sesc SP, Sesc SP, Sesc SP, Sesc SP"
"BR, BR, BR, BR"

"The Social Service of Commerce (Sesc) is a private, nonprofit, nationwide institution, created in 1946 by initiative of trade and service entrepreneurs, which joined together to seek an alternative to support the improvement of the quality of life and social welfare. Currently Sesc in São Paulo State has 36 Operational Units, mostly sports and cultural centers, which offer to the community cultural action committed to the democratization of access and performance based on values such as: people’s appreciation, the perception of the other and cultural, educational and social development, through programs and projects in the areas of Education, Culture, Health, Leisure and Social Assistance. The Physical and Sportive Development is comprised in the area of Leisure and deals with the process of permanent and non-formal education aiming at expanding experiences related to sports and physical activities, while seeking to raise awareness on the importance of the continuity of such practices in everyday life to improve the quality of life and well-being. Within this context, one of the institutional guidelines is the full inclusion of Persons with Disabilities and Accessibility. This task requires dedication of Sesc staff in the pursuit of creating possibilities for a better enjoyment of equipment, as well as the incentive to try other experiences and relationships, providing moments of encounter with the unpredictable and exchanges by social conviviality. Among the actions already carried out, we remark the publication “Handbook of Practical Actions – the attendance of persons with disabilities in physical and sports practice” which guides the plan and methods to be adopted, so people with disabilities can, in fact, take part of regular sports and physical activities. We identified that the directive together with the publication headed to some progresses, such as i) establishment of partnerships with institutions that access the sports facilities for tournaments and activities; government partnerships such as the São Paulo City Hall; ii) production of knowledge and technical improvement, by organizing seminars and symposia - Symposium of Adapted Physical Activity; Seminar of Inclusive, Partaking and Leisure Sports, among others; iii) conducting training and constant updating of the technical teams working in the area, as well as in the context of attendance, fundamental action to ensure accessibility; iv) in addition to the mentioned topics, when considering the physical activity and sport participation,
Sesc SP registers a growing number of participants with disabilities, that daily practice activities with professional guidance – amongst the 62 thousand students of the regular courses. In this scenario, as one of the prior commitments of the Institution, the work reported in the field of Inclusion through Sport and Physical Activity, has been identified as means for the development of citizenship, by allowing the access to groups with specific needs, the creation of possibilities to broaden the perception of the other and the respect for diversity as well as expanding the view of the potentials found in living with differences."
POSTER PRESENTATION

Accuracy of Polar Active Activity Monitor and Omron HJ-105 Step Counts among Chinese College Students

Physical activity and health

"Jingwen Liu, Xiaofen D. Keating, Li Chen, Rulan Shangguan, Mark Worrell, Yao Fan"

"University of Texas at Austin, University of Texas at Austin, Delaware State University, University of Texas at Austin, University of Texas at Austin, Northeast Normal University"


“Background:

Chinese college students have demonstrated propensity toward physical inactivity. There is an imperative need for intervention on Chinese college students’ physical activity (PA) levels. An accurate and objective assessment of PA level is therefore of particular importance for the purpose of developing and evaluating PA interventions. The Omron HJ-105 pedometer (OM) and the Polar Active activity monitor (PAM) are widely used in school settings to assess PA levels, mainly for counting step. PAM is currently the only device that provides group solutions and allows account administrators to access both individual and aggregated PA data. However, no research has been conducted on the accuracy of PAM in jogging or running conditions. OM was found to be an accurate step counter with absolute percent error (APE) less than 5% in walking condition (2-4 mph). However, neither device has been validated amongst Chinese population. Thus, this study aimed to evaluate the accuracy of OM and PAM among Chinese college students in a controlled setting.

Methods:

A convenient sample of 28 Chinese college students participated in the study (Mage = 20.25, SD = 1.21) with 9 females and 19 males. Participants’ average BMI were within the normal range of Chinese adults (BMIfemale = 19.3, BMImale = 22.55). All participants wore both OM and PAM and performed three trials for each condition (i.e., walking, jogging, and running). Before and upon completion of each trial, participants were asked to record OM and PAM step count on a recording form. While performing a designated movement at participant’s own pace, they self-counted steps until reaching 100 steps.

Data analyses were performed in SPSS 21.0. Step count of a trial was calculated based on the difference between pre- and post trial reading. The step count APE was calculated using the formula of (step counts-100)/100*100% and an absolute value was obtained. For each condition, one sample t-test was performed to compare the differences between OM or PAM step count and designated step count of 100. Dependent t-test was used to test the differences in average APE between OM and PAM.
Results:
Both devices significantly over-estimated steps in all conditions, except that PAM was relatively accurate in jogging condition. Except in walking condition, the average APEs of OM were under 5% and were much smaller than APEs of OM (9.02% to 14.48%). OM showed significantly smaller average APE than PAM in jogging \( t(27) = 3.01, p = .006 \) and running condition \( t(27) = 4.46, p < .001 \).

Conclusions:
Although OM over-estimated step counts in all conditions, it is a better step counter than PAM in jogging and running conditions for its lower average APEs. More repetition studies are needed to confirm these findings, especially among other age groups or in a free-living setting. Future studies should also examine the internal consistency of both devices."
Active pelvic stabilization control in youth soccer athletes

Rehabilitation

"Bianca Feitosa Holanda, Jamille Soares Moreira Alves, Kamila Maria Oliveira Sales, Edfranck de Sousa Oliveira Vanderlei, Carlos Hermano da Justa Pinheiro"

"FANOR/DeVry, FANOR/DeVry, FANOR/DeVry, FANOR/DeVry, FANOR/DeVry"

"BR, BR, BR, BR, BR"

"Background: The pelvis is a center of force transmission from appendicular to axial body. In fact, neuromuscular imbalances in pelvis control could increase the risk of musculoskeletal injury. In soccer, the rotation of trunk and pelvis in opposite directions is need during the kicking due to the action of internal and external obliquus abdominis on the kicking and non-kicking sides, respectively. Thus, the active control of pelvic stabilization in transverse plane is an important biomechanical task on the performance and rehabilitation of soccer athletes. The purpose of the present study was to evaluate the active control stabilization of pelvis in youth soccer athletes.

Methods: This was a cross-sectional study performed in thirty male soccer athletes (n=30) from under-9 (U-9), under-11 (U-11) and under-15 (U-15) categories who were submitted to the evaluation of magnitude and asymmetry of pelvic tilt in transverse plane using the bridge test with unilateral knee extension. An inquiry for identify any kind of both musculoskeletal pain and history of previous injury was also applied. The visual analogic scale (VAS) was used to determine athlete’s pain perception. In the present study, all ethical aspects recommended by Resolution 466/12 of the National Health Council were considered.

Results: The experience playing soccer ranges from 6 to 48 months for U-9 and from 6 to 60 months for U-11. For U-15 soccer athletes, the experience playing soccer ranges from 12 to 72 months. The prevalence for musculoskeletal pain and previous injury were 36% and 10%, respectively, for the entire sample of youth soccer players. Among youth athletes who reported pain, the most affected regions were thigh (36%), leg (27%) and ankle (18%). The VAS mean score was of 3, 4 and 3, 3 for U-9 and U-11 respectively. Previous injury was not reported by U-11 athletes and musculoskeletal pain was not reported by U-15 athletes. The magnitude of pelvic tilt was not statistically different between U-9, U-11 and U-15 soccer athletes. However, the U-9 and U-11 athletes had greater asymmetry of pelvic stabilization for their dominant and non-dominant sides.

Conclusions: In the present study, a significant pelvic tilt during the bridge test with unilateral knee extension was observed in U-9, U-11 and U-15 soccer athletes. However, only U-9 and U-11 athletes
shown asymmetry in active control of pelvis. In addition, U-9 and U-11 athletes also reported musculoskeletal pain. The possible association between asymmetry in active control of pelvis and prevalence of any kind of musculoskeletal pain or injury needs further investigation.”
Acute effect of classes of school physical education on factors emotional teaching teens fundamental II

Sport pedagogy

"Rafael Ribeiro, Alecsandro Silva, Vinicius Lauria, Paulo Eduardo Pereira"

"Faculdade Praia Grande, Faculdade Praia Grande, Unifesp, Unifesp"

"BR, BR, BR, BR"

“Background: To analyze the acute effects of the class of Physical Education on the levels of wellness, Anxiety and students of Mood factors of a particular school.

Methods: The study included 24 students (12.37 ± 0.87 years) enrolled in the 7th grade of elementary school II, 11 girls (12 ± 0.43 years) and 13 boys (12.69 ± 1.03 years). Volunteers answered the BRUMS questionnaires, STAI and WELFARE before and after school, structured and free, respectively.

Results: This study showed a significant difference only in the inventory of confounders BRUMS between pre and structured after-school (pre 2.38 ± 3.69, 1.42 ± 3.20 Post).

Conclusions: Classes of Physical Education, structured and free, did not influence the acute changes of emotional factors of students."
Acute Effect of Resistance Exercise Combined with Blood Flow Restriction on Blood Pressure Post-Exercise

Sport medicine and injury prevention

"Leonardo da Silva Leandro, Maria do Socorro Cirilo-Sousa, Pablo B. Costa, Jarbas Rállison Domingos Gomes, Eduardo Domingos da Silva Freitas, Julio Cesar Gomes da Silva, Rodrigo Ramalho Aniceto"

"Integrated Colleges of Patos, Federal University of Paraíba, California State University, Integrated Colleges of Patos, Federal University of Paraíba, Federal University of Paraíba" BR, BR, US, US, BR, BR, BR

"Background: Hypotension post-exercise (HPE) depends on both training intensity and volume. It is known that traditional high-intensity (HI) resistance exercise may induce HPE. However, it is not clear whether resistance exercise with blood flow restriction (BFR) at low load (LI-BFR) may cause the same HPE of the HI, when both the methods are standardized by work (volume). Therefore, the aim of this study was to compare the post-exercise blood pressure between HI and LI-BFR in young adults.

Methods: Twelve apparently healthy trained men (mean ± SD – age = 23.50 ± 3.70 years, body mass index = 24.73 ± 2.79 kg/m2, body fat percentage = 11.76 ± 4.24 %, and one repetition maximum [1RM] load for the knee extension machine = 112.08 ± 20.72 kg and biceps curl = 41.41 ± 6.74 kg) participated in a crossover randomized counterbalanced design study. Subjects participated in three sessions separated by 3-5 days. In the first session, anthropometric measurements were taken and the 1RM test and familiarization session were performed. In the second and third sessions, knee extension and biceps curl were executed under the HI and LI-BFR conditions. Both methods were standardized by total work with three sets of eight repetitions at 70% of 1RM for HI and three sets of 16 reps at 35% of 1RM for LI-BFR. A cadence of one second for eccentric and concentric contractions was followed and one-minute rest interval between sets and five minutes between exercises were provided. BFR was applied at the most proximal portion of the limbs using a 76 mm wide elastic knee wraps placed on the arms (biceps curl) and thighs (knee extension). Systolic blood pressure (SBP, mmHg) and diastolic blood pressure (DBP, mmHg) were assessed at rest, immediately, 10 min, 20 min, 30 min, 40 min, 50 min, and 60 min post-exercise. To compare SBP and DBP measurements, a two-way ANOVA with Bonferroni post hoc was used.
Results: There was no significant difference in SBP (P > 0.05) and DBP (p > 0.05) between HI and LI-BFR. When compared to rest (intragroup), there was a significant difference immediately post-exercise for SBP in HI (P < 0.05) and DBP in LI-BFR (P < 0.05).

Conclusions: It was concluded that both HI and LI-BFR were not capable of inducing HPE. However, HI increased SBP immediately post-session, which may not be interesting for hypertensive subjects.”
Adapted Sports: Physical Education undergraduate students’ conception

Sport eligibility and inclusion

"Marina Brasiliano Salerno, Rita de Fátima da Silva, Paulo Ferreira de Araújo"

"Federal University of Mato Grosso do Sul, Federal University of Mato Grosso do Sul, State University of Campinas"

"BR, BR, BR"

“Background: Adapted Sports in Brazil started being organized in the 1950’s, with the development of wheelchair basketball. Its organization, however, didn’t influence the training of Physical Education professionals directly. It started including in its curriculum issues directed to the disabled population from the end of the 1980’s, with norms published by the 03/87 Resolution. Physical Education courses aimed both to graduation and bachelor’s degrees started offering mandatory and/or optional subjects which encompassed issues concerning the disabled population and their sports, physical activities, leisure and school physical activities practises. In this context, we aimed to know what comprehension students of Physical Education or related areas have about Adapted Sports, for, with the development and highlighting it has received in the national scenario from the results obtained in the Paralympic Games, different conceptions may permeate this representation.

Methods: For the data collection, we applied a questionnaire to students who were finishing their graduation in Physical Education or related areas in five public institutions of higher education in the state of São Paulo in the year 2013-2014. 138 students who accepted to participate in the research were contacted and they signed an informed consent. We used the content analysis to categorize the answers given by the students to the item “Describe, in the best possible way, the following terms”. “Adapted Sports”, the subject of this paper, was among them.

Results: About the found categories, we observed aspects referring to whom it is addressed and the established objective: Any sports which are adapted so that disabled people can practise them (48.55%); Sports which are adapted to the needs of their practitioners, independently of what they are (23.91%); High performance sports aimed to disabled people (18.11%); Sports adapted to disabled people aimed or not to high performance (4.34%); Others (5.07%).

Conclusions: What we observed with this data is that there is a movement which understands an adapted sport as one which undergoes adaptation so that people can practise it, not focusing only on disabled people, even if most highlight the disabled population. Others focus on the high performance sports aspects, such as the Paralympic Games. Historically we know that adapted sports began with
this population, and the development of the perception of the inclusion and of the several needs we find in different populations makes the perception of the forms of practise enlarge. It is necessary, therefore, to discuss these aspects in higher education levels so that we can approximate the understanding on Adapted Sports, which may influence the professional performance.”
POSTER PRESENTATION

Aerobic Exercise Prevents Oxidative Damage to Prefrontal Cortex Mitochondria in Stress-Induced Depressive Rats

Neuroscience and sport

"Yahong Jin, Li Wen, Shuangyu Sun, Shixiang Cheng, Sai Zhang"
"Tianjin University of Sport, Tianjin University of Sport, Tianjin University of Sport, Neurosurgery and Neurology of Hospital of PAP, Neurosurgery and Neurology of Hospital of PAP"
"CN, CN, CN, CN, CN"

"Background:" Depression is associated with a constellation of cognitive impairments reflecting prefrontal cortex (PFC) dysfunction. The pathogenesis of depressive disorders may also involve mitochondrial abnormalities in the brain. However, the neurocellular basis of depression-associated PFC dysfunction is not clear. This study examined the mitochondrial dysfunction in the prefrontal cortex and the possible ameliorative effects of aerobic exercise in the chronic unpredictable mild stress (CUMS) model.

Methods: Adult male Sprague-Dawley rats (300-400 g, four months old) were divided into control (C), CUMS (D), and CUMS plus aerobic exercise (D+E) groups, the latter allowed access to treadmill running for the last 18 days of the 28-day CUMS protocol. Body weight, sucrose preference, open field (OF) activity, and Morris water-maze (MWM) performance were assessed, followed by measurements of respiratory control ratio (RCR), ATP synthesis rate, manganese superoxide dismutase (Mn-SOD) and glutathione peroxidase (GSH-Px) activities, and malondialdehyde (MDA) accumulation in PFC mitochondria.

Results: By CUMS day 28, the change in body weight after CUMS differed significantly among groups (F(2, 33) = 215.132, P < 0.001). Positive change in body weight was highest in group C (P< 0.001), and group D+E also had a positive change (P< 0.01). Similarly, sucrose consumption was significantly different among groups (F(2, 33) = 58.634, P < 0.001), sucrose preference was highest in group C (P< 0.001), but higher in group D+E than D (P<0.001). In the probe trial, the number of platform site crossings in the MWM were significant differences among groups (F(2, 33) = 9.529, P =0.001), groups C and D+E performed better than D (P < 0.001). Mitochondrial RCR, ATP synthesis, Mn-SOD activity, and GSH-Px activity were higher in group C than D (all P<0.01), while Mn-SOD and GSH-Px activities were higher in group D+E than D (all P <0.01). In contrast, MDA was significantly lower in groups D+E and C than D (all P <0.001) with no significantly difference between groups C and D+E.
Conclusions: Aerobic exercise partially ameliorated the CUMS-induced depressive phenotype (motor retardation, anhedonia, and cognitive dysfunction). Moreover, exercise suppressed the associated oxidative damage of PFC mitochondria, possibly accounting for the preservation of cognitive function or other anti-depressive effects.”
Background: It is a fact that the sport has become a worldwide phenomenon and the number of practitioners and modalities grew consubstantially. In addition to the benefits of the practice, such as improved body composition, physical fitness, social interaction and sense of responsibility, the systematized experience of a sport can lead to not pleasant aspects, such as sports injuries. Understanding the most common prevalence of injury in a particular sport can guide the coach, even if in formative or high level training context, in favor of long-term athletes development. In this sense, the objective of the study was to analyze the prevalence of sports injury in gymnasts from aerobic gymnastics that were medalist in the Brazilian National Championship in the year 2015. Methods: We interviewed 12 athletes whose experienced injury, all female, with an average age of 16. The interviews were transcribed verbatim and data analysis occurred through Content Analysis. Results: We observed the occurrence of 14 injuries, in which the prevalence was due to sprain in the ankle joint, followed by stretching of the hamstring muscles. Conclusions: Injuries in the lower limbs are more frequent in aerobics because of the characteristics of the sport. In the case of sprains, the frequent changes of direction, landing, jumps and hops - inherent in the choreographies - seen to be the reason for injuries. For distention, the mandatory elements of flexibility and fall jumps in split position seen to be the cause of over-stretching. Both situations lead to reflection and action of the coach and others involved - as physical trainer and physiotherapist – to avoid those cited injuries.
**POSTER PRESENTATION**

**Alberto Santos-Dumont: the first Brazilian Belle Époque sportsman who became an Olympic Hero**

Sport history

"Ana Maria de Freitas Miragaya, Lamartine Pereira DaCosta"

"Universidade Estácio de Sá Petrópolis, Universidade do Estado do Rio de Janeiro"

"BR, BR"

**Background:** Much has been said about both Santos-Dumont and his inventions, but little has been said about the nature of his favorite sport at the turn of the 20th century: aviation, and its risks. As Santos-Dumont met all the requisites to become an Olympic sportsman, Pierre de Coubertin, the president of the recently founded International Olympic Committee (1894), awarded Santos-Dumont in 1905 one of the very first Olympic diplomas as he was the sports personality of his time. The objective of this research was to uncover and develop the image of Santos-Dumont as a sportsman, especially playing a very dangerous sport (aviation), and his trajectory to become an Olympic hero.

**Methods:** The method used was the systematic review of texts collected in primary and secondary sources in various locations: from the archives of the Olympic Studies Center of the International Olympic Committee and of the LA84 Foundation, Los Angeles, California, U.S, to the Petropolitano Sports Club in Petropolis and Santos-Dumont’s own writings.

**Results:** Santos-Dumont started his sports life very early: from his hunting adventures in his father’s farm as a child, to tennis, rowing, horseback riding, golf, snow sports, auto racing, tricycle racing and aviation. In Paris, as he devoted himself to the construction of dirigibles and airplanes, he had to face many challenges and almost died in serious accidents.

**Conclusions:** Alberto Santos-Dumont played a variety of sports during his lifetime and, especially put his life at risk in his trials with dirigibles and airplanes at a time when aviation was considered a sport. It is also possible to think of Santos-Dumont as one of the pioneers of extreme sport. His sporting challenges and feats were recognized by society at his own time and he was awarded an Olympic diploma by Pierre de Coubertin in 1905."
An analysis of the personality and pre-competition emotion type in high level fencing athletes

Sport psychology

"Sheng Qiu, Zhi Li, Duanying Li"

"Guangdong Prvovicial Institute of Sports Science, Guangdong Prvovicial Institute of Sports Science, Exercise testing center"

"CN, CN, CN"

“Background: To study the relationship between personality and emotion, it is considered that personality trait is one of the key factors that affect the individual emotion. Fencing athletes not only have good physical and technical level, psychological state, especially the level of anxiety before the competition has a direct impact on the result of the competition. This paper will explore before The National Games, two international master sportsmen named Lei and Ma personality traits and pre-competition emotion characteristics.

Methods: Used the Big Five Personality table to research personality trait (Costa and MeCrae, 1992), analysis five aspects (neuroticism, extraversion, openness, agreeableness, and conscientiousness) of athlete’s personality traits. Used pre-competition emotion table (Zhang, 2004), analysis four aspects (anxiety of individual failure, self-confidence, social expectation anxiety and somatic anxiety) of athlete’s emotion traits before The National Games.

Results: 1 In the personality trait questionnaire, Lei’s conscientiousness score was the highest, followed by agreeableness. The lowest score is neuroticism. The results indicate Lei is very responsible, self-discipline, humble and easy to trust others. Ma’s conscientiousness score was the highest, followed by neuroticism. The lowest score is openness. The results indicate that Ma is very responsible and self-discipline. But he is tended to impulsive, sensitive and anxious. 2 In the pre-competition emotion questionnaire, Lei’s anxiety of individual failure score is the highest, followed by self-confidence, somatic anxiety is the lowest. Ma’s anxiety of individual failure score is the highest, followed by the self-confidence, the social expectations of anxiety is the lowest. High individual failure anxiety shows that the two elite athletes both worried about the results of the competition and afraid of lose. Athletes’ confidence is accumulated through long-term systematic training and multiple experiences. High level of self-confidence is conducive to the competition, but high level of individual failure anxiety is not conducive to the competition. In recent years, Lei won the gold medal in 2012 Olympic Games and Ma won gold medal in the Fencing World Championships. But in the following National games just after our questionnaire test, both of them fail in the individual foil competition. Ma
did not enter the top 8, Lei did not achieve the expected gold medal. Unsatisfactory results may be related to the higher degree of anxiety of individual failure before The National Games.

**Conclusions:** Previous studies indicated that, middle level athletes are tended to more serious in anxiety of individual failure, but in our study, individual failure anxiety also exist in the high level and confident athletes. Individual failure anxiety is a sensitive index of pre-competition emotion state in high level fencing athletes."
POSTER PRESENTATION

An Analysis of the Results of Chinese Canoe Slalom Team Athletes’ Blood Lactic Acid Test

Sport development
"KongYunFeng, GaoTongYang, JiaHaoZhe"
"Wuhan Institute of Physical Education, Wuhan Institute of Physical Education, Wuhan Institute of Physical Education"
"CN, CN, CN"

“Background: Based on sports physiology, sports biochemistry and sports training theory, in combination with long-term collecting research data and test results, the energy metabolism characteristics of canoe slalom are analyzed. Combining with the characteristics of training and competition, it shows that the influence of environmental factors and high intensity anaerobic and aerobic training are the foundation of this sport, anaerobic training especially lactic tolerance training is the key to success.

Methods: We made two runs of flat water 300 meters test and two runs of wild water special test, and altogether 6 runs of flat water 300 meters and wild water special test. Use the Finnish Polar heart rate telemeter to record instant heart rate; use German EKF desk-top blood lactic acid instrument to record blood lactic acid (this research uses the average heart rate). Use EXCL, SPSS for processing related physiological and biochemical data.

Results: (1) Using the heart rate and blood lactic acid to control training: The joint application of heart rate and blood lactic acid is currently the most widely used intensity monitoring means in sports training. The two measures can check athletes’ reflection to the training intensity immediately after the exercises according to the time, so as to evaluate the main metabolism of these exercises. Considering several full runs in canoe slalom, it is similar to the max lactic acid training type and lactic tolerant metabolic type in table 2, and the way of energy metabolism of canoe slalom is mainly between the two.

(2) Analysis of flat water 300 meters speed endurance test: Through the data acquisition and comprehensive analysis of 60 athletes from four categories we can see that at present our athletes’ average heart rate does not reach 180 times/min, and the average blood lactic acid is between 11-13mmol/L. It shows that the intensity of the training is not enough and there is still a gap compared with foreign athletes, illustrating our athletes are at a lower level on the speed endurance training.

Conclusion: (1) The development tendency is comprehensive development of excellent strength, speed, technology and sports intelligence. When developing sports intelligence, we should also focus on the training of anaerobic speed endurance.

(2) The change of training intensity correlates highly with...
the change of blood lactic acid density. Training level can affect the density of blood lactic acid after exercise. The top athletes have good performance, at the same time their blood lactic acid density is high. (3) They should improve constant muscle work, maintain and improve the ability of speed under high lactic tolerant ability in order to improve performance.”
An Exploring Study on Adopting Game Stats for Table Tennis Match Broadcast Packaging

Sport development
"ZHOU Yi, GAO Ming, ZHANG Yingqiu"
"Beijing Sport University, Yan Shan Univeristy, Beijing Sport University"
"CN, CN, CN"

Background:
A win-win situation has been created since the bond between television and sport was established, and these two have been affecting each other, making each other even better. Former president of the IOC Samaranch once said that only when a sport game is suitable for television can it continue to develop, or it will fade away. As this trend continues to grow, the broadcast packaging quality of a sport game becomes an important factor. However, for years, table tennis broadcast packaging has no Game Stats to reflect the features of table tennis competition, enriching game information, and support commentary so that its broadcast can reach a new packaging level. This research has taken the token examples of NBA’s and Tennis Grand Slams’ packaging through the utilization of game stats as reference, exploring the future packaging plan for table tennis matches.

Methods:
Method of literature review and video observation are employed to study the features and contents of sport broadcast packaging, summarizing the valuable reference which can be adopted by table tennis match broadcast. The method of Chinese table tennis technique & tactic statistics is also employed to collect match data for the use of exploring table tennis packaging plan.

Results:
1) The packaging of NBA and Grand Slam matches keep to certain patterns: using game stats accordingly for pre-match packaging, packaging during the match and after match packaging.
2) Pre-match packaging mainly provides the recent performance statistics of both sides, specified statistics of matches between the two opposing sides, so as to reflect the current status, advantages & disadvantages and technique features, suggesting the watching focus and commentaries.
3) Packaging during the match generally provides statistics promptly and properly, backing up the commentaries through graphs and subtitles.
4) The key for after match packaging is to provide summarized game stats through graphs and tables of this very match, reviewing the critical factors, leading the broadcasting to a wonderful end.
5) Simulating the packaging of NBA and Grand Slam, table tennis game stats collected was used during the broadcast of 2013 World Table Tennis Championships to support the commentary, adding new watch points and enhancing the packaging level.

**Conclusions:**

1) Using game stats to serve for match broadcasting is a mainstream trend for the development of contemporary sports, it can raise the quality and ornamental value of sports matches, a trend which table tennis must grab to enhance its development in this field.

2) The packaging of table tennis broadcasting also needs to follow the popular model, using game stats accordingly for pre-match packaging, packaging during the match and after match packaging.

3) Table tennis broadcasting employing game stats for its packaging has just reached its starting stage. This research suggests chose high level world competitions as primary packaging targets, then promoting the use of game stats in more table tennis matches so its packaging level can be improved."
Anaerobic Threshold Muay Thai Practitioners For A Progressive Test Effort.

Elite performance

"University Center of Votuporanga, State University of Londrina., University Center of Votuporanga, State University of Roraima., University Center of Votuporanga, University Center of Votuporanga"
"BR, BR, BR, BR, BR, BR"

Background: The anaerobic threshold (AT) is an aerobic fitness variable that has been used in the prescription of exercise intensities for training and improvement of the physical skills of the athlete in several research protocols are used for determining the same, some using protocols assess ventilatory variables, and other metabolic variables in order to look with trust that threshold (GIM e CHOI, 2016). Thus, evaluation of the functional abilities of an athlete becomes important in order to promote adjustments to the point of causing improvements in the athlete’s performance. Muay Thai is considered a martial art that requires complex skills and tactical excellence for success (MAYERS e BALMER, 2012). There are several studies related to athletic performance in the case of physiological characteristics that each sport has, however still needs to be more studies about Muay Thai and its performance prediction parameters. Objective. Thus, the present study was to evaluate the profile of the anaerobic threshold Muay Thai practitioners from the city of Votuporanga in São Paulo.

Method. The study included 7 males and mean age 30 ± 3, 7 The staff was assessed during the preparation period, where they underwent a spirometry test using a treadmill (model treadmill) with MedGraphics gas analyzer (VO2000 ™), using the Bruce protocol. The AT was determined by visual inspection method of ventilation curve. 

Results: There was the average of the following variables: body weight 84.3 ± 9.6 kg, height 172.5 ± 3.3 cm, maximum oxygen consumption (VO2max) 39.7 ± 10.3 ml / kg / min oxygen consumption at anaerobic threshold (VO2LA) 24.3 ± 7.3 ml / kg / min, which showed that the participants reached the anaerobic threshold to 67.3% considering their maximum values obtained during progressive exercise test.

Conclusions: It is concluded that the anaerobic threshold of Muay Thai practitioners evaluated in the study corresponds to 67.3% of VO2max, being an important intensity control parameter in physical training. However points out the need of the use of cardiorespiratory evaluation protocols that can better meet the specificity of sport."
Analysis of anxiety during the competitive compared with a joint training day in athletes of high yield gymnastics artistic

Sport psychology
"Matheus Josino de Matos, Christiane Brito, Cristina Costa Silva, Paloma Maria da Costa Batista, Daniele Tavares Martins-Meneses"
"University Santa Cecília, University Santa Cecília, University Santa Cecília, University Santa Cecília, Federal University of São Paulo"
"BR, BR, BR, BR, BR"

**Background:** The Artistic Gymnastics is a sport that combines elements that defy gravity aimed at perfection in every gesture engine. The Artistic Gymnastics female consists of four sets: jump on the table, uneven bars, balance beam and floor. It is an individual sport and collective, where there is all the time the athletes are in great psychological pressure situation. According to studies, very high levels of anxiety can inhibit athletic performance and can distort the perception of the athlete, causing erroneous and damaging reactions in times of concentration and decision making. The objective of the study is to compare the level of anxiety in competition with a common day of training in a group of Artistic Gymnastics athletes from the city of Santos.

**Methods:** The sample consisted of 9 athletes Artistic Gymnastics the high-yield team aged 7 and 14, belonging to Brazil Football Club, located in the city of Santos / São Paulo. Two questionnaires were used, the questionnaire “Sport Competition Anxiety Test” - SCAT to assess the trait anxiety level (evaluates how the athlete is out of competition, personal characteristics of the individual as it is in everyday life) and “Competitive Anxiety inventory- 2 CSAI II (evaluates the anxiety-state, which is the temporary emotional state) which is divided into three subscales: somatic anxiety (happens from one moment to another, being perceived by physiological reactions), cognitive anxiety (assesses the degree where the person concerned or have negative thoughts) and self-confidence. For processing and analysis of data, the Shapiro-Wilk test was used to analyze the normality of the data and the T-Student test to compare the data.

**Results:** The athletes evaluated in this study showed a high level of trait anxiety (100%). The results in anxiety-cognitive state, were classified as low-level anxiety on a typical day training (17 ± 2, 12) and competition were classified as anxiety high level (28.33 ± 3.87), the state-anxiety somatic were classified as low-level anxiety in an average day training (16.44 ± 2.78) and competition were classified
as anxiety average level (24.66 ± 2.78) and self-confidence were classified as self-confident middle level an average day (23 ± 4.27) and competition were classified as self-confidence low (15.55 ± 3.67).

Conclusions: We concluded that the level of anxiety state of the athletes is higher in Competition compared with a common day of training."
Analysis of Coefficient of Friction Patterns in Gait and Running: a preliminary study.

Andrea Brugnoli Vidal, Lucas Antônio Monezi, Ricardo Machado Leite de Barros

Faculdade de Educação Física-UNICAMP, Faculdade de Educação Física-UNICAMP, Faculdade de Educação Física-UNICAMP

BR, BR, BR

Background:
The friction plays an important role in human motion, either in gait and running. The characterization of Coefficient of Friction (COF) through the recognition of a pattern can help an essential background to motion analysis of the athletes' performance. The aim of this study was to obtain a preliminary analysis of coefficient of friction patterns in gait and running. Therefore, this analysis focuses on the coefficient of friction (RCOF) that is typically characterized by one or two peaks. Mainly, the first peak occurs at the end of the loading phase (after 5% of stance) as full body weight is transferred to the supporting foot, while the second peak occurs later in stance (after 90% of stance) just prior to the beginning of the toe-off phase.

Methods:
The Research Ethics Committee of the University of Campinas approved this study (No. 1.552.726). The participants were: 10 adults (20-35 years), both genders, without osteoarticular disease or injuries that have left consequences for any movement. Participants performed 3, valid trials on the force plates of both motions using footwear at self-selected speed. To acquire the data a Ground Reaction Force (Kistler Mod. 9286) and the acquisition was performed using BioWare software (Version 4.0.x). Kinetic raw data were filtered using a 2nd order low-pass digital Butterworth filter with a cut-off frequency of 10 Hz. Afterwards was held a cut for interest phase (stance), Fz > 20 N, based on the literature. Finally, it was necessary to transform Fx, Fy, Fz and |COFxy| cycle percentage from the stance phase for analysis. The |COFxy| is calculated by dividing the horizontal components of the GRF, by the vertical component at the same instant. One or two peaks of the local maximum values in the |COFxy| during the stance-phase are identified as the RCOF. The way that runners landed the foot on the ground affects the contact angle, thus directly influences the RCOF1. This is followed by peak 2 under which the foot has a tendency to push backward according to Blanchette et al. (2011).

Results:
The preliminary results were presented as mean and standard deviation of the follow variables: the $|\text{COF}_{xy}|$ magnitude at RCOF1 and RCOF2, and, their percentage occurrence in the stance-phase at RCOF1 and RCOF2, considering running and gait conditions. In the gait, RCOF1 and RCOF2 could be determined in all participants. For RCOF1 showed a mean of 0.18 (±0.03) occurring in 17.80% (±1.99%) of stance-phase. In case of the RCOF2 showed a mean of 0.38 (±0.12), occurring in 97.2% (±2.7%). The running results for the 10 participants were: mean of RCOF1 was 0.21 (±0.14) occurring in 20.59% (±13.5%), and, the RCOF2 was 0.57 (±0.29) occurring in 97.3% (±28.6%).

**Discussion:**
The pattern expected with RCOF1 and RCOF2 in the gait was not found for whole data, some of participants did not presented one of those peaks. However, these moments of RCOF were more frequent in gait than running, furthermore, RCOF2 seems not appear in running for this preliminary data. In spite of this, the variability showed to be lower, either in $|\text{COF}_{xy}|$ as in occurrence percentage at stance phase.
POSTER PRESENTATION

ANALYSIS OF DEMATOGLYPGICS PROFILES IN STUDENTS SUBMITTED TO LOWER MEMBERS TEST OF POWER

Genetics and sport

"Tadeu Cardoso de Almeida, Amir Horiquini Barbosa"

"Centro Universitário da Fundação Educacional de Barretos - UNIFEB - SP, Faculdade de Ciências Farmacêuticas de Ribeirão Preto – FCFRP-USP"

"BR, BR"

“Introduction

During the motor development, a several physic and mechanic changes occur and the physical growth factors, maturation, development of physical fitness, physical activity, age and experience are all interrelated. Changes are represented by changes in somatomotor characteristics of the individual that in different aspects related to the performance of physical fitness.

Studies suggest genetic predisposition from the analysis of the dermatoglyphics characteristics of individuals, according to the similarity of fingerprints. The shape of digital lines originates embryologically derived from the outermost germ cell layer, the ectoderm. Fingerprints represent universal genetic markers, and can represent certain ethnic and population pattern.

The performance between genders is considered essential for the professionals in the fields aimed at understanding human movement, such as the Motor Development. In this sense, studies are necessary to investigate the physical fitness related to the motor development of children and adolescents. The purpose of this work is to find a Dermatoglyphic pattern associated with physical fitness in horizontal power test.

Methodology

This study included 78 students, 43 male and 35 female, mean age 8.2 ± 0.5. We used the horizontal jump test to analyze horizontal power test, which consists of starting from the standing position behind a line marked on the ground, with parallel feet and jump as far as possible, with swinging of the arms and bending of the knees to provide forward drive. All subjects had detailed explanations of the tests and had previous experience with the procedures prior to testing.

The test of Dermatoglyphics obtained fingerprints, and the row count was made by drawing a line, which combines the geometric center of each delta of the nuclear system. This count does not include lines representing the centers of the nuclear system and delta. Is only part of the count the loops and whorls.
**Results**

The predominant digital design for both groups was L> W, which focuses on 32.62% of boys and 37.18% for girls. For 10P formula it was observed that boys performed better in the horizontal power test with an average of 1.37 ± 0.26 m, and the girls ALW design performed better in tests with 1.24 ± 0.06 m.

However, no significant statistical difference (p> 0.05) between two groups was presented.

**Conclusion**

Despite the differences between the digital drawings with the patterns 10P and ALW, the Loop (L) format is present in both types of students who were better in the horizontal power test.
POSTER PRESENTATION

ANALYSIS OF MUSCLE STRENGTH PRODUCED BY OPEN WATER SWIMMERS AS ESTIMATED BY DIFFERENT MEASURING INSTRUMENTS

Physical activity and health

"Rodrigo Pereira, Fabrício Madureira, Marcia Luz, Edson Torres, Dilmar Pinto Guedes Jr, Victor Zuniga Dourado"

"Universidade Metropolitana de Santos/Physical Education College of Santos, Universidade Metropolitana de Santos/Physical Education College of Santos, Universidade Metropolitana de Santos/Physical Education College of Santos, Universidade Metropolitana de Santos/Physical Education College of Santos, Universidade Metropolitana de Santos/Physical Education College of Santos"

"BR, BR, BR, BR, BR"

"Background: Isokinetic dynamometer is currently regarded as the gold standard for evaluating muscle function, however, its application by coaches and athletes is still limited on account of its high cost. Tests should be made with more affordable alternatives for evaluating muscle function in order to identify potential tools that would enable collecting robust information about the strength produced by swimmers. Objective: To describe muscle strength in open water swimmers as estimated by different measuring instruments.

Methods: A total of 14 recreational swimmers who participate in open water competitions (mean age 36 ± 10.2 years, height 172.3 ± 7.8, total body mass 76.6 ± 11.9, body fat percentage 17.6 ± 6.0, fat weight 13.4 ± 4.8, lean weight 63.2 ± 11.0. Muscle function was assessed in the following devices: isokinetic dynamometer (Biodex, Lumex Inc., Ronkonkoma, NY), where participants underwent 3000/s tests measuring average peak torque for a set of 30 repetitions of the elbow extension; The second test was handgrip strength using a hydraulic dynamometer (Jamar®), with 3 attempts with 30-second intervals between them. Highest value obtained was recorded for data analysis. The third device was a Xingu Sporting® sphygmomanometer which swimmers used during crawl stroke at full speed for 15 seconds with an interval of two minutes in the following ways: front crawl full strokes and front crawl unilateral strokes. Description of variables was used for data analysis, followed by Pearson correlation coefficient for detecting the magnitude of the relationship between the three strength measuring instruments used by swimmers. The accepted level of significance was ≤ 0.05."
Results: The isokinetic dynamometer indicated that the strength applied by swimmers in Newton/meter (N/m) was: right arm (bd) 38.64 ± 14.3; left arm (be) 36.48 ± 12.24. Handgrip dynamometer readings in Kilos (kg) showed that the strength produced was as follows: bd 41.08 ± 12.99 and be 40.18 ± 10.49. In the sphygmomanometer in a given swimming situation, the strength applied in Kilos (Kg) was bd 10, 50 ± 3.70 and be 10.88 ± 4.33; in full stroke: 18.10 ± 4.33. Intertest correlation coefficient for the right arm indicated: isokinetic dynamometer/handgrip - r 0.647 (p = 0.05); isokinetic dynamometer/sphygmomanometer r 0.808 (p = 0.01); isokinetic dynamometer/full crawl swimming r 0.952 (p = 0.01); handgrip/sphygmomanometer r 0.577 (p = 0.05); handgrip/full swimming r 0.772 (p = 0.01); sphygmomanometer/full swimming r 0.812 (p = 0.01). For the left arm were identified: isokinetic dynamometer/handgrip r 0.853 (p = 0.01); isokinetic dynamometer/sphygmomanometer r 0.909 (p = 0.01); isokinetic dynamometer/full crawl swimming r 0.902 (p = 0.01); handgrip/sphygmomanometer r 0.782 (p = 0.01); handgrip/full swimming r 0.856 (p = 0.01); sphygmomanometer/full swimming r 0.958 (p = 0.01).

Conclusions: Results of the study sample indicated that the two low-cost instruments showed to be reliable for measuring the muscle strength of open water swimmers when compared to the gold standard in the isokinetic evaluation."
Analysis of Predisposing and Behavioral Factors of Metabolic Syndrome in Individuals Elderly

Jacarezinho – PR

Sport and quality of life for adolescence and aging


"University Center of Votuporanga – SP, State University of Londrina – PR, State University of North of Paraná – Jacarezinho – PR, State University of Roraima – RR., University Center of Votuporanga – SP"

"BR, BR, BR, BR, BR"

“Introduction: Metabolic syndrome is the combination of three risks: abdominal obesity, hypertension, hyperglycemia, insulin resistance and dyslipidemia, which predispose the individual to cardiovascular risks (AL-EISA et al, 2016). It is related to behavioral factors such as physical activity, tobacco and alcohol associated with anatomical and functional changes resulting from the aging contribute to accentuation of this syndrome (DE ROOIJ et al, 2016).

Objective: To identify the prevalence of MS associated with behavioral factors in a population sample from the city of Jacarezinho-PR.

Methods: We collected information regarding the practice of physical activity, use of tobacco and alcohol, anthropometric measurements, blood pressure, plasma lipid measurements and blood glucose, from a descriptive survey of cross-section of 37 males with a mean age and deviation standard of 65.3 ± 2.3, seeking the services of the municipal clinical laboratory Jacarezinho-PR. All agreed to participate in the study and signed a consent form. Statistical analysis was done using computerized package Statistical Package for Social Sciences (SPSS) version 17.0.

Results: Of all patients, 73% had changed three risk factors, and glucose (89.5%) the most prevalent, followed by a decrease in HDL-C (83.3%). The most prevalent behavioral factor among syndromic individuals were smoking (73.3%), alcohol consumption (55.9%) and lack of physical activity (52.0%) respectively. Conclusion: It can be seen that the metabolic syndrome was present in more than half the sample (73%), and the most prevalent risk factors were to glucose changes and decreased HDL-C. Smoking was the most prevalent behavioral factor in syndromic individuals, reinforcing the importance of preventive approaches and healthy lifestyle habits.

Key words: Metabolic syndrome, Risk factors, Behavioral factors."
Analysis of Serratus Anterior on Shoulder Instability

Monique Oliveira Baptista Cajueiro, Paulo Carrara, Luis Mochizuki

School of Arts, Science and Humanities, University of São Paulo, School of Physical Education and Sport, University of São Paulo, School of Arts, Science and Humanities, University of São Paulo

Background: Although recently it have been shown that shoulder disorders are the third most common musculoskeletal condition in sports, little is understood about the mechanisms and major muscle patterns that can cause these disorders during tasks of the upper limbs. The abnormal cinematics caused by change in the activation of serratus anterior (SA) and upper trapezius (UT) are evidenced as the responsible to generate shoulder instability during arm lifting, also reducing the subacromial space. The SA is the main stabilizer of the scapula and to a scapular-humeral rhythm healthy it is of paramount importance, because there must be a complete interaction between the humerus and the scapula to achieve large upper limb degrees of motion. However, if this interaction do not occurs, there is risk of structures involved in the shoulder complex, what can lead to development of injuries and pathologies, mainly in athletes. Therefore, the objective of this review is to compare the pattern of SA muscle activation in disorders involving the shoulder complex.

Methods: The instructional guidelines PRISMA (Prefered Reporting Items for Systematic Reviews and Meta-analysis) were followed. The eligibility criteria adopted in accordance with the PICO (patient, intervention, comparison and outcome) Methodology and the keywords selected from these combinations were: Shoulder pain, Shoulder Impingement Syndrome, Frozen Shoulder, Shoulder Bursitis, Shoulder instability, Glenohumeral instability, Shoulder Dislocation, Massive Rotator Cuff Tear, Cervical Disorders, electromyography, healthy subjects, asymptomatic subjects, pain free shoulder, scapulathoracic, scapular, serratus anterior muscle, muscle recruitment, muscle activity, muscle activation. Afterwards, the remaining articles were screened on abstract and the remaining articles have been through selection by methodological quality analysis proposed by CENTRAL COUNSELING INSTITUTION website: https://www.guidelinecentral.com/library/quality-measures/. This search was applied to Pubmed and Virtual Health Library, and included articles from 1996 till December 2015, written in English.

Results: The results demonstrate that from the 18 articles selected, in 11 an abnormal activity of the SA was found and 7 have shown equal between patients and controls. In 7 studies it was found a lower
muscle activity of SA during tasks of upper limb, other 2 studies found a delay in SA activation, 1 study showing increased activity and 1 that demonstrates an anticipation disabling muscle during lowering arm phase. In contrast, 5 studies found no significant difference in muscle activation between patients and controls, and other 3 who found no significant difference related to the previous SA activation time between patients and controls.

**Conclusions:** Although the results of this systematic review have shown a tendency to abnormal activity of SA in upper limb tasks in individuals with disorders in the shoulder complex, we can’t reach a consensus on the real role of the SA as the main muscle shoulder complex stabilizer. However, it is clear the importance of a proper muscle pattern for upper limb tasks and sport activities."
POSTER PRESENTATION

ANALYSIS OF STRESS AND RECOVERY LEVELS IN VOLLEYBALL PLAYERS

Sport psychology
"MARINA B. P. VIDUAL, PAULA T. FERNANDES"
"UNICAMP, UNICAMP"
"BR, BR"

"Background: Routine training and competitions submit athletes constantly stressor agents that can influence the sports performance. The aim of this study was to describe the levels of stress and recovery in volleyball players, as well as describe the situations of training/competition considered as responsible for anxiety and stress.

Methods: We evaluated 18 female volleyball players of a team from the interior of São Paulo state (mean age of 15, 67(±0, 97) years). The following instruments were used: Stress Questionnaire and Recovery for Athletes (RESTQ-76 SPORT); Identification questions (age, sports practice) and a questionnaire specifically designed for the study with 21 questions, in which subjects were asked to point out the situations that most left them anxious or nervous during their practice. A descriptive analysis was made of demographic data, the questionnaire and the scores of subscales RESTQ-76 SPORT.

Results: Athletes considered most stressful the following situations: errors early in the match or training (83.33%), errors at the end of the match or training (66.67%) and poor performance in training (66.67%). The subscales of RESTQ-76 SPORT with the highest averages were: Social Relaxation (4.87), General Well-being (4.53) and Self-Regulation (4.05), all of these subscales related to the recovery process. The subscales with lowest averages were: Emotional Exhaustion (1.10), General Stress (1.32) and Disturbed Breaks (1.32).

Conclusions: Whereas high scores of stress subscales reflect intense subjective effort and high scores in the recovery subscales reflect large amount of recuperative activities, it was observed that the team has good levels of stress and recovery, as your stress levels were low and recovery levels were high. Even the modality featuring high demands, this team showed low stress and high recovery, noting that the group can have efficient strategies of coping with stress and at the same time appropriate recovery situations."
POSTER PRESENTATION

ANALYSIS OF SUPPORT INFRASTRUCTURE AND COPING SKILLS AMONG INDIAN SPORTSPERSONS

Sport psychology
"Dr ANIL RAMACHANDRAN Dr. JAYARAJAN DAVID"
"KANNUR UNIVERSITY, COLLEGE OF ENGINEERING"
"IN, IN"

Background:
Moderator variables, characteristics of persons or their environments make individuals more or less vulnerable to the negative effects of stressful life events. Very little research has examined how Indian athletes manage or cope with stressful experiences and the influence of support factors that positively or negatively influence the athletes coping skills. The present study was an attempt to analyze support infrastructure and coping skills among Indian sports persons.

Methods:
The participants for the study included 216 national level sportspersons (126 male and 90 female) belonging to the following sports disciplines. The participants had been playing at the national and international level in their respective sport. The support infrastructure was assessed using the Multidimensional Scale of Perceived Social Support (MSPSS) by Zimet et. Al (1988); and coping style was assessed by Athletic Coping Style Inventory (ASCI-28) by Smith et al (1995). To data were analyzed using t-test, correlation, analysis of variance and Scheffe’s post hoc test.

Results:
The results indicated that female sportspersons showed significantly higher values for goal setting and mental preparation; whereas male sportspersons. Sportspersons belonging to individual sports showed significantly higher scores on goal setting; mental preparation; concentration; confidence and achievement motivation; and coachability, whereas sportspersons belonging to team sports showed higher values on freedom from worry. Sportspersons belonging to badminton and swimming showed higher values for family sub factor of support infrastructure as compared to sportspersons of other sports. Support infrastructure sub variables showed significant relationship to personal coping resources of the sportspersons.

Conclusions:
The study results provide insights to interactional model of coping of Indian sportspersons, where their coping styles and strategies are functional to both personal and situational factors. The results warrant
the need for developing or refining support infrastructure mechanisms across sports disciplines for Indian sportspersons.”
Analysis of the tracking test result of the basic physical quality of the heavy athletics in Shenzhen Sports School

Physical activity and health

"She Junbiao, Dai Yixin, Zen Guangping, Chen Zhiqing, Wang Hong"

"Shenzhen Sports of School, Shenzhen Sports of School, Shenzhen Sports of School, Shenzhen Sports of School, Shenzhen Sports of School"

"CN, CN, CN, CN, CN"

“Background: We track observation is in the physical growth of school sports heavy athletics athletes physical quality of the changes in the characteristics of the training year growth. And control of the score standard of middle school students sports test and middle school students score.

Methods: According to the characteristics of the basic quality of the body and with reference to the National Youth Olympic projects, the syllabus and athletes selecting criteria, determine the 100 meters, 800 meters, standing long jump, 30 seconds push-ups and 30 seconds sit-ups of the five basic physical test content for athletes, a total of four times of Shenzhen Sports School students were tested. This research specially chose school heavy athletics sports: wrestling, judo, taekwondo and boxing, four teams of male and female athletes as the research object, athletes born age 1998 years, the number of the teams were at about 20 people, statistical analysis of the results and the test scores compared with the same years of Shenzhen ordinary middle school mid-term exam sports the same exam content of scoring criteria.

Results: 1. Except push-ups a test project, the project teams has a significant difference the other four physical quality test results are close to, sports men and women players in the physical quality of 100 meters, 800 meters, standing long jump, 30’s sit-ups test score four times two years on average, the result is: 100 meters(in seconds): men’s 13"84±2"12, women’s 15"58±4"14; 800 meters(minutes): men’s 2’35”±15”, women’s 2’58”±25”; standing long jump: men’s 226.3±12.5(cm), women’s 226.3±12.5(cm); 30 seconds sit-ups: men’s 31.9±5(times), women’s 32.6±5(times). 2. Push-ups test score is between the project team of wrestling and judo, and taekwondo and boxing team test result is very close, respectively will be combined into a set of wrestling and judo, taekwondo and boxing push-ups as a set on average, 30 seconds push-ups four times two years test grade point average(time): men’s: wrestling and judo:50.3±8.5 times, taekwondo and boxing:43.6±6.3 times, women’s: wrestling and judo: 45.7±7.5 times, taekwondo and boxing:32.4±5.3 times. 3. Shenzhen ordinary middle school mid-term exam sports in junior high school students choose exam content and the same in the present study, 800 meters,
standing long jump, sit-ups, the control standard of examination scores of the three scores is at 100 points, 75 points, 100 points or so

**Conclusion:** 1. Wrestling, judo, taekwondo, boxing four heavy sports men and women players of the five basic physical quality tests in addition to the push-ups are different, the other four 100 meters, 800 meters, standing long jump, 30 seconds of sit-ups test scores were similar, wrestling and judo team athletes both men and women, push-ups scores were significantly better than the taekwondo and boxing team. 2. Four heavy athletics athletes in four times two years of physical fitness test results are close, improvements that athletes’ physical qualities are not very obvious. 3. The same Basic physical of Shenzhen Sports School heavy athletics athletes and ordinary high school students in Shenzhen.”
POSTER PRESENTATION

Analysis of various events and Chinese disabled three bike teams competitive strength and status contrast

Elite performance
Fujuan
Chinese paralympic management center
CN

“Background:
Rio 2016 Paralympic Games will begin preparing, cycling guidebook qualifications prescribed in each country or region Paralympics receive up to 21 places for the competition, male-no more than 14 athletes, female athletes-no more than seven people (including representing a tandem bicycle places). As of October 22, 2015, China has won three male and four female individual, a total of seven places for the competition. 2012 London Paralympic Games, our country sent eight athletes (including two wildcard) competition, won 6 gold, 4 silver and 5 bronze. A number of the same Rio Paralympic Games in London, a total of 50 items. 2015, respectively, participated in the venue and the road cycling world championships- the Japanese cup, have achieved good results, to obtain a certain score. To better prepare for the Olympic Games, to achieve the desired results. In this paper, the China Disabled Persons' cycling team of the tournament is in recent years the world rankings and members of the state to carry on the analysis, and the main rivals to discuss the advantages and disadvantages, in order to the Chinese Cycling Team ability to provide reference.

Methods:
Literatures and statistics

Results:
1. the overall situation of the disabled bicycle team in China
2. field C2 men's 3 km individual race condition analysis
3. analysis on the state of the C2 class women's individual pursuit race in 3 place
4. field C1 men's 3 km individual race condition analysis
5. field C4 women's 500 meters individual timing race state analysis
6. field C4 women's 500 meters individual timing race state analysis
7. field C1 women's 500 meters individual timing race state analysis
8. Status analysis of C2 women's 500 meter race at the venue
9. site mixed team racing season ranked and state analysis
Conclusions:
From the overall analysis of the Chinese team, the current team of disabled persons on their own overall age of the project team is too large, physical aspects of the players are the main disadvantage, the current players are in a stable state. Venue C2 man's 3 km individual chase, Columbia and Russia state has improved, the Chinese players are relatively stable. Site C2 level in the woman's individual pursuit race, the Dutch team score improved rapidly, and upward to the first, States members of the state is stable, powerful force, sprint and fast is the main advantage of the team, member of the Chinese team is injured at the restoration. Venue C1 man's 3 km individual chase race, China and Argentina are relatively stable and competitive status, Canada in all aspects of the upgrade faster, in a rising state. Venue C4 woman's 500 meters individual time race, China, Holland, Australia, are stable. Site C2 level woman's 500 meters time trial venue, the Netherlands, China, the competition is fierce, the Dutch in stable stage. China and the United States are in increasing in site mixed team racing season. China, Spain, Russia, in recent years, their competition results are little ups and downs, strength difference is tiny, so they will be the biggest surprise in the game in Rio 2016 Paralympic Games."
POSTER PRESENTATION

Analysis on Comprehensive Strength of Top 8 Teams in 2014 FIBA Basketball World Cup for Women in Turkey

Sport development
Rongji
Shenyang Sport University
CN

“Background:

In order to make quantities study on the comprehensive strength of top 8 teams in 2014 FIBA Basketball Women’s World Cup, this paper takes ages, heights, and technical statistics as the object.

Methods:
literature, game observation, statistics

Results:

To age’s statistics, we set mean, maximum, minimum, above 30, 25-29, below 20 as the main indexes, so as to analyze the age structure of 8 teams, and find which team is mature powerful and which team is young potential. To height, we set mean, maximum, minimum, above 190cm, 185cm to 189cm, below 180cm as main indexes, so as to analyze the height structure of 8 teams, and height distribution. To technical statistics, we choose basketball regular technical indicator, and analyze the different performance of top 8 teams.

The results show that 6 teams show the reasonable characteristics of the age structure except USA and China. USA and China have not realized the smooth succession. The age structure of USA has not replaced old players with new ones. The age structure of China shows rejuvenation of players. For height, the average height of China is 187.2 cm, the largest number in top 8 teams, and Spain is in the second place. Other teams, especially top 3 teams show different between inside and outside players. From table 3, every team takes different characteristics in defensive and offensive performance. USA is the most powerful team which is reflected by all indexes. Spain is an aggressive team which can be seen by steal, defensive rebound, and also it used to quick attack that is reflected by 15.7 offensive rebounds. Australia shows solid basic skills for shot, and strong self-confidence, and it has higher data in rebounds, assists, steals, blocks, etc, but fewer turnovers, therefore Australia’s overall strength is a well-trained team. Turkey has strong defensive ability which is showed by less loss. Canada is a slow rate team with powerful defensive ability, but it has no obvious characteristic on offense. France is also a slow rate team with less PM, more PA and TO. Serbia has variety plays which showed by fast rate
attack, more PA and PM, and fewer turnovers, but it has some disadvantages, including less rebounds and assists.

**Conclusions:**

The overall teams development trend shows younger, taller, speed, agility; offense play favored aggressive, quick shot, outside drive and 3 point shot, pick and roll, and personal attack; defense attaches great importance to the integrity, aggressive in half-court man-to-man defense."
POSTER PRESENTATION

Analysis on Development Predicament of China Golf

Sport development
Wang Meng
Physical Education College of Zhengzhou University
CN

“Background:
As an elegant sport, golf has formed particular sports culture phenomenon and social phenomenon after 3 decades of development in China (take the first standard 18-hole golf course in 1984 as the china golf origin): (1) the amounts of standard 18-hole golf courses increased from almost 100 in 2004 to more than 600 in 2014 with the injunction of Chinese government; (2) golf is called “noble sport” in China and the hitting price for a round hold at high price. But the whole rounds for hitting are steadily increase year by year; (3) golf insiders speak highly of the China golf development, but the social public has the negative comment ;(4) a characteristic social phenomenon, golf is combined with ‘corruption’ ;(5) the golf related industry develop rapidly, such as golf education, training, sports events, elite players, media etc.

Methods:
The above description signifies china golf had got great advancement, and it also suffered enormous problems. Especially under the Chinese government take a series of high pressure measures from 2014, China’s golf industry is experiencing a ‘cold snap’. What’s wrong with current predicament of china golf? The research analysis it in depth with the methods of documentation, questionnaires, interviews with experts and logical analysis.

Results:
(1)The core dominant lead is the nongovernmental sectors since creation of china golf to the present. It is completely different from other sports in china. Most of them are administrated by the government; (2)The management mode & principles between nongovernmental sectors and Government management are totally different. In this way, it produces a special china golf current situation that golf insiders’ grievance and government’s high-handed policy. The marketing depend development idea not only achieved a not bad results, but also got a huge negative effects to golf and Chinese society. The courses and luxury clubs of high standard and consumption block the middle class out. The practical status that golf services for minority group easily sustains yawp from mainstream social media;
(3) A key controlling factor for golf is courses. In China, it means land. While land in China under the current management system is an absolute state-owned. China Ministry of Land and Resources had issued documents about forbid providing land to golf with other national ministries and commissions since 2004. It can be speculated that there are corruptions in the golf courses construction. As widespread corruption is exposed, it seriously constrained the development of China golf.

**Conclusions:**

In essence, the core restricted factors for China golf development is nongovernmental governance deviates from government management. In another word, social requirements and the government’s did not match with each other. How to make the social requirements match the government’s, how to let nongovernmental governance correspond with government management are the new proposition or the China golf researchers, administrators and impellers."
POSTER PRESENTATION

Analysis on the factors of Deteriorating Condition of College Students’ Habitus in China and its Countermeasures

Sport pedagogy

"Chunsheng WANG, Hong JIA"

"Guangdong University of Finance, Hunan Normal University"

"CN, CN"

“Background:

“The National Habitus Monitoring Bulletin in 2014” and “College Students’ Habitus in China in 2014 survey results” show that, despite of the overall improvement of citizens’ physical habitus, the Chinese college students' habitus continues to decline. The fact leads to people’s great concern because as we all recognize, this particular group is shouldering the responsibilities of developing our country, the health condition of which, has a matter with China’s future development and prosperity. This paper attempts to analyze the deep-rooted factors of the college students’ deteriorating habitus and then tries to figure out effective countermeasures to improve the current situation.

Methods:

Interviews, questionnaires, literature review, survey

Results:

The factors of deteriorating habitus can be summarized as follows: first and foremost, the lack of goal and guideline for college students and the consequent lack of top-level design are the most important factors; second, the design of physical education courses do not match with the reality of students’ physical status and the teaching methods are not varied; third, students spend less than enough time on engaging in extra-curriculum physical activities; fourth, there is a lack of scientific assessment system for teachers and some PE teachers are not so responsible; fifth, there is a lack of infrastructure and facilities for students. Under such circumstances, it is no wonder that students’ habitus are worsening every year.

Conclusions:

Based on the authors’ first-hand teaching experience and survey results, this paper puts forward the following countermeasures to improve the situation. First, sound top-level design and plan for the PE courses are required: relevant national and local departments should design both the teaching and assessment system carefully. Second, the quality of PE course should be improved: scientific assessment for both teachers and students are necessary to monitor the quality of physical education.
Third, students should have a better access to varied choices for PE courses. Fourth, students should be encouraged to have the awareness to stay healthy and find time to do exercise regularly."
POSTER PRESENTATION

Anthropometric Profile for Route Difficulty Climbers and Bouldering Climbers is different?

Elite performance

"Patricia Guimarães, Juliana Exel, Ricardo Berton, Rafael Piunti, Junior Moriggi, Romulo Bertuzzi, Arthur Gáspari"

"State University of Campinas, University of São Paulo, State University of Campinas, State University of Campinas, State University of Campinas, University of São Paulo, State University of Campinas"

"BR, BR, BR, BR, BR, BR, BR"

"Background: Sport climbing is the new indicated sport for the Olympic Games in Tokyo 2020 and its comprehension and characterization is an eminent need. Sport Climbing can be divided into two courses. The Route Difficulty (RD) is practiced in long walls using ropes for safety, and the goal is to reach the top without any falls. This type of climbing is characterized by greater duration and moderate intensity and the athlete to perform small moments of active rest during your climb. In competitions, the RD athletes attempt to perform an established route that is unprecedented. Bouldering (BD) is practiced in small and undertaken without ropes, with landing mats to ensure safety. This type of climbing is characterized by shorter duration and high intensity and does not allow moments of active rest during your climb. In BD competitions, climbers attempt to top unprecedented problems and may make several attempts to complete the route within 4 minutes each. Thus, as the performance demands differs among each type of climbing, physical, technical and tactical features may also be specific as function of the type of climbing and should be described accordingly. Thus, the aim of this study is to compare anthropometric variables between RD and BD climbers. We hypothesize that the anthropometric profile may differ between each type of climber.

Methods: The measures were performed in the male athletes participating the Brazilian RD and BD Championships. We assessed 22 of the 23 RD competitors (age 28.0 ± 6.0; time climbing 10.0 ± 4.6) and 15 of the 29 BD competitors (age 25.0±6.1; time climbing 7.3 ± 4.3). The body composition variables were assessed using electrical bioimpedance quadrupole scale (Beurer BF-100®). The athletes were instructed to be bladder empty before the collections. To measure their height, arm and forearm circumference we used a portable estadiometer and a measuring tape fixed on the wall, respectively. After testing data normality using Lilliefors test, all variables were compared as function of the type of climbing using Wilcoxon rank sum test, with P ≤ 0, 05.

Results: We observed a tendency to significant differences for percentage of lean body mass (RD 46.7±3.3 vs BD 48.3±10.1 P= 0.06) and percentage of body fat (RD 9.7 ± 2.9 % vs BD 8.0 ± 2.2 % P=
No differences were found for weight (RD 64.5 ± 8.0 kg vs BD 63.3 ± 7.6 kg), height (RD 174.6 ± 6.8 cm vs BD 172.1 ± 6.5 cm), index body mass (RD 20.8 ± 1.6 vs BD 21.2 ± 1.5), arm (RD 31.9 ± 2.1 cm vs BD 30.9 ± 3.5 cm) and forearm circumferences (RD 27.4 ± 1.6 cm vs BD 28.3 ± 2.4 cm).

**Conclusions:** We conclude that bouldering and difficulty route Brazilian athletes do not show significant differences in anthropometric characteristics but bouldering athletes tend to have higher lean body mass.
Background: Futsal is physiologically characterized as an intermittent activity and high intensity. Therefore, it is essential to analyze the body composition of athletes, as well as tests related to physical ability to analyze the physical condition of the same training protocol and application focused on performance and muscle prevention. In adult athletes, there are anthropometric and physical abilities differences according to tactical positions on the court, but it is not clear under-16 category athletes. The aim of this study was to evaluate the anthropometric profile, body composition and physical fitness of futsal athletes (under-16) according to the different tactical positions in the preseason.

Methods: The study included 31 athletes from the U-16 futsal category, participants of Paulista futsal championship. The average age of the players was 14.83 ± 0.65 years, height is 1.68 ± 0.07m and body mass 60.80 ± 9.00kg. These were divided into 4 different groups according to their positions: goalkeeper, fixed, wing and pivot. A scale was used (BODY - 923 bipolar - Oxer®) to assess the percentage of lean mass and fat mass. Height was measured by stadiometer (Sanny®), as well as the measurements of trunk circumference, waist and hip by tape measure. Tests were conducted to evaluate the maximum speed of 5 and 30 meters, Illinois protocol was used to evaluate agility. To evaluate the flexibility was used PROESP-Brazil protocol in addition to horizontal impulsion and core stability. Assessments were made in the presentation of the players for the Championship of Paulista Federation of Futsal and were carried out under conditions of privacy, adequate lighting and temperature. For the treatment of the data was used Statistica 12 program to obtain averages and standard followed by the comparison test differences between groups adopting the significance level of $p \leq 0.05$.

Results: The results showed no significant differences in the variables between the different tactical positions, except for the maximum speed at 30m between goalkeepers and wings ($4.46 \pm 0.49 \times 4.13 \pm 0.17$, $p = 0.05$).
Conclusions: These results indicate that anthropometric parameters, body composition and physical abilities do not differ in relation to different positions for futsal players of U-16 category in the pre-season, except for speed at 30m."
POSTER PRESENTATION

Anxiety and Self-Confidence in College Athletes Simulating Disabilities in Competitive Situations in Adapted Sports: a Case Report

Sport psychology

"RUBENS VENDITTI JUNIOR, GABRIEL MARTINS, JOSÉ VINÍCIUS BONFIM, JANILE CRISTINE CARVALHO, MATHEUS BELIZARÍO BRITO"

"SÃO PAULO STATE UNIVERSITY JULIO DE MESQUITA FILHO- UNESP CAMPUS BAURU, SÃO PAULO STATE UNIVERSITY JULIO DE MESQUITA FILHO- UNESP CAMPUS BAURU, SÃO PAULO STATE UNIVERSITY JULIO DE MESQUITA FILHO- UNESP CAMPUS BAURU, SÃO PAULO STATE UNIVERSITY JULIO DE MESQUITA FILHO- UNESP CAMPUS BAURU, SÃO PAULO STATE UNIVERSITY JULIO DE MESQUITA FILHO- UNESP CAMPUS BAURU"

"BR, BR, BR, BR, BR"

"Background: Sport Psychology is a new area in Adapted Sports (AS) with relevant importance in training athletes because the psychological preparation to competitions provides possibilities of overcoming the restrictions imposed by disabilities. Two of the psychological studies objects are anxiety and self-confidence. Anxiety is a personal emotional doubt and fear about ability to cope with stress situation. Self-confidence is a personal belief that people can perform successfully in a particular task. To understand how this relationship affects the handicapped athlete’s behavior and performance in sports situations becomes really relevant.

Methods: This study was developed in discipline “Advanced Seminars of Research in Adapted Sports Pedagogy (ASP)” and its aim was to investigate the relationship between these constructs in college athletes in an experimental simulated situation of AS. Study participants were 15 young adults (6 women and 9 men), between 18 and 27 years (20 ± 2.16 years). All participants are college athletes from Unesp of Bauru, São Paulo State, in Brazil. For data collection, there was a simulation of a competitive situation where subjects had played Goalball (Paralympic Sport). To measure trait-anxiety was used Sport Competition Anxiety Test (SCAT) and for state-anxiety was used Inventory Competitive Anxiety State (CSAI-II). The first test has a scale Likert of 3 points with score between 10 to 30; while the second test has a scale of 4 points with score between 9 to 36 points.

Results: Participants were classified into five groups according to their scores for each test: low (L); medial low (ML); medial (M); medial high (MH); High (H) averages; the total goal each test was divided in five groups; this way we had obtained the classification for both tests. Most of the participants (11), either to presented cognitive and somatic anxiety as well for trait anxiety, had shown their scores...
classified with L and ML average; the last 4 individuals presented M average. Therefore, to self-confidence construct, the subjects were classified as M average (8) and as MH and H average (7). The results indicated that most of the participants had low anxiety and high self-confidence, even in a Paralympic sport never experienced for them. This may have been caused by many experiences of these participants in sporting situations in other sports.

**Conclusions:** We had concluded that the higher self-confidence of the college athlete, the lower is his anxiety, causing an adequate motor and psychological performance during competitive situations, even that in a simulated experience as this way of analysis. We’d like to observe that this experiment was very important for the discussions in this discipline and can be developed for more extended reflections about Adapted Sports Pedagogy and Teaching in ASP. The students at this study also related about the mechanisms of emotional control and their influence at sportive performance. Adaptations and learning strategies are highlighted at their reports, bringing the discussion about acting, teaching and motivational aspects when we are working with Sports Initiation and Handicapped People.
Are 10 individual disciplines = decathlon?! New empirical findings on an old problem

Sport development

"Michael Fröhlich, Freya Gassmann, Eike Emrich"
"University of Kaiserslautern, Saarland University, Saarland University"
"DE, DE, DE"

“Background: Olympic decathlon comprises the results of ten individual performances. The normative transformation of the performance in the ten disciplines from seconds, centimeters, and meters into points, however, has been analyzed and shows that the individual disciplines do not equally affect the overall competition result (Fröhlich, Gassmann, & Emrich, 2015).

Methods: Data analysis was based on the data recorded for the individual performances of the 10 winning decathletes in the World Athletics Championships from 1987 to 2015 and the Olympic Games from 1988 to 2012 (total n=210 world best decathletes). For each athlete, ranking, name, nationality, date of birth, year of competition, results achieved in seconds, centimeters, and meters, points calculated for each discipline, as well as the total number of points were determined. Data sources included decathlon results published in “Leichtathletik” magazine, on the webpage “Sports Reference – Sports Statistics Quickly, Easily & Accurately” (http://www.sports-reference.com/), and on the official webpage of the International Association of Athletics Federations (IAAF).

Results: The currently valid conversion formula from 1985 for the run, jump, and throw disciplines prefers the sprint and jump disciplines, while penalizing the athletes performing in the 1500-m run, javelin throw, discus, and shot put disciplines. Furthermore, 56% of the variance of the sum of points can be attributed to the performances in the disciplines 100-m and 400-m runs, long jump, and 110-m hurdles. The long jump in men’s decathlon is of special importance, reflected in the high variance clarification of 35% and explainable by the high degree of inter-correlation with the disciplines of 100-m sprint, 400-m run, and 110-m hurdles. Physiologically, this can be explained by the high degree of speed, explosive strength, and speed strength in this discipline group, which the cluster analysis with a two-factor solution confirms phenotypically as the sprint-jump type. At the discipline level, a high degree of individual and intra-individual variability concerning athletes’ age and competitive performance has been observed.

Conclusions: To balance the effects of the single disciplines in the in decathlon, the now 30 year’s old formula to calculate points should be structural reevaluated. That applies even though a normative
specification of the transformation rule obviously can solve the equal weight problem only temporary (Trkal, 2003). However, the current rules should be adapted (Westera, 2006).

Assessment of Fitness and Training among East African Universities Swimming Athletes

Physical activity and health

"Francis Mundia Mwangi, Mary Mwihaki, Lucy-Joy Wachira, Isaiah Wabuyabo, Vincent Onywera"
"Kenyatta University, Kenyatta University, Kenyatta University, Masinde-Muliro, Kenyatta University"
"KE, KE, KE, KE, KE"

"The role of university sports includes developing skills and fitness for competition and for healthy lifestyles. Fitness and training recommendations for performance and general health are well documented. Fitness assessment tests related to the mechanics of swimming were used to collect data among 32 (18 male and 14 female) selected East African universities swimming athletes to ascertain the extent they were meeting fitness and training recommendations. Descriptive analyses (Mean and Std. Deviation) yielded the following results; Male; Age; 23.11±2.14 [years], Training frequency per week; 2.50±.924, Waist circumference; 74.17±12.37 [cm], Waist Hip Ratio; .796±.036, Body Mass Index; 22.56±1.82, Percent body fat; 19.78±5.33 [%], Hand strength -right and left grips average dynamometry; 31.94±6.35 [kg], Leg strength dynamometry; 105.28±24.52 [kg], Back strength dynamometry; 109.50±23.71 [kg], Push-ups; 24.11±5.94 [counts], Sit-ups; 33.67±9.17 [counts], Back-scratch; .000±2.84 [Inches], Sit-and-reach; 12.06±7.83 [cm], and Body balance -stock stand right and left feet average; 8.31±3.22 [sec]. Female; Age; 21.21±1.63 [years], Training frequency per week; 2.50±.855, Waist circumference; 72.14±7.70 [cm], Waist Hip Ratio; .720±.052, Body Mass Index; 23.69±3.89, Percent body fat; 35.00±5.79 [%], Hand strength -right and left grips average dynamometry; 16.39±4.86 [kg], Leg strength dynamometry; 66.21±17.34 [kg], Back strength dynamometry; 75.50±18.66 [kg], Push-ups; 19.07±3.97 [counts], Sit-ups; 20.00±9.67 [counts], Back-scratch; -1.59±2.41 [Inches], Sit-and-reach; 13.61±8.78 [cm], and Body balance -stock stand right and left feet average; 6.64±4.50 [sec]. While most of the variables fitness values met the recommended health levels, the training frequency and fitness did not meet the athletics levels recommended for high competitive levels. The study recommends that the swimmers enrich their training to get fit for their events, not to rely solely on fitness acquired in the course of swimming activities."
Assessment of pre-competition anxiety levels of Under-16 years athletes: a preliminary study

"Hudson Renato de Paula Oliveira, Claudio A. B. de Lira, Rafael J. F. G. Fachina, Marília S. Andrade, Karine J. Sarro, Rodrigo L. Vancini"

"Universidade Federal do Espírito Santo, Universidade Federal de Goiás, Universidade Estadual de Campinas, Universidade Federal de São Paulo, Universidade Estadual de Campinas, Universidade Federal do Espírito Santo"

"BR, BR, BR, BR, BR, BR"

“Background: Stress response is a result of interaction between personal (cognitive, behavioral, psychological, and physiological) and the environment characteristics. Prevalence of anxiety disorders in adolescents range from 6% to 20%. Young athletes that participate in sports may experience different levels of psychological stress and anxiety. Some level of anxiety related to sports participation is considered normal and healthy; however, extreme anxiety in competitive athletes may have negative impact in performance. Aim: To evaluate the state (S) and trait (T) of anxiety in young athletes 24 hours before an athletics national level competition.

Methods: Anxiety levels were evaluated (98 athletes; 14.2±0.7 years, 54 males and 44 females), 24 hours before an athletics national level competition of track and field using the State-Trait Anxiety Inventory (STAI). STAI is a self-reported assessment device with a 40-item scale consisting of two 20-item subscales (S and T) to assess anxiety. The S-anxiety scale describes the individual’s feelings at a particular time and under specific conditions, whereas the T-anxiety scale describes the usual feelings of the individual. Scores vary from 20 to 80. A score smaller than 30 indicates a low level of anxiety; higher than 30 indicates anxiety; of 31 to 49 a moderate level of anxiety; and greater than or equal to 50 indicates a higher degree. Statistical analysis: Descriptive statistics were applied to obtain the mean and standard deviation (for age) and frequency distribution (percentage) for the description of S-anxiety and T-anxiety.

Results: In general, we observed that for the S-anxiety, 31.6% (n=31) had high; 61.2% (n=60) moderate; and 7.2% (n=7) low levels. For the T-anxiety 21.4% (n=21) had high; 69.4% (n=68) moderate; and 9.2% (n=9) low levels. When we separated the data for gender, it was observed, for S-anxiety, that for female group 13.6% (n=6) had high; 68.1% (n=30) moderate; and 18.1% (n=8) low levels. For the male group, 1.8% (n=1) presented high levels of S-anxiety; 55.5% (n=30) moderate; and 42.5% (n=23) low levels. Regarding to T-anxiety, for the female group, 25% (n=11) presented high
levels; 65.9% (n=29) moderate; and 9% (n=4) low levels. For the male group, 18.5% (n=10) presented high levels of T-anxiety; 72.2% (n=39) moderate; and 9.2% (n=5) low levels.

**Conclusions:** We observed that high levels of S- and T-anxiety are present among female and male Sub-16 track and field athletes. It is possible that this level of anxiety before (24 hours) a national competition could impair sports performance. In this sense, the coach support and consultation with sport psychologist could contribute for a detailed assessment, follow-up, and treatment, if necessary."
POSTER PRESENTATION

Assessment of Quality of Life and the Level of Physical Activity Among University Students

Physical activity and health

"Túllio Pieroni Toledo, Nara Rejane Cruz de Oliveira, Ricardo da Costa Padovani"

"Federal University of São Paulo, Federal University of São Paulo, Federal University of São Paulo"

"BR, BR, BR"

“Background: Public University promotes a significant transition in the students’ life. This new physical and social environment may exert negative influence on their quality of life leading to sedentary lifestyle. The literature has showed some implications from sedentary lifestyle for physical and/or mental health. The aim of this study was to assess the quality of life and level of physical activity among brazilian undergraduate students.

Methods: It was a cross-sectional study. The sample consisted of 484 students at Federal University of Sao Paulo, Brazil. The instruments utilized were Socioeconomic and Cultural Questionnaire; Quality of Life Assessment (WHOQOL - BREF) and International Physical Activity Questionnaire (IPAQ).

Results: The sample was characterized as female students, single and not working. The level of physical activity showed correlation with all domains of quality of life, such as: physical domain (p=0.001), environment (p=0.034), psychological (p=0.001), social (p=0.002). Regardless psychological domain, the course had significant impact for domains of quality of life (p<0.05). There was no significant statistical differences between genders. The students of nutrition and medicine courses revealed the highest average for quality of life. The lowest rates of quality of life were observed to Psychology and Occupational Therapy courses. The students of Physical Education showed the highest levels of physical activity (87%). The students of highest economic levels had the lowest levels of physical activity and the students of lowest economic levels showed the highest level of physical activity.

Conclusions: These findings show that the physical activity plays a role on the quality of life. Furthermore, the chosen course has implications on the level of physical activity. Taken as a whole, the university needs to promote the debate regarding the quality of life and physical activity in order to organize social programs able to promoting human health among undergraduate students."
POSTER PRESENTATION

Association between Genetic Profile and Basketball Position in Elite Athletes of Brazilian League: Cross Sectional Study.

Genetics and sport
"Giscard Humberto Oliveira Lima, João Bosco Pesquero"
"Universidade Federal de São Paulo, Universidade Federal de São Paulo"
"BR, BR"

"Background: The Basketball is a sport that require complex combination of variety of different individual skills between players, and the differences in physiological and anthropometric characteristics of basketball players have a strong relationship according differences positions of the game. Genetic association studies has been shown that genetic profile have an important role on the physiology aspects, because some polymorphism are associated with athletic performance. The aim of this study was analyses the association of ACTN3, AGT, ACE and BDKRB2 polymorphism with basketball positions players.

Methods: The study involved 154 elite athletes of Brazilian Basketball League. The analyses of ACE and BDKRB2 gene were performed conventional Polymerase Reaction Chain (PCR), and the analyses of ACTN3 and AGT genes were performed by RealTime PCR. The association between genotype and basketball positions was used a Multiple Correspondence Analysis (MCA) and Multinomial Logistic Regression model (MLR).

Results: The MCA result showed association between all genes (Cronbach’s alpha: ACTN3 = 0, 86; AGT = 0, 84; ACE = 0, 84; BDKRB2 = 0, 85) and basketball position. The MLR showed association of the significantly association only of the ACTN3 gene with basketball position.

Conclusions: The main found of our study is the positive association of the genotypes related with strength/power performance are associated with post players, and the genotypes related with endurance performance are associated with point guard."
POSTER PRESENTATION

ASSOCIATION BETWEEN MUSCULAR BALANCE OF LOWER LIMBS AND RUNNING ECONOMY IN TRAINED RUNNERS: PRELIMINARY DATA

Elite performance
"Wallace de Almeida Silva, Valentine Zimermann Vargas, Marilia dos Santos Andrade"
"Federal University of São Paulo, Federal University of São Paulo, Federal University of São Paulo"
"BR, BR, BR"

"Background: As well as the anaerobic threshold and $\dot{V}O_2$ max, the running economy is an important variable in performance of long distance running. A recent study showed significant relationships between the muscular balance of thigh muscles and the running economy in well trained female runners. Know it that, flexors (FL) and extensors (EXT) knee muscles endurance is important for the maintenance of a good running mechanic and the FL and EXT hip muscles offers stabilization and propulsion movements. However, we don’t know whether there are relations between the muscular balance of hip muscles and the running economy in well trained male runners. Thus, the purpose of this study was to evaluate the isokinetic muscular performance of the FL and EXT knee and hip muscles and body composition and to verify associations of these variables with the running economy.

Methods: Were evaluated 9 well trained male runners aged 29, 1 ± 6, 5 years, 71 ± 9, 6 Kg, 1, 77 ± 0, 1 meters and $\dot{V}O_2$ max 61, 51 ± 6, 6. The running economy on flat (1% level grade at 11 Km/h) and on uphill (3% level grade at 10 km/h), the concentric and eccentric peak torque of FL and EXT knee (60º/s and 240º/s) and hip muscles (60º/s and 180º/s) and body composition were evaluated. The conventional (FL concentric/ EXT concentric) and functional (FL eccentric /EXT concentric) ratio muscular balance were calculated for knee and hip muscles. The cost of running was assessed through a gas analyzer (Quark CPET, Cosmed®, Italy) and a treadmill (Inbrasport, ATL, Brazil). The isokinetic evaluation was made in an isokinetic dynamometer (Biodex Medical System®, Shirley, New York, EUA) and the body composition was performed through a dual energy x-ray absorptiometry (DXA Lunar DPX NT, GE Healthcare, New Jersey, EUA).

Results: The correlation results between the peak torque values of FL and EXT knee and hip muscles and the oxygen cost assessed on flat varied by 0.33 and 0.63 and, varied by 0.22 e 0.52 when the oxygen cost was evaluated on uphill. Only the muscular balance of hip muscles showed a significant inverse relationship between the functional muscular balance and the O2 cost on flat and uphill, the
values was -0.62 and -0.43. Likewise, the O2 costs on flat and uphill also were associated with the lean mass percentage (-0.85 e -0.72, respectively) and fat percentage (0, 85 and 0.74, respectively).

**Conclusions:** Higher muscular peak torque values of the lower limbs are associated with poor running economy, as well as the higher fat percentage. On the other hand, the high ratio functional muscular balance of the hips and a high lean mass percentage are associated to better running economy. Although the correlation do not indicate causality effect, the results suggests that lighter runners with less fat percentage and high levels of functional muscular balance are more likely to have better running economy values."
Background: The word “sport” is derived from a combination of words meaning “to carry away from work”. In current usage, sport has come to encompass a wide range of human activities, skills, and accomplishments that are not part of routine life. Oral health is an integral part of general health and well-being and a basic human right. Possible sport-related causes of poor oral health include frequent dietary intake of carbohydrates, physiological changes such as decreased salivary flow and drying of the mouth during exercise and exercise-induced immune suppression. Demanding training regimes might make it difficult to access preventive care. No studies have evaluated the awareness of athletes on oral health and its status in India. Hence, the aim of the study is to evaluate how far the Indian athletes are aware on importance of oral health on their performance during sports.

Methods: This epidemiological study assessed the level of awareness of athletes on oral health on sports performance in Warangal, India. The department of physical education NIT Warangal provided the list of athletes enrolled at the stadium. Among 350 athletes, 294 participated in the study. We enrolled athletes who were training for participation on competitions and information regarding the study was given verbally and consent was taken. The participants were 18 to 21 years of age and resided in both residential and non-residential sports complexes.

The study was conducted for a period of approximately 2 months from January 2016 to February 2016 at the department of physical education, NIT Warangal. A questionnaire was given to the participants that include the demographic data, their awareness on importance of oral health, dental trauma and its emergency management.

Results: In total 294 athletes (Age 18-21) were included in the study. There were 184 (62.8%) males and 109 (37.2 %) females. Out of which 66.6% visited dentist frequently but only 33.4% visited dentist when problem arises.

Awareness of importance of dental visits was shown by 80.9% of the study sample and 20.1 % felt that it is not important. 28.7% of the sample visited dentist in last 12 months rest 71.3% does not.
Oral health altering the training period in 54.6% and 45.4% disagreed it. When asked about the type of dental problems which alter their training reveals caries (2.4%), gum problems (8.9%), sensitivity (31.1%), eruption of wisdom teeth (7.8%).

Awareness of Importance of tooth brushing in avoiding cavities by 40.3 %, for healthy gums by 35.8%, for avoiding tooth staining by 15% and for improving sport performance by 8.8% of the study sample. 13% of the study samples have oral injuries and 87% does not have any oral injuries during training period for which 22.5% will take precautions and 77.5 will not.

**CONCLUSION:** The extensive consequences of injury could be prevented with such simple knowledge and action. Furthermore, efforts should be made to train general medical practitioners and other emergency room staff to perform appropriate first aid procedures for dental trauma. This would result in an improved outcome for many thousands of sports participants worldwide who injure their teeth during play. 
POSTER PRESENTATION

Athletic Talents in Shanghai: Status and Countermeasures

Sport development
Fang Xu
Shanghai University
CN

“Background:

Athletic sport plays an important role in spreading influence internationally and promoting intercultural communication. But due to socioeconomic development, city expansion and structure shift, changes in demographic structure and people’s views, Shanghai has lost its edge in such some athletic sport events and is now facing problems in development orientation, the number of reserve talents, and training model. This study analyzes the current status of athletic talents in Shanghai, and puts forward feasible measures as to how to restore Shanghai to its leading position in athletic sports.

Methods:

2.1 literature study
Gather related literature materials, books about athletic talents.

2.2 Interview
Face-to-face talking, phone calls and emails are used to interview experts about athletic talents.

2.3 field trips
Conduct field trips to Shanghai Sports Bureau, Shanghai Oriental Oasis Training Base, and carry out face-to-face interview with officials, coaches and athletes there.

2.4 Data analysis
Conduct statistical treatment on the raw data obtained, analyze the results to get final Conclusion.

Results:

3.1 Insufficient reserve talents with proportional imbalance in structure
In the athletic talent echelon, the golden proportion of the three levels of athletes are1:2:8 in the shape of pyramid, but in Shanghai this is not the case, and that is unsuited to Shanghai as a leading city in athletic sports.

3.2 Declining sports achievements
Difficulties loom ahead in restoring Shanghai to its leading position in athletic talents, which can be seen from the achievements obtained by athletes from different provinces and cities in the 2008 Beijing
Olympic Games, where Shanghai ranked 6 with 4 gold medals, fewer than Jiangsu and Liaoning Province in total number of medals, and no better than Beijing and Guangdong.

3.3 Athletic Coaches insufficient in numbers and remain boosted theoretically.

The number of coaches at key sports schools in Shanghai has been decreasing and findings from interviews reveal that a majority of coaches in Shanghai obtain bachelor’s degree, and few with master’s degree, which indicates necessary theoretical study and retraining for coaches.

Conclusions:

We propose to establish rational development orientation with specific goals; create good environment for the improvement of mass sporting or physical activities; stress on school sports, integrating athletic training and routine physical education; build up reserve talents market and corresponding league matches system; establish rational sport events arrangement.

Though government-oriented sports system has been significant in the history of China’s athletic sports, its inherent problems begin to appear. Now athletic sport is at the cross: to follow the current way and continue improving and mending the long-existent system or follow the trend and place itself in the market? Experience indicates that Shanghai, as a cosmopolitan city, won’t do without the support of sports branding in the market like NBA, F1, ATP."
Autophagy as a Regulator for Exercise Adaptation and Performance

Elite performance

"Ning Chen, Jingjing Fan, Shaohui Jia, Xianjuan Kou, Yi Yang, Ying Zhang, Ziyang Shu, Xu Zhang"
"Wuhan Sports University, Wuhan Sports University, Wuhan Sports University, Wuhan Sports University, Wuhan Sports University, Wuhan Sports University, Wuhan Sports University"
"CN, CN, CN, CN, CN, CN, CN, CN"

"Background: Autophagy is an evolutionarily conserved catabolic process whereby cytoplasmic proteins, protein aggregates and organelles are captured by the formation of autophagosome vesicles that are delivered to the lysosomal compartment for degradation. Under the environment of cellular stress, autophagy is activated to promote cell survival through preventing the accumulation of damaged proteins and organelles from oxidative stress. Therefore, it is highly necessary for exploring whether exercise adaptation and performance improvement resulted from high-altitude training is correlated with autophagy activation, which will be benefit for the monitoring of exercise training and exercise fatigue, and the genetic screening of athletic talents.

Methods: The mice were subjected to the rearing in hypoxia environment as a mimic high altitude environment and swimming training at normal environment for 6 weeks. The mice reared at normal conditions with and without swimming training were used as the controls. The autophagy activation, corresponding autophagy-related protein expression or antioxidant signal pathway were investigated by Western blot and RT-PCR analysis, and transmitted electronic microscopic evaluation.

Results: In our study, the mice subjected to mimic high-altitude training revealed a significantly improved exercise performance when compared with the mice without exercise training or without high altitude training, which may be correlated with reduced body weights, extended exhaustive swimming time, reduced generation of ROS and inflammatory factors, increased NRF2 expression and enhanced mitochondrial quality control from mitophagy in hypoxia environment. On the other hand, the mice subjected to genetic or transient pharmacological autophagy inhibition could not result in the improved exhaustive swimming time and mitochondrial quality of the mice even in the presence of hypoxia training.

Conclusions: The functional status of autophagy is the determinant for exercise performance improvement of mice subjected to high altitude training. High-altitude training-induced autophagy activation can delay the occurrence of fatigue. Moreover, the functional status of autophagy has the
potential as the monitor of exercise training and exercise fatigue as well as genetic talent screening in the future.”
POSTER PRESENTATION

BALANCED SCORECARD AS MANAGEMENT TOOL FOR PLANTAR FASCIITIS REHABILITATION

Technology in sports

"José Augusto Theodosio Pazetti, Felipe Mancini, Isabela Buck, Bruna Reclusa Martinez, Liu Chiao Yi"
"Federal University of Sao Paulo, Federal University of Sao Paulo, Federal University of Sao Paulo, Federal University of Sao Paulo, Federal University of Sao Paulo"
"BR, BR, BR, BR, BR"

"Background:
The way of business management has been undergone changes and impacted in all business areas. Many tools have been developed in order to enable enterprises to better use of physical, personal and financial resources, in order to reflect better results [1]. In the health area, similar needs took place, which led to the same searching for management tools, so that to become the most competitive health organizations for the current market needs. One tool that can be applied to health management is the Balanced Scorecard (BSC) [2]. It allows the elaboration of the goals, indicate the best strategy to acquire pointing actions and appropriate behaviors to facilitate the implementation of the strategies. Thus, using BSC features could help Plantar Fasciitis treatment management [3]. The BSC application allows to head strategic actions and seeking to avoid the expenditure of resources. The aim of this study is to build a BSC model as management tool for plantar fasciitis rehabilitation, in the strategic management environment [4].

Methods:
Subjects between 18-50 years old, female, with PF diagnosis will participate the study. To build a BSC model for PF, indicators, targets and objectives should be defined from four perspectives, according to the mission, vision and strategies: (i) results; (ii) patient; (iii) internal process; (iv) learning and growing. BSC indicators will be determined through the following assessment instruments: Identification of Functional Ankle Instability questionnaire (IdFAI), Sports Athlete Foot and Ankle Score (SAFAS), Foot Function Index (FFI); Hop test, Core test, assessment of the intrinsic muscles, Jack test, Navicular drop test; visual analogue scale (VAS); Star Excursion Balance Test, Step Down; Range of motion (ROM) of foot and ankle, and Lunge test.

Results:
After the construction of the BSC for managing FP, strategies will be obtained. It would help to reduce the treatment time; to reduce the evasion, better targeting treatment and decrease in recurrence of the disease.

**Conclusions:**
The BSC construction as management tool for plantar fasciitis rehabilitation will permit greater efficiency and effectiveness in providing shorter, punctual and efficient treatments, reduce the dropout rate of the treatment, in which involves operating gain and costs reduction.

**References**
BC4 TETRAPLEGIC BOCCAIA PLAYER AND THE NECESSITY TO USE A HAND ORTHOSIS FOR BEST PERFORMANCE

Technology in sports

"Lucyana de Miranda Moreira, Silvia Regina Matos da Silva Boschi"
"University of Mogi das Cruzes, University of Mogi das Cruzes"
"BR, BR"

Background: The Paralympic Sports provide a platform in which athletes with impairments are able to achieve remarkable levels of performance and create many athletic challenges, particularly for those with a higher level of physical impairment. These athletes often depend on some form of assistive technologies to practice sports. The orthosis are dispositives either temporary or permanent, that help the body function to prevent or compensate for disorders.

Case presentation: Paralympic sports have seen major changes in their use of technology (prosthesis, orthosis, etc.) from their inception until modern day. The innovation, design and application of technology to sports are very important to athletes looking to optimize their performance. The International Paralympic Committee recognizes the important role of sports equipment in enabling Paralympic competition. Boccia was created for a specific group of people presenting severe degree of motor dysfunction, such as spinal cord injuries. It can be a demanding sport and requires high levels of attention and concentration, highlighting the visual-motor coordination of the athletes. In the Boccia its common for BC3 athletes use assistive devices, such as ramps or chutes, but not for BC4 athletes. BC4 athletes have severe locomotor dysfunction affecting all four limbs. Their throwing is assisted by gravity. This is because of muscular weakness in the upper limbs or because of limited distal activity of the upper limbs (below the elbow) resulting in minimal hand function and poor grip. The ability to throw the ball follows from the diagnosis of the athlete. C5 tetraplegics often throw the ball from a bilateral grasp and pushing from the chest, though throwing by use of pendulum swing is more efficient and usually preferred when functionality allows. Functionally, when wrist extension is preserved in C5 injuries, tenodesis can replace active grasp by passive whole hand and lateral grips. During wrist extension, tenodesis causes passive tendon shortening of flexor digitorum superficialis and profundus, leading to passive finger-to-palm flexion, and of flexor pollicis longus, leading to thumb-to-index lateral face adduction.

Conclusion: As shoulder, elbow and hand active ranges of movement are limited in C5 tetraplegics a wrist orthosis is being developed, to assist them in positioning the hand similar to tenodesis, so that
they can throw the ball by pendulum swing. This orthosis is created for a master degree and results in sport performance being primarily generated by the athlete’s own physical ability, one of the fundamental principles regarding the use of equipment used during IPC Sanctioned Competitions and Events and at the Paralympic Games. After this, precision tests will be performed to verify its functionality.”
Behavior of The Mood States During Training Session in American Football Players

Sport psychology

“Vanessa Stuchi Sallero, Felipe Dorta Valverde, Katia Ponciano, Sérgio Matias da Silva, Simone lnácio de Lima, Yago de Moura Carneiro, Luis Felipe Tubagi Polito, Henrique Rodrigues Nunes, Luciane Aparecida Moscaleski, Marcelo Callegari Zanetti, Aylton José Figueira Junior, Maria Regina Ferreira Brandão”

“Metodista University of São Paulo, Metodista University of São Paulo, São Judas Tadeu University, Nove de Julho University, Municipal de São Caetano do Sul University, Metodista University of São Paulo, São Judas Tadeu University, Metodista University of São Paulo, Municipal de São Caetano do Sul University, São Judas Tadeu University, São Judas Tadeu University, São Judas Tadeu University”

"BR, BR, BR, BR, BR, BR, BR, BR, BR, BR, BR, BR"

“Background: American Football is taking significant proportions in brazilian sports sector. According to a survey of Global Web Index and Statista, Brazil is the country with the highest number of football fans. Thus, there is a strong increase of the american football teams inside the brazilian clubs. This reality makes necessary more studies to understand the psychophysiological indicators of training load in brazilian athletes practicing this sport. The purpose of this study was to evaluate the behavior of mood states during training session of a brazilian team of american football. Methods: were evaluated 57 male athletes and measured the mood states using the BRUMS questionnaire before and after the training session. Thus were analyzed the possible variations in degree of tension, depression, anger, vigor, fatigue and confusion. To statistical analysis we used Test T Student for paired samples, using significance level of p < 0.05 and GraphPad Prism Software for Mac. Results: There was significant difference in scores of fatigue and confusion pre and post workout, with values obtained in fatigue pre and post equivalent to 3, 000 (± 2, 539) and 4, 896 (±2, 378) respectively. Contrary to fatigue behavior, confusion showed a significant reduction after training (confusion pre = 1.579 ± 1.836 and post-workout = 0.5263 ± 1.172). Conclusions: The psychobiological training load on players during the training session was sufficient to cause an increase in the fatigue state and decreased in confusion state, and this reduction was important to show a possible improved of the athletes mood, and this can be associated with three theoretical models in psychoneurophysiology: the brain lateralization (the increased of the alpha waves in right hemisphere, reducing the activation level), the increased of the monoamines (serotonin and noradrenalin) and the increased of the beta-endorphins level (opioid effect)."
POSTER PRESENTATION

Biomechanical Alterations Related to the Application of Knee Modalities During Gait and their Implications in the Patellofemoral Pain Syndrome

Sport medicine and injury prevention

"Claire Egret, Lyndsay Segarra, Kathy Ludwig, Duncan Simpson"

"Barry University, Barry University, Barry University, Barry University"


“Background: Patellofemoral pain syndrome (PFPS) is one of the most common overuse knee disorders among the physically active population. Three main factors associated with PFPS are a greater knee adduction and internal tibial rotation angles, and an increased anterior shear force. Bracing and taping techniques have been reported to reduce knee pain and overall function but their implication in the reduction of factors associated with PFPS are controversial. The purpose of this study is to compare the biomechanical alterations related to the application of three different knee modalities: kinesio tape (KT), neoprene sleeve (NS), functional brace (FB), and no modality on healthy knees during weight acceptance of gait to determine which intervention is most effective in the decrease of three main factors. The study hypothesized that the FB would have the most impact on reducing the anterior shear force and the internal tibial rotation.

Methods: Twenty-five healthy volunteer participants with the average age of 30.08 years, height = 1.74m, and weight = 72.78kg completed 3 gait trials for each four randomized test conditions: a control (no applied modality), an Ossur neoprene knee sleeve, an Ossur prophylactic functional brace, and Kinesio tape (neutral taping). Seven infrared VICON motion capture cameras and two AMTI force were used to collect the kinematic and kinetic data. A repeated measures MANOVA (p < 0.05) analyzed the data to identify if there were significant differences between the different test conditions and the factors tested.

Results: Overall significant differences were found between anterior shear force and internal tibial rotation angle and the different modalities. Both the KT and the FB significantly reduced the anterior shear force during weight acceptance of gait compared to the control and the sleeve trials with the highest decrease for the KT (-3.17N). The FB significantly increased the internal tibial rotation angle compared to the other test conditions. Although there was no overall significance within subjects for the knee adduction angle during weight acceptance of gait, there was a significant increase in knee adduction angle between the FB and the three other modalities.
Conclusions: Comparable to Fleming et al. (2000), the FB reduced the anterior shear force but this result negated the research hypothesis where the FB would decrease it more than the other modalities. Moreover, the results conflicted with previous research findings in which the FB significantly reduced internal tibial rotation and knee adductions angles during gait and step descent tasks (Selfe et al., 2011). The contradictory nature of the findings compels the need for future research to determine a more concise understanding of how these modalities alter the kinematics and kinetics that are associated with PFPS which will better equip clinicians, therapists, and athletic trainers."
Body composition evaluated by DXA of female Brazilian handball players: the influence of age

Physical activity and health

“Alexandre Aparecido de Almeida, Claudio Andre Barbosa de Lira, Jeann Lúccas Sabino de Castro, Marília dos Santos Andrade, Antonio Carlos da Silva, Rodrigo Luiz Vancini”

“Federal University of São Paulo, Federal University of Goiás, Federal University of São Paulo, Federal University of São Paulo, Federal University of São Paulo, Federal University of Espírito Santo”

"BR, BR, BR, BR, BR, BR"

“Background: Body composition assessment may help to identify talent, monitor the success of physical training and sport participation, and follow the health-related physical activity benefits. Sports performance depends of body composition and the ability to measure these changes over time and knowledge about this topic is crucial to coaches and athletes. For example, a high proportion of body fat free mass is related to a high power to body mass ratio and could impacts positively anaerobic performance. Aim: To evaluate the body composition by dual-energy X-ray absorptiometry (DXA) of female handball athletes and the impact of age and competitive categories.

Methods: Female handball athletes (n=117; age: 15.3±1.4 years; body mass: 61.3±9.8 kg; Height: 164.8±6.0 cm; Body mass index: 22.5±3.1 kg/m2) of three age and sport category (12-14, U14 n = 16; 14-16, U16 n = 63; and 16-18 years, U19 n = 38) participated of the study. Participants were recruited from Centro Olímpico de Treinamento e Pesquisa (COTP - São Paulo, Brazil). Inclusion criteria were: 1) at least one year of experience in the sport modality; and 2) at least 10 hours training per week. All volunteers were submitted to DXA evaluation. Variance (ANOVA) and covariance analysis (ANCOVA) followed by Bonferroni post hoc were utilized to compare variables measured between categories.

Results: Age have a significant effect in the lean mass (LM) (F(1, 113)=13.16; p<0.001) and fat free mass (FFM) (F(1, 113)=12.34; p=0.001). LM (F(1, 116)=4.29; p=0.016) and FFM (F(1, 116)=3.66; p=0.029) presented a significant age effect. U19 category have LM (p=0.024) and FFM (p=0.013) smaller than U16. Bone mass (BM) (F(2, 116)=8.30; p<0.001), body area (BA) (F(2, 116)=4.80; p=0.010) and bone mineral density (BMD) (F(2, 116)=9.44; p<0.001) were significantly different between age categories. U14 athletes have a smaller BM than U16 (p=0.042), and U19 (p<0.001). U19 athletes have a high BA than U14 athletes (p=0.007) and a highest BMD than U14 (p<0.001) and U16 (p=0.016) athletes.

Conclusions: Age sport category impacts body composition of female handball athletes evaluate by DXA. It is monitoring can be useful for coaches and athletes."
POSTER PRESENTATION

Body Mass Index and Physical Activity Level as predictor of risk non alcoholic hepatic steatosis in adults

Physical activity and health

“Carla Giuliano de Sá Pinto Montenegro, Rafael Mathias Pitta, Danilo Sales Bocalini, Fabio Luis Ceschin, Marcio Marega, José Antonio Maluf de Carvalho, Luis Felipe Tubagi Polito, Aylton José Figueira Junior”

“Hospital Israelita Albert Einstein, Universidade São Judas Tadeu, Universidade São Judas Tadeu, Universidade São Judas Tadeu, Hospital Israelita Albert Einstein, Hospital Israelita Albert Einstein, Universidade São Judas Tadeu, Universidade São Judas Tadeu”

"BR, BR, BR, BR, BR, BR, BR, BR"

“Background: Physical inactivity, excess body weight, smoking, alcohol consumption were widely described as factors-related to chronic diseases development, leading to 5.7 million deaths per year. This paper aimed to identify the relationship between physical activity level (PAL) and body mass index as predictor to the development of non alcoholic hepatic steatosis (HS) in both sexes adults.

Methods: The study evaluated 2.251 both sex subjects (41.4± 7.4 years) with body mass index of 25.4 kg/m2 (±4.0) that don’t have risk alcohol consumption according Alcohol Use Disorder Identification Test, who participated in the Protocol of Preventive Medicine Center/ Check-up at Hospital Israelita Albert Einstein- São Paulo/ Brazil, from January to October 2011. The individuals was underwent anthropometric evaluation- Body Mass index (BMI) (above 25 kg/m2 until 29, 99 kg/m2 was considered overweight, above 30, 0 kg/m2 was obese) and waist circumference (women have circumference above 88 cm and men over 102 cm is considered high risk factor), medical history, the Physical Activity Level was evaluated with IPAQ (International Physical Activity Questionnaire) and trunk ultrasound to identify hepatic steatosis (HS). The statiscal analysis was based in qui square test and logistic regression with significance level p<0.5.

Results: Data showed that 29.1% presented positive diagnose to HS. The PAL presented that 66.3% of both sex adults were physically inactive with less than 150 minutes of physical activity per week. The associating between PAL and the HS data evidenced that 88.97% with positive HS were physically inactive. The association of BMI as criteria do the excess body weight was twice related increased to HS in obese I, II and III adults with relative risk from 7.4, 18.7 and 5.0 respectively, compared to normal weight adults. These data suggests that overweight has to be strongly considered to HS prevalence. Similar trend was found to waist circumference criteria, presenting 1.2 higher risk to HS development.
**Conclusions:** Considering that physical activity provides an protection to metabolic disorders (weight control, dyslipidemia, HDL increase) to HS development, we may point out that anthropometric (body mass index) can be considerable predictor of non alcoholic HS, with stronger association to HS than WC."
Body perception of the teenage participants from the SuperEscola of Praia Grande program.

Sport and quality of life for adolescence and aging

“Estefânia de Araújo Santos Noronha, Eliane Florêncio Gama, Adilson Lira de Noronha”

“Universidade São Judas Tadeu - USJT e Prefeitura de Praia Grande, Universidade São Judas Tadeu – USJT, Prefeitura de Praia Grande”

"BR, BR, BR"

Background: This study aims to measure the perception of body size perceived and imagined teenage participants SuperEscola program of Praia Grande. Participating were 20 adolescents between 10 and 15 years, divided into two groups: participants SuperEscola program and participants of School Practices.

Methods: To analyze the perceptions of body size perceived without visual support (perceived IPC) was applied the Body Scheme Marking Test (IMP - Image Marking Procedure) which, from that study, it was expanded in order to analyze the body perception imagined with the help Vision (pictured IPC). To analyze the history of motor activities was applied to the Motor Activities Questionnaire Current and stunted (thin praxis), prepared by Corporal Perception Laboratory and movement of the Universidade São Judas Tadeu.

Results: After statistical analysis found that the group had SuperEscola IPCs perceived and imagined classified as suitable as the School Practices group showed overestimation of dimensional perception of the body perceived and imagined. The analysis of segmental IPCs perceived and imagined indicated that the School Practices group showed distortion greater than the SuperEscola group over all body segments analyzed. The results indicate overestimation of the waist segment between both groups, however we found that the overestimation of the waist segment is relatively higher among the School Practices group. When analyzing the adolescents according to sex and the practice of school extra physical activity, we identified that regardless of the practice of extra school physical activity of the adolescents of both groups overestimate the waist segment dimensions, however this overestimation is higher among adolescents the School Practices group. Analysis of representative drawings of the projections of the body contour between the groups showed that teenagers do not SuperEscola Program participants are more clutter in the perception of body segments. Through the questionnaire found in terms of physical growth that SuperEscola group consistently realize what actually happens regarding the growth during adolescence. We note that the weekly hours spent on current motor activities, the months spent in previous activities, the activities practiced in childhood and weekly hours...
spent in fine praxis activities showed no statistically significant correlation with the IPCs Perceived and fancied.

Conclusions: We conclude that participants adolescent SuperEscola program showed better adapt to changes through puberty pronounced presenting a dimensional perception perceived and imagined more accurate as a result of physical activity.”
Breakfast Composition and the Awakening Cortisol Response in Basketball Players

Sport psychology

"Wederley Alexandre Januario, Gustavo Arruda, Marcia Carvalho Garcia, Regina Celia Spadari"
"Universidade Federal de São Paulo, Universidade Federal de São Paulo, Universidade Federal de São Paulo, Universidade Federal de São Paulo"
"BR, BR, BR, BR"

Background: The sharp increase of plasmatic and salivary cortisol that follows awakening is called cortisol awakening response (CAR). CAR alterations are proposed as indicator of stress. The saliva collection protocol for CAR determination demands that individuals must remain fasted during the first hour after awakening, period in which saliva samples are collected. This contributes to the low adherence to the protocol, jeopardizing the results. The aim of this study is to verify if food intake during this period or the composition of this meal changes the CAR.

Methods: Method: Sixteen male (17.31 ± 0.27 year-old) basketball players participated in this study. Breakfast compositions have been defined so that on each day one type of macronutrient prevailed, and in one day the meal composition was balanced. Saliva samples were collected immediately, 30 and 60 min after waking up, maintaining the individual fasted during the entire period or allowing the intake of a meal after the first sample collection. Data were compared by two-way ANOVA followed by Bonferroni test. Differences were considered significant when p < 0.05.

Results: The saliva cortisol concentration immediately after awakening did not significantly differ between the days of saliva collection (8.48 ± 2.09; 10.41 ± 1.24; 7.94 ± 1.44; 12.44 ± 2.38; 7.67 ± 1.23 nM). The CAR was significantly higher (p= 0.001) after intake of the meal with predominance of lipids (29.22 ± 4.66 nM) than when subjects fasted (16.01 ± 3.18nM) or had a breakfast with predominance of carbohydrate (13.44 ± 1.58) or protein (10.78 ± 2.04 nM).

Conclusions: Conclusion: It is concluded that a breakfast rich in lipids alters the CAR, but meals with balanced composition or rich in carbohydrates or proteins do not alter this response, and therefore they can be taken in the period of saliva collection for CAR determination. Financial support: CAPES."
Background: Resistance training practitioners who aimed muscle hypertrophy, strength and power improvements usually ingest many supplements. And caffeine ingestion is very popular substance among this practitioners. However studies diverge about possible effects of this on resistance exercises. Therefore, this study aimed evaluates effects of previous ingestion of caffeine on performance of the bench press exercise.

Methods: It was done in a crossover design with 8 male resistance training practitioners average age of 23 (± 3, 6) years old, body mass 80, 8 (± 8, 5) kg, height 1, 73 (± 0, 04) m and they have been training for 3, 9 (± 2, 7) years and non users of supplements or anabolic steroids. All subjects passed through three interventions 1) previous ingestion of caffeine followed by exercises (Caffeine), 2) previous ingestion of placebo followed by exercises (Placebo), 3) only exercises without supplementation (Control). Experiment was carried out by evaluating 4 stages: 1 repetition maximum (1RM) at bench press and 3 distinct sessions of these exercises with an interval of seven days between session. Bench press workout consisted of 10 sets of repetitions maximum achieving to concentric muscle failure intensity of 75% of 1RM. The ingestion of caffeine or placebo (corn starch) occurred 1h before tests.

Results: Total volume (sets x repetitions x weight [Kg]) training showed mean (± standard deviation) 4418, 3 (± 635, 3) Kg for Control, 4995, 75 (± 709, 90) Kg for Caffeine and 4864, 25 (± 788, 54) Kg for placebo. Groups of volunteers who used Caffeine and Placebo did not show significant difference between themselves however volume training increased (p=0, 0075) compared to the group Control.

Conclusions: According to results showed by this study no evidences was found that caffeine can be used as an ergogenic aid for enhancing physical performance and further investigations are needed in order to affirm it. Furthermore, results indicate how important placebo substance is when characterized by positive changes in psychological or physiological effects on strength training practitioners."
POSTER PRESENTATION

Can Creatine Supplementation Change the Anaerobic Power?

Sport nutrition

"Renan Alberton Ramos, Juarez da Silva Trancoso Netto, Flávia Liziero da Silva, Milton Henrique Ocraska, Keith Sato Urbinati"

"PUCPR, PUCPR, PUCPR, PUCPR, PUCPR"

"BR, BR, BR, BR, BR"

“Background: During high-intensity and short duration exercise (≥10 seconds) phosphocreatine is primarily responsible for re-synthesize ATP, but the amount of phosphocreatine stored in the muscle can be a limiting factor during high-intensity exercise in humans, 90% of creatine is stored in the skeletal muscle, and 30% to 40% is in its phosphorylated form. Furthermore phosphocreatine is in greater need to quick strength, the creatine supplementation is donating a phosphate group, it is catalysed by the enzyme creatine kinase. It is believed that creatine supplementation may have ergogenic effect on the physical performance, especially in anaerobic exercises with intermittent character. So, the aim of this study was to identify whether creatine supplementation leads to changes in an anaerobic power.

Methods: There were 20 practitioners with the strength training 4.2 ± 1.3 of years, all males 23 ± 3.2 years old, 1.72±0.12 m, 73 ± 3.5 kg, 12 ± 2.1% body fat, no athlete reported using creatine or some other ergogenic aid in a 3 month window. The subjects were submitted to two different protocols. The protocol 1 (P1) consisted in using placebo, protocol 2 (P2) consisted in using 300 mg / kg / day of creatine. Both protocols supplementation occurred for 7 days. On the seventh day it was held the anaerobic evaluation protocol, which were collected Peak Power data (PP), Average Power (AP), Fatigue Index (FI) using a cycle ergometer of the lower limbs. It calculated the % performance loss by subtracting the PP between shots. The protocol began with a heat 5 minutes without overload cadence of 30 km/h. At the end of the heating protocol was initiated, consisting of 5 shots speed with the duration of 8 seconds and 1 minute interval between shots. The protocol consisted in increasing overload by 8%, 9%, 10%, 11% and 12% of body weight of the subject, the protocol ended with the subjects cycling for five minutes to return to calm. It was performed ANOVA, post hoc Bonferroni (p<0.05) to determine if there were differences in the anaerobic power between the two different supplementation protocols.

Results: It was observed that PP (F(1, 38)=143.2; p=0.018) in P2 is higher than P1 especially for stage 3 (p=0.039) and 5 (p=0.02), stage 3 PP was P1=7.1±0.5 W.kg-1 and P2=7.7±1 W.kg-1 and in stage 5 was the PP: P2=7.0±0.8 W.kg-1 and P1=6.5±0.5 W.kg-1. It was found higher values of AP (F(1, 38)=123.2; p=0.001) P2 to P1 when compared to stage 3 (p=0.03), the AP values were P2=4.2±0.9
W.kg\(^{-1}\) and P1=3.7±0.5 W.kg\(^{-1}\). There was no statistical difference for F1 and between stages for the protocols evaluated individually. By identifying the % performance loss, it was observed that there was a greater decrease in performance especially for PP: P1 (-33±21.6%) than P2 (-50.1±15.2%) (p=0.018).

**Conclusions:** The creatine supplementation presents greater responses in peak power and average power than the placebo group, especially from the third speed shooting. Creatine supplementation is associated with the maintenance of anaerobic power response over progressive test.”
Can Individual Memory Demonstrate Social Identity of Athletes?
Sport sociology
Li Liu
Chengdu Sport University
CN

“Background: Social memory embodies the main social values and becomes a proper point of view to present what social identity would be like. However, it does not deny that individual memory is of important worth, especially when showing the characteristics of confrontation with the political power. Eagerly to be a professional tennis player, Hu Na escaped and asked for political asylum from the U.S. government in 1982, the only way under that circumstances. The Hu Na’s accident became a political accident her collaborating with Taiwan, when Taiwan was totally against the ideology of Communism. So her name was tagged with “a traitor”. Many years later, Hu Na went back to China, many remarks still refused to accept her and called her “a traitor”. Actually the premise of regarding Hu Na as a traitor was just based on her excuse and prejudice instead of any objective truth. The Hu Na accident triggers the author to exploit what influence social identity of athletes’ subjectivity.


Results: (1) The coexistence of harmony and confrontation revealed the relationship between Hu Na and nationwide sports system. When the requirements of Hu Na and the purpose of national sports system could benefit each other, their relationship went harmoniously. On the contrary, when individual pursuit stood between Hu Na and nationwide sports system, they were apart already. And the last straw was Hu Na’s escape, totally violating the interest of the nation--- the political authority and the common people. (2) The attitudes towards the Hu Na accident varied when she came back to China. The social memory took some resources from her individual memory, adding her narrative of “cannot help but escape”. Still Hu Na stirred up a new barrage toward traitors. What made her a traitor when ideological struggle was fading? It’s not a political issue, but a cultural question. (3) The mechanism of social identity was the key to Hu Na’s not-yet-removed label of “a traitor”. An athlete’s behavior strategy depended on whether his/her value rationality overwhelmed the instrumental rationality. An athlete may resist. If his/her behavior consequences had any influence on the state interests or national emotions, individual subjectivity subdued the collectivism cultural identity. Therefore, individual memory could patch up social memory somewhat, but could not demonstrate the social identity of athletes due to the mediator.
Conclusions: The paper put forward the problem of subjectivity of athletes. Rather than a cultural problem, subjectivity is particularly involved with individual rights and administrative boundary. The opposition between subjectivity and traditional cultural identity indicated the plight of pursuit of modernity in China’s reform. When the government gradually finds legitimacy boundary and exact orientation, individuals will gain more political democracy and accomplish self realization with the sincere respect of traditional cultural identity.”
POSTER PRESENTATION

CARDIORESPIRATORY AND ANTROPOMETRIC PROFILE IN VISUALLY IMPAIRED FOOTBALL FIVE PLAYERS

Sport eligibility and inclusion
"Victor Garcia da Silva, Kauê Kaleshi Carvalho, Bruno Dreher Bosner, Marcelo Morganti Sant’Anna, Jerri Luiz Ribeiro ", "Centro Universitário Metodista-IPA, Centro Universitário Metodista-IPA, Centro Universitário Metodista IPA, Centro Universitário Metodista do IPA, Centro Universitário Metodista do IPA"
"BR, BR, BR, BR, BR"

Background: The paralympics is maybe one of the biggest sport events for inclusion in the recently years, which give space for any modality that adjust at the special necessity those special players, in special the football five for visually impaired. Therefore it’s so important to understand the benefice that the sports can do in the body of those players. However it still doesn’t have an metabolic profile about those kind of players. The principal means of the study was delineate one cardio respiratory profile, metabolic profile and anthropometric profile of the one visually impaired amateur team of football five.

Methods: Eleven subjects from the football five team of the Associação de Cegos do Rio Grande do Sul. They are male subjects with visually impaired and were between 17 and 41 years. The subjects have not any especially physical training. All subjects according to assign the informed consent term (TCLE) conforming the resolution CNS 196/96 of the Brazilian ministry of health. All subjects accomplished the anthropometric measures protocol compost for: Stature (Stadiometer, 1mm of. precision), body mass (balance FILIZOLA®, 0-150 kg, 0, 1 kg of precision) and sum of skin folds (Abdominal, Axillary, Bicipital, Thigh, leg, Subescapularis, Suprailiac, Tricipital and Thoracic). For the accomplish measure we used International Society for Advancement of Kinanthropometry guidelines (ISAK). Moreover, the subjects accomplished the computerized ergospirometric test on the treadmill which we determined the: ventilator parameters (VO2), cardio respiratory (heart rate) and metabolic parameters (caloric expenditure) on the first and second threshold and maximum threshold too. For the threshold ventilator determination we used “ramp method” according with American College of Sports Medicine guidelines (ACSM, 1990). The procedures of this study were accepted from Ethics and Research committee for the Centro Universitário Metodista IPA (294/2007).

Results: Anthropometric measure, age 30, 45±11, 86 yrs (Min. 15, Max 48 yrs), weight 79, 79±18, 38 kg (Min. 53, 40 Max.107 kg), height 1, 72±0, 06cm (Min.1, 64 Max. 1, 82 cm), IBM 26, 80±5, 20 kg/m2 (Min.19, 85 Max.34, 77kg/m2), Sum skinfold 133, 25±34, 14mm (Min.91 Max 174mm).

Cardio...
respiratory and metabolic measure, aerobic threshold: \(HR1\text{lim} 131, 55\pm11, 81\text{bpm}, VO2\text{lim} 16, 55\pm3, 61 \text{ (ml/Kg.min)}, CE1\text{lim} 6, 45\pm1, 57\text{(cal/min)}\). Anaerobic measure: \(HR2\text{lim} 167, 18\pm11, 24 \text{bpm}, VO2\text{lim} 27, 31\pm5, 99 \text{(ml/Kg.min)}, CE2\text{lim} 10, 64\pm1, 94 \text{(cal/min)}\). Maximum values: \(HR\text{max} 189, 45\pm7, 24 \text{bpm}, VO2\text{max} 37, 45\pm11, 75 \text{(ml/Kg.min)}, CE\text{max} 14, 33\pm2, 65 \text{(cal/min)}\).

**Conclusions:** The present study could make an ergospirometric profile and kinanthropometric profile for the subject of the study with have visually impaired from football five team."
Care and Management of Athletes Medical Issues among East African Universities

Sport medicine and injury prevention

"Francis Mundia Mwangi, Mary Mwihaki, Lucy-Joy Wachira, Edna Thangu, Elijah Gitonga Rintaugu"
"Kenyatta University, Kenyatta University, Kenyatta University, Kenyatta University, Kenyatta University"
"KE, KE, KE, KE, KE"

"Care and management of athletes’ medical issues are key tasks for the people in charge of sports competitions. Management recommendations for prevention, treatment, care, and rehabilitation of sports related medical conditions are well documented and have been under constant review. However there is paucity of information on how various levels of sports managers comply with these guidelines. Questionnaire was used to collect information related to team medical care during East African universities sports competitions. Teams’ managers from 16 universities were asked in confidence to give details on the qualifications and competencies of the person/s in charge of athletes’ medical care in their delegations. Institutions sports team delegation had as in charge of athletes’ medical care;Physician; 0%, Certified Athletics trainer; 0%, Certificate in First Aid, 50%, Not certified; 25%, Physiotherapist; 6.25%, Nurse; 12.5%, None; 6.25%. Only 12.5% of institutions had a certified person in charge of athletes’ medical care for every of their sports discipline team. Most of the institutions delegations (75%) had at least one First Aid kit in form of a lockable box/bag for storing medications and materials. However, most of them contained topical preparations (mainly antiseptics), and local anesthetics and topical agents for minor pain. Other related materials in the team medical package included bandages, accessories (scissors, razor, safety pins). Hardly there were any records of each time medication was dispensed or any confidential lockable file/folder for the same. The team managers were not in a position to tell whether there were any of the active ingredients of the medications in their medical package which is in the WADA’s list of banned substances. There is under investment in the area of team care and management among the East African university sports. This calls for policy development and implementation of recommended guidelines in training and professional practice, as well as regulation of the area of athletes’ medical care and management among the study population."
Challenges for the Brazilian Paralympic Athlete’s Career

The athlete’s career

“Marcelo de Castro Haiachi, Leonardo Jose Mataruna dos Santos, Silvestre Cirilo Santos Neto, Vinicius Denardin Cardoso, Andressa Fontes Guimaraes-Mataruna”

“UFS, UFRJ, UERJ, UER, UFRJ”

"BR, BR, BR, BR, BR"

“Background: After the creation of the Brazilian Paralympic Committee (BPC) in 1995, the Brazilian Paralympic sport changed the management system betting in athletes results. The new committee converted the rehabilitation programmes and sports participation for sports performance. This structuring process was fundamental to the Paralympic sport a career. The funds, seen as the gateway to the beginning of sports career, need other media (environmental, structural and emotional) to boost the achievement of significant sporting results. Methods: This is an exploratory literature review using national References obtained through the Portal CAPES, Scielo, database library of the School of Physical Education from UFRGS and institutional documents of the BPC and the Ministry of Sports, responsible entities for the development of brazilian paralympic sport. Results: During the years 1972 to 2012 the country participated in 10 editions and won 229 medals (73 gold, 83 silver and 73 bronze) by 127 athletes (80% male and 20% female). The events: Athletics (31%), Swimming (21%), Football 5-a-side (13%), Football 7-a-side (13%), Judo (8%) and Goalball (5%) concentrate most medals won. In relation to public policies of incentive to sport Agnelo/Piva Law n. 10.264/2001, the implementation of the Bolsa Atleta program by the Sports Ministry in 2004 and the Sport Incentive Law n. 11, 438/2006 made possible the obtaining of large results by Paralympians. Conclusions: Two recent actions, the alteration in the percentage of transfer of federal lotteries (15% to 37.04%) and the construction of the Paralympic Training Center, reinforce the concern of the BPC and the Ministry of Sports in keeping the excellent sporting results obtained in recent years and to seek the goal to be among on the top five medalists in the medals table at the Paralympic Games Rio 2016. Still is necessary actions to promote a greater number of paralympic athletes in different regions of the country and expand the opportunities for the formation of new sports talents. Therefore, create awareness in the private sector (96% of resources are government); establish partnerships with higher education institutions (renewal of human resources and sports structure); and Military Institutions (structural conditions) seem to be essential actions to maintain the positive results and also to come new triumphs for the Brazilian paralympic sport."
“Background:” The wheelchair racing is one of many paralympic sports. In this sport are used specific and different wheelchairs compared to that used daily. These wheelchairs are made with specific parts and characteristics to the racing which help to enhancing the athlete performance. On the first speed competitions, the racing wheelchairs were the same daily used wheelchairs. But, on the Toronto Paralympic Games, Canada (1976), begin the use of the first specialized racing wheelchairs (Mello e Winckler, 2012). Over the years the racing wheelchairs went through several transformations. These changes improve some features such as performance and functionality (Katarina, 2008).

**Methods:** We did a research in the literature to identify the main improvements realized on the racing wheelchairs since first races. The data bases used in the research were ScienceDirect, PubMed, SciELO and Google Scholar. And the keywords used were: high-tech, racing wheelchair, paralympic games, athletics and, wheel camber. From the founded information, we described some changes that were relevant in this sport along the years.

**Results:** According to Katarina (2008), the current racing wheelchairs are very light and manufactured on a single structure that can be made of aluminum or titanium. Weight reduction is advantageous on the racing wheelchairs because this factor influence on the time of the athletes (Fuss, 2009). Other factor that influences the performance of the athlete is the camber. Camber is the wheel inclination angle from the horizontal plane starting from 90° to the ground. The use of camber reduces the rolling resistance (Veeger, Woude e Rozendal, 1989); and grants better stability to the racing wheelchairs (Cooper, 1991). But biggest camber angles (15°) require more athlete force during the propulsion. Another device which contributes to the performance it was the compensator. The compensator is a device used on the track to push in and out of turns without manual steering. Components of the compensator are the cylinder, which attaches it to the front wheel, and “two stops” (bolts) threaded through both sides of compensator. Is important that the athletes sets the stops during the warm-up according to the track conditions, before the race start (Bleakney, 2004).

**Conclusions:** Racing wheelchairs must be manufactured to provide better performance and improve the qualities of the athletes.
Thus, the evolution of race from daily use wheelchairs to the specific racing wheelchairs, increases the performance of the athlete and contribute to the sport progress."
Changes Hydration in Basketball Male and Female Players During Simulated Match in Competitive Period

Sport medicine and injury prevention

“Yago de Moura Carneiro, Luciane Aparecida Moscaleski, Simone Inácio de Lima, Helton Dias, Henrique Rodrigues Nunes, João Henrique Gomes, Aylton José Figueira Junior, Maria Regina Ferreira Brandão, Marcelo Callegari Zanetti, Vanessa Stuchi Salleto, Felipe Dorta Valverde, Luis Felipe Tubagi Polito”

“Metodista de São Paulo University, Municipal de São Caetano do Sul University, Municipal de São Caetano do Sul University, São Judas Tadeu University of São Paulo, Metodista de São Paulo University, São Judas Tadeu University of São Paulo, São Judas Tadeu University of São Paulo, São Judas Tadeu University of São Paulo, Metodista de São Paulo University, Metodista de São Paulo University, São Judas Tadeu University of São Paulo”

“Background: The number of basketball players has grown considerably in the last years. With this popularization of sport it is necessary to understand how the body of athletes answers the matches held. One of the knowledges that should be considered is the hydric variation in this sport. The purpose of present study was evaluate hydration status in professional basketball players. Methods: 10 male and 11 female professional basketball players (including point guard, shooting guard, small forward, power forward and center) were evaluated in weight and hydration status during a simulated basketball game (four quarters x 10 minutes). The Total Hydric Variation (THV) was calculated by the equation “TWV = Initial Body Weight - Final Body Weight + Volume of Water Ingested”. The Dehydration Rate = (THV / Initial Weight) X 100”. The water intake was ad libitum during the simulated match. The results were analyzed using descriptive statistics, Shapiro-Wilk for Normality Test and Test T Student for parametric variables and Wilcoxon Test for Non Parametric variables, adopting margin of error of 5%. Results: For male athletes, were found significant differences between the initial weight (98.90 ± 16.11 kg) and final weight (98.05 ± 15.96), resulting in total water average intake was 1.65l and the dehydration rate was 2.61%. For female athletes, no significant differences were found between the initial weight (68.96 ± 13.94 kg) and the end weight (69.06 ± 13.95 kg), resulting in total water average intake of 0.62 l and dehydration rate of 0.94%. Conclusions: Despite the significant differences between initial and final weight in male athletes, the athletes showed a smaller loss than 3% of your total body weight at the end of the match, what are not sufficient to promote significant losses in athlete’s
performance. The female athletes maintained the body weight with ad libitum water intake. These results reinforce the literature trend to offer water ad libitum during sports, suggesting to be sufficient to maintain the state of hydration in athletes, both male and female."
Changes of the Brain Function and the Competitive Structure Characteristics of $\alpha$ Frequency Brand in Gymnasts in Different Training States

Neuroscience and sport

"LIZHI, LI Jie, Hong Ping, WU Ying"

"Guangdong Provincial Institute of Sports Science, Sports Bureau of Guangdong Province, China Institute of Sport Science, Shanghai University of Sport"

"CN, CN, CN, CN"

Background: To investigate the levels of central function and training states of China’s national women’s gymnastics athletes who preparing for London Olympic Games in different training periods. At the same time to explore changes of brain function and competitive structure characteristics of EEG $\alpha$ frequency brand in different training states, which is of value for gymnasts training monitoring and selection.

Methods: Fourteen national female gymnasts were to be monitored during the preparation for two games, national championship and Olympic Trials, May, 2012, and London Olympics, July, 2012. The athletes’ states were divided into initial state, high volume state, high intensity state, or pre-competition state. In each state, EEG was measured, and we made a comparative study of central fatigue index, excitement-inhibition index, brain function index, competitive structure of $\alpha$ frequency Brand and EEG entropy changes.

Results: (1) In the same state, there were no significant differences between Olympic athletes and non-Olympic athletes for central fatigue index, excitement-inhibition index, and brain function index. Compared with initial state, central fatigue index, excitement-inhibition index, and brain function index increased significantly in high volume state; central fatigue index and excitement-inhibition index increased significantly in high intensity state; excitement-inhibition index increased significantly in pre-competition state. (2) The results showed that EEG of Olympic athletes was more stable with obvious dominant frequency advantage and insusceptible to other frequencies. Compared with initial state, percentage of dominant frequency decreased significantly in high volume state, and increased significantly in high intensity state and pre-competition state. These had been linked to more training methods and new exercises in high volume state, while less training methods and new exercises in high intensity state and pre-competition state. (3) In the same state, entropy values of Olympic athletes was lower than that of non-Olympic athletes. It suggested that EEG of Olympic athletes has characteristic of low competitive frequency-fluctuating uncertainty and high order. Compared with initial state, entropy values tended to be higher in high volume state, and lower in high intensity state and pre-competition state. It might be related to more training methods, more
complicated exercises and less combinations in high volume state, while less training methods, less complicated exercises and more combinations in high intensity state and pre-competition state. **Conclusions:** (1) central fatigue index, excitement-inhibition index, brain function index, percentage of dominant frequency or entropy vary in different states, which can be used for training monitoring. (2) The EEG of Olympic athletes has characteristic of obvious dominant frequency advantage, high stability, strong cooperativity, and high order, which can be used for selection. **Key words:** brain function; competitive frequency-fluctuating structure; entropy; gymnastics; training monitoring"
Changing the Organizational Climate through Communication Management in Company Active in the Leisure Market

Governance and policy

Gustavo Henrique Prevatto Zani

SESC SP

BR

“Background: Among the various tools for desktop analysis and employee satisfaction is organizational climate survey. The professional in your workplace seeks satisfaction of their professional and personal expectations, and the extent of satisfaction is linked to the importance the company gives to the management of its human resources. Among the various tools to reach satisfaction is effective communication between team members in the face of diversity it presents.

This research is related to the impact of how the communication management of a team can be effective to maintain a good working environment and employee satisfaction. Based on the presented problem, the objective of this study is to compare the impact of the systematic implementation of communication management in company active in the leisure, aimed at improving the working environment by identifying and monitoring employee perceptions about the researched topics and support the decision making of the team leaders.

Methods: The Methodology used in this study is qualitative and quantitative, focusing on case study of exploratory and descriptive. It designed a questionnaire consisting of eleven closed questions, multiple choice, structured in three pages named “Desktop”, “Communication” and “Basic Information”. The questionnaire applied to physical education teachers who work at the Sports Core Team leisure field, responsible for the development of sports physical activities of the Social Service of Commerce - SESC Belenzinho Operation, located in São Paulo-SP. The evaluation results were compiled and presented to the leadership team to structure the communication plan to improve the working environment. The communication plan went into effect from January 2015, lasted twelve months and addressed the improvement of control information for courses and institutional training, meeting format, reducing the use of emails and information about individual performances.

Results: Among the universe of participants was small turnover, with little change in working time percentage in Belenzinho operating unit and number of units already worked. As for the knowledge of the team's goals there was an increase in the percentage of teachers who would not know tells them. Communications between the various levels after the implementation of the communication plan had a
significant increase in regular and good reviews, especially the increase of over 50% in good ratings communication between teachers and trainees. Teachers, according to the survey, feel more freedom to suggest process improvements, and also feel more recognized for their work.

**Conclusions:** In Conclusion, it is essential that companies systematically and periodically make analysis of the organizational climate. It is also important to make the employees aware of its importance this tool aimed significant impact in the medium and long term, impacting even the organizational culture. This information collected provide input for constant updating of a communication plan and consequently the management of critical points, demonstrating concern for the future and the aspirations of its employees."
POSTER PRESENTATION

Characteristic of Deep Cervical Muscles’ Size in Patients with Chronic Neck Pain Compared to Healthy Controls—A Case-Control Ultrasound Study

Sport medicine and injury prevention
enming zhang
Beijing Sport University
CN

“Background: The purpose of this study was to observe the difference and explore the correlation of the deep cervical muscles’ size by high-frequency ultrasound and the posture index between the patients with chronic neck pain (CNP) and the healthy subjects, for providing the more effective exercise therapy approach for patients with chronic neck pain.

Methods: Thirty nine patients with CNP were recruited according to the inclusion criteria as the study group and twenty one healthy subjects as the control group. The anterior posterior dimension (APD) and lateral dimension (LD) of the semispinalis capitis (SEC) and the deep cervical flexors(DCF) were measured by high-frequency ultrasound. The forward head angle (FHA) and forward shoulder angle(FSA) were measured as the posture index. All of the measured data were collected and analyzed. The correlations between FHA or FSA and muscles sizes were determined using Pearson’s correlation coefficient.

Results: The dimensions of the SEC did not differ between two groups (P >0.05). There was a significant difference in the LD of the DCF between two groups (P<0.05). There was no difference in the APD of the DCF between two groups (P>0.05). There were both most significant difference in the FHA and FSA between two groups (P<0.01). There was a positive correlation between FHA and FSA (r=0.444, P<0.01). There was a negative correlation between FSA and the thickness of DCF (r =-0.391, P<0.05).

Conclusions: Patients with chronic neck pain had smaller dimensions of the deep cervical flexors compared to healthy subjects. They had greater forward head angle and forward shoulder angle, and the greater the forward head posture, the greater the forward shoulder posture. Patients with smaller dimensions of the deep cervical flexors had greater forward shoulder posture. The training of the deep cervical flexors should be enhanced in exercise therapy for patients with chronic neck pain.”
Characteristics and Application Principles of the Group Dance in Campus PE Class

Sport sociology
Aimei Xu
South China Normal University
CN

“Background:

Group dance originated from the memorial activities or celebrations of the villages in ancient times, in which men and women of all ages participated. In modern society, group dance can be seen in leisure activities, entertainments and festivals of urban and rural squares and campus PE class. With the development of the society, its function of general education becomes prominent gradually.

Methods:

Literature review, case study and summery on practice were used for the analysis.

Results:

1. Characteristics of the Group Dance
1.1 Group dance is an action combining different body gestures with motions like walking, running, jumping, dancing and twisting into a group or a set of movement. It is a universal dance with lots of participators.
1.2 Group dance comes from the folk, so it has strong ethnic features.
1.3 Judging from the formation, it mainly appears as the square matrix, the circle (one loop and double loop) and the queue. A few of them appear as the irregular triangle, semicircle, cross or free-style formation. In general, a particular formation will be changed during the dancing but will return to its original status when the show is over.
1.4 The group dance is carried with social etiquette and traditions connotatively.
1.5 The music chosen for the group dance is characterized by distinct theme and features as well as complete musical passage and phrase.

2. The Application Principles of the Group Dance in PE class
2.1 The universal principle of movement refers to the fact that before teaching, teachers should select the movement, make the teaching plan, balance the difficulty of the teaching contents and control the capacity of teaching based on the actual learning capability of the teaching objects, teaching periods and teaching environment.
2.2 The function principle refers to that during the group dance teaching process, the aerobic exercise function should be brought into full play, making the exercisers experience the pleasure of aerobic exercise that is good for our health in learning and practicing. The organizers should subtly deal with the principles of different capacity and difficulty while preparing and teaching the class.

2.3 Compared to the Chinese “poems”, standard and regular, the artistry principle of the group dance reveals that the vocabulary of the movement takes “short sentence” as a norm and melody as poetry rhyme and centers on the rhythm. Pursuing the art of teaching is the supreme state a teacher can reach. Otherwise, the combination of teaching contents and teaching forms is the key to realize the art of teaching. Thus, it should be appropriately adopted during the teaching.

Conclusions:
1. The group dance is characterized by a small amount of movements and it is easy to learn and remember. Moreover, it has diversified style which gives prominence to ethnicity. Furthermore, it embraces various formations and rich forms. In addition, the musical paragraph is regular with characteristics such as clear beat and intermediate tempo.
2. The common principles of group dance teaching refer to the universal principle of movement, the function principle and the artistry principle.”
POSTER PRESENTATION

Characteristics of Movements and Injuries Incidences in Artistic Gymnastics and Rhythmic Gymnastics

Physical activity and health

"Renata Arabian de Petta, Giovanna Esther Dong Jardim, Larissa Rocha Lopes, Emilio Felipe Machado Alvarenga"

"Centro Universitário São Camilo, Centro Universitário São Camilo, Centro Universitário São Camilo, Centro Universitário São Camilo"

"BR, BR, BR, BR"

Background: The functional requirement resulting from the excessive sports training brings several functional and structural changes to the gymnasts so they have the perfect movement execution. However, there are different types of gymnastics and each one has their own characteristics. Artistic Gymnastics (A.G.) involves a number of body exercises requiring strength, flexibility and agility. Rhythmic Gymnastics (R.G.) focuses on the elegance and beauty of its movements which are extremely precise and delicate and demand a high level of flexibility from the gymnasts. The movements, according to each type of gymnastics, have unique characteristics that influence the injury type and affected part as well as one’s posture. Therefore, the present abstract aims to compare the movements and injuries between A.G. and R.G.

Methods: In this study, a bibliographic review was conducted in the PubMed, Lilacs e Medline databases. The articles were collected between early April and late May 2016, using the tags: “Artistic Gymnastics”, “Rhythmic Gymnastics”, “Injuries in Gymnasts” and “Gymnasts Postures”. Articles in English and in Portuguese were used and the exclusion criteria were literature review articles and articles on men’s gymnasts.

Results: According to the group’s criteria, 13 articles were chosen, from which 8 were on A.G. and 5 on R.G.. Seven of the articles talked about gymnasts postures and 6 of them were about injuries. According to the articles, the athletes postures in both types of gymnastics are very similar, mostly showing lumbar lordosis. Scoliosis, cervical protrusion, shoulder asymmetry, thoracic hyperkyphosis, pelvic anteroverision, valgus calcaneus and hyperextension of the knees were also shown. Injuries, on the other hand, show significant differences when athletes of both types are compared. A.G. athletes are more prone to injury the knees and the ankles because they perform short movements, including body air-rotations and precise landings. R.G. athletes, besides the knees and ankles injuries, show
greater injury incidences in their upper limbs because, unlikely in the A.G., they handle portable apparatus in fast and steady movements.

**Conclusions:** The characteristic movements in both gymnastics types, besides defining specific posture, are also determining factors to injuries incidences in athletes. Structural change resulting from these movements showed similar in A.G. and R.G. athletes. On the other hand, due to different mechanical requirements, injuries showed distinct, affecting upper limbs more in R.G. than in A.G. athletes."
China 's professional football innovativeness Empirical Study

Governance and policy

Wu Yannian
Jinan University
CN

“Background:
The football competitiveness of our country still very backward; however, football in China has wide social influence, which wins love in people both urban and rural. Promoting Chinese football will not only enrich people’s spiritual and cultural life, but also enlarge growth points in spot industry of Chinese. To keep to the objective law of the occupation spot games, it is urgency need to give a new position to Chinese professional football match and establish which aspects we should innovate. Therefore, by referring successful experience in European professional football competition and considering the basic national conditions, taking example of Chinese Football Association Super League, we stand in customer to do the quantitative analysis and create a new model of Chinese professional football

Methods: Questionnaire Survey Method; Data Satistics Method

Results: We validated the assumption, reliability and validity of the innovative model of Chinese professional football match and the six assumptions that the innovative model of Chinese Super League came up with. The result shows that only player’ performances and sport place’ environments are satisfied. Supporters’ club was screened out in the test of reliability. And indistinctive estimated coefficients for the fans privilege, online self-service, fans loyalty program and the overall innovation capacity illustrate that Chinese Super League service failed to improve comprehensively. Among the interaction with fans, compare with the five major European Leagues, although Chinese professional football clubs input regardless of costs for player, the organizations of fans are still the superficial commercial promoting activities. They have not yet regarded fans as the foundation of existing for the clubs. The overall innovation and brand value of Chinese professional football match have not yet maximized the effect. It can explain that the overall innovation ability of Chinese professional football match has not roundly increase consumers’ satisfaction. Although Chinese Super League creates a significant improvement and becomes “the No.1. League in Asia” in recent years, its brand effect cannot appeal to more civilians for attending the matches.

Conclusions: In six dimensions of foreign conceptual sport innovation, only player’ performances and sport place’ environments are satisfied for the innovative model of Chinese professional football match.
Fans club, online self-service, fans loyalty program are irrelevant to the overall innovation capacity. It proves that Chinese Super League has paid little attention to the majority of fans. And teams have not yet set up a long-term mechanism for coaches and players face-to-face communicate. In a word, the innovation of professional football match still remains in a low level at present and requires promoting completely in future."
POSTER PRESENTATION

Chronic administration of Erythropoietin Cause Cardiac and Renal Fibrosis in Rats Submitted to Exercise Training.

Physical activity and health

"Milena Samora dos Santos, Wellington Lourenço Mendes dos Santos, Rosângela Soares Chriguer, Octávio Barbosa Neto"

"Federal University of Triângulo Mineiro, Federal University of Triângulo Mineiro, Federal University of São Paulo, Federal University of Triângulo Mineiro"

"BR, BR, BR, BR"

“Background: Erythropoietin (EPO) is a glycoprotein hormone produced primarily by the kidney when there is a decrease in circulating oxygen level and your main function is to regulate erythropoiesis. Analog of EPO invaded the backstage of sporting high performance scenario, especially in aerobic modalities, because it acts on the heart, circulation, aerobic endurance, leading to an increased tissue oxygenation, decreasing the feeling of fatigue and an ergogenic function. Furthermore, it is known that EPO has actions in non-hematopoietic tissues with anti-apoptotic function, anti-inflammatory, cell proliferation and differentiation. Thus, this study aimed to evaluate the effects of chronic administration of EPO combined with exercise training on cardiac and renal tissue in rats.

Methods: The animals were divided into four groups: sedentary control group (SCG, n=10), trained control group (TCG, n=8), sedentary EPO group (SEG, n=10) and trained EPO group (TEG, n=8). 50IU/kg EPO were administered (subcutaneously) and was performed swimming training (increasing volume and intensity). After eight weeks of protocol we evaluated the baseline heart rate (HR) and blood pressure (BP), cardiac hypertrophy (relative cardiac mass and diameter of cardiomyocytes) and cardiac and renal fibrosis (slides stained with picrosirius). For all the results we used a significance level of p≤0.05.

Results: The animals of the SEG and TEG showed increased levels hematocrit compared with their respective control groups (SEG: 51, 79±2, 23%; TEG: 53, 35±2, 19%; SCG: 40, 10±1, 70%; TCG: 36, 71±2, 46%), as been expected. The animals of the TCG exhibited rest bradycardia compared to SCG (TCG: 309, 28±9, 95 bpm vs SCG: 348, 80±12, 56 bpm) and the EPO has triggered an increase in systolic blood pressure in the sedentary group compared with the SCG (TCG: 309, 28±9, 95 bpm vs SCG: 348, 80±12, 56 bpm) and the EPO has triggered an increase in systolic blood pressure in the sedentary group compared with the SCG (SEG: 126, 69±4, 31 mmHg vs SCG: 113±3, 76 mmHg), which was not observed in diastolic. The TCG showed higher heart relative mass (TCG: 0, 0042±0, 0003g vs SCG:0, 0037±0, 0001g), an estimative of cardiac hypertrophy. SEG presented a higher diameter of cardiomyocytes as compared to the SCG (SEG: 4, 58±0, 04µm vs SCG: ...
Both groups receiving EPO had fibrosis on heart compared with control groups (SEG: 30, 15±0, 71%; TEG: 39, 74±1, 03%; SCG: 18, 63±0, 70%; TCG: 18, 08±0, 64%). The same result was found in kidney (SEG: 15, 83±0, 58%; TEG: 30, 64±0, 46%; SCG: 5, 75±0, 70%; TCG: 9, 61±0, 59%).

**Conclusions:** These results suggest that the chronic administration of EPO can cause a pathologic hypertrophy, cardiac and renal fibrosis. In this case unfortunately, the exercise training by swimming was ineffective in reversing these damages.
**POSTER PRESENTATION**

**Clinical classification of pain: An epidemiological study in athletes**

Rehabilitation

“Ana Caroline Rios, Carolina Gatti Alborghetti, Quezia Cardoso Bindele, Graziely Rodrigues Zanoni, Francisco Rodrigues Brioschi”

“College of Sciences, Santa Casa de Misericordia de Vitoria, Brazil, College of Sciences, Santa Casa de Misericordia de Vitoria, Brazil, College of Sciences, Santa Casa de Misericordia de Vitoria, Brazil, Federal University of Espírito Santo, Vitória, Brazil, College of Sciences, Santa Casa de Misericordia de Vitoria, Brazil”

"BR, BR, BR, BR, BR"

**Background**: Classification of pain according to the underlying neurophysiological mechanisms responsible for their generation and maintenance has brought important information for clinical decision-making. Despite the growing number of studies on pain classification, knowledge of different populations is still not consistent. Concerning athletes and sports characterization of the signs and symptoms that most have still lacks a clearer delineation. **Methods:** Delphi questionnaire containing subjective questions about nociceptive pain, neuropathic central and peripheral was applied to 120 athletes of modalities soccer, beach volleyball, indoor volleyball, rhythmic gymnastics, swimming and basketball. Data were collected as sex, race, family income, practice time, weight, height, age, how many people live, level of education, number of workouts per week. It used a chi-square test for variables association and likelihood test, for both tests, a significance of p <0.05. **Results:** The variables gender (p = 0.014) and nocturnal pain (0.016) was positively associated with pain rating for the chi-square test. For joint pain men showed percentage of 81.12% for Neuropathic Pain women had percentage of 66.67% for the nociceptive men showed percentage of 64.58%, and 60% of central neuropathic pain. As for the variable night pain men had pain 66.67% of neuropathic pain, 85.71% of subjects without pain were men. The prevalence data show that 40% of injuries are nociceptive. Soccer had important values of mixed lesions 54.63%. **Conclusion:** Our data point to soccer as the sport with the greatest part of mixed lesions which may be the result of the high level of contact that occurs in practice mode. Gender was also a determining factor for pain classification, which may be related to hormonal differences and sensitivity to pain between genders. New clinical studies with methodologies would be important for understanding of our results"
POSTER PRESENTATION

CLINICAL STUDY OF AN ELDERLY WITH DIABETES TYPE II USING LINEAR PERIODIZATION AS STRENGTH TRAINING BASE

Physical activity and health

"Guilherme da Silva Rodrigues, Edson Donizetti Verri, Evandro Marianetti Fioco"

"Claretiano - University Center of Batatais, Claretiano - University Center of Batatais, Claretiano - University Center of Batatais"

"BR, BR, BR"

“Background: Every day that goes by the population is more concerned with the welfare, thus seeking sports activities to improve physical and mental performance, understanding that doing physical activity has become a great option for those who need to change habits because of health. Patients with diseases began attending the academies, seeking thereby control problems in addition to the pharmacological means, of all diseases affecting elderly women, the most common is type II diabetes is associated with metabolic diseases damaging other organs throughout their development. Increasingly, scientific evidence shows that there is genetic susceptibility for someone to have a higher potential to develop diabetes, no longer only associated with excessive consumption of sugar, this case study focuses on the analysis of physical assessments through strength training with the linear periodization of an old 51 years old with diabetes type II.

Methods: Data were collected at the academy of Claretiano University Center of Batatais for 9 months of the same, using resistance training with linear periodization.

Results: In the first evaluation voluntary started with a total fat percentage of 31.4%, after three months its percentage was 31% in the last evaluation the percentage increased to 35.9%, also having decreased flexibility in the range test, and a significant increase in fat weight, lean weight and ideal weight by increasing only 200g in the current weight, it is noteworthy that there was no control over the nutritional aspects and the daily dose of insulin ranged from 0.3 to 0.6 U / kg.

Conclusions: Our genetic map shows that we were not created to consume sugar and with the addition of several genetic factors all people are willing to develop type II diabetes, in case of the patient, however there were losses or favorable gains in anthropometric measurements, there was also increasing student of fat percentage may have influence as the fact that it has type II diabetes condition which implies the reduction of metabolism and may lead to the results mentioned above."
Coach Education in National Gymnastics Federations

"Daniela Bento Soares, Marco Antonio Coelho Bortoleto, Laurita Marconi Schiavon"
"University of Campinas, University of Campinas, University of Campinas"
"BR, BR, BR"

"Background: Sports coaches’ performance requires permanent updating, enabling an adaptation to new demands from the population in general, from technical, tactical and methodological changes inherent to the sport and from new knowledge within the sports sciences. This study is part of a PhD research about international programs of coach education in Gymnastics for All (GfA) and their possible contributions for Brazil. In this initial phase, the official sites of National Gymnastics Federations (NGF) were analyzed, with a focus on the coach education programs’ characterization. Methods: This is a documental research, which analyzed four central points: “type of educative actions (EA): structured programs (SP) or occasional actions in education”; “types of learning opportunities” (Mallett et al, 2009); “mandatory Physical Education (PE)/Sports undergraduate degree; “modalities regularized by FIG and other gymnastics practices”. All NGFs affiliated to the International Gymnastics Federation (FIG) that have an official site (n=67, 48, 5% of the total affiliated NGFs) were analyzed. Of these, 25 (37, 3% from the sample) were analyzed for possessing EA and attending the analysis questions. The data were systematized and analyzed with Content Analysis. Results: Among the 25 NGF researched, 18 were originally from Europe (SP=17, EA=1) and 7 from America (SP=3), Asia (SP=2) and Oceania (SP=2). In relation to the university education degree in PE/Sport, 17 NGF do not possess an obligation that professionals have an undergraduate degree, 7 require advanced levels of training and only 1 all levels. Considering the learning opportunity, 13 NGF offered programs of 3 types: Formal (courses and mentoring process), Nonformal (occasional seminars and continuing education) and Informal education (discussion forums, online platform, event organization, congresses, teaching/scientific experiences and observations from experts). The Olympic modalities (Men’s and Women’s Artistic, Rhythmic and Trampoline) are the most sought after by the whole of the internationally organized by FIG, followed by Aerobic, Acrobatic and GfA. Among the other gymnastics practices, Gymnastics for Children, Fundamentals of Gymnastics and Team Gymnastics are the most offered courses. There are 6 Federations that offer only modalities from FIG, 3 offer other gymnastics practices, and 16 offer both. Conclusions: In Conclusion, 72% of EA are from Europe, which are allocated in older and more consolidated NGFs and show a better administrative structure. The fact that 52% of NGFs analyzed
present the three types of learning opportunities demonstrate they are in agreement with the scientific literature. The lack of requirement of a university education degree for basic level training shows the existence of voluntary agents in this process; the demand for professionals indicates the importance of major theoretical knowledge, added to technical ones. Finally, 76% of the NGFs researched also commit to the inclusion of other gymnastics practices, adding the modalities regulated by FIG, indicating the gymnastics in the world is associated to other spheres, besides the competitive sports and the GfA."
POSTER PRESENTATION

Cognitive Control Abilities in Volleyball Athletes: An ERP Study

Sport psychology

"Fanhu Zheng, Qing Lu, Yan An"

"Shanghai Research Institute of Sports Science, Shanghai Science and Technology Management School, Shanghai Research Institute of Sports Science"

"CN, CN, CN"

“Background: Volleyball athletes need to correctly judge the changes in the field, identify the intent of opponents, and grasp the opportunity to perceive and make adjustments. Therefore, it is crucial for athletes to have the ability of conflict monitoring, response selection and inhibition of movement. The present study used Go/NoGo paradigm to investigate the processing of conflict monitoring and behavior control, expecting to provide scientific basis for selection of volleyball athletes.

Methods: The right-handed participants included 15 volleyball athletes, 10 archery athletes, and 9 people as control group. All the participants reported normal or corrected-to-normal vision, normal audition and with no history of neurological or psychiatric illness. Participants sat right in front of the computer screen with a distance of 100cm. Participants were asked to watch the screen carefully and make response to Go stimuli. According to the grand average waveforms of ERP data, the latency and peak amplitude of N2 and P3 were measured at Fz, Cz and Pz sites during the time window of 150-300ms for N2 and 200-500ms for P3, respectively.

Results: (1) For N2 component, the N2 latency was faster in volleyball group (208ms) than that in control group (243 ms; F (2, 34) = 2.97, p = 0.065). There was a significant three-way interaction of stimulus * electrodes * groups for N2 latency (F(4, 68) = 3.85, p = 0.007) and further analysis revealed that the N2 latency in response to Go stimuli was significantly shorter in volleyball (Fz and Cz sites) and archery (Pz site) athletes than in control people, whereas the N2 latency in response to NoGo stimuli was significantly shorter for both volleyball and archery athletes than control group at Pz site. Although NoGo stimuli elicited enhanced N2 (-2.68uV) than did Go stimuli (-0.97uV; F(1, 34) = 36.43, p = 0.00), we did not find any effects related to group (ps > 0.05). (2) For P3 component, we found a significant main effect of group for P3 latency (F(2, 34) = 3.23, p = 0.05), showing that both the volleyball (344ms) and archery (345ms) athletes had shorter latency than did control group (380ms). Similarly, we also found a significant main effect of groups for P3 amplitude (F(2,34) = 7.11, p = 0.003),
revealing that the P3 amplitude in both volleyball and archery athletes was significantly larger than that in control group. No other interested interactions with group were found ($p > 0.05$).

**Conclusions:** Due to the fact that the N2 amplitudes did not differ among three groups, the conflict monitoring is indeed similar for these three groups. Interestingly, the shorter N2 latency in volleyball athletes indicates that volleyball athletes can monitor the conflict faster versus control group. The enhanced P3 with fast peak latency in athletes suggest that volleyball and archery athletes have higher conflict inhibition ability."
Comparative analysis on competitive strength and state for disabled bicycle athletes in various events between China and other top three teams

Elite performance
Fujuan
Chinese paralympic management center
CN

“Background: Rio 2016 Paralympic Games will begin preparing, cycling guidebook qualifications prescribed in each country or region Paralympics receive up to 21 places for the competition, male- no more than 14 athletes, female athletes- no more than seven people (including representing a tandem bicycle places). As of October 22, 2015, China has won three male and four female individual, a total of seven places for the competition. 2012 London Paralympic Games, our country sent eight athletes (including two wild card) competition, won 6 gold, 4 silver and 5 bronze. A number of the same Rio Paralympic Games in London, a total of 50 items. 2015, respectively, participated in the venue and the road cycling world championships- the Japanese cup, have achieved good results, to obtain a certain score. To better prepare for the Olympic Games, to achieve the desired results. In this paper, the China Disabled Persons' cycling team of the tournament is in recent years the world rankings and members of the state to carry on the analysis, and the main rivals to discuss the advantages and disadvantages, in order to the Chinese Cycling Team ability to provide reference.

Methods:
Literature and statistics

Results:
1. the overall situation of the disabled bicycle team in China
2. field C2 man's 3 km individual race condition analysis
3. analysis on the state of the C2 class woman's individual pursuit race in 3 place
4. field C1 man's 3 km individual race condition analysis
5. field C4 woman's 500 meters individual timing race state analysis
6. field C4 woman's 500 meters individual timing race state analysis
7. field C1 woman's 500 meters individual timing race state analysis
8. Status analysis of C2 woman's 500 meter race at the venue
9. site mixed team racing season ranked and state analysis opponents
Conclusions:
From the overall analysis of the Chinese team, the current team of disabled persons on their own overall age of the project team is too large, physical aspects of the players are the main disadvantage, the current players are in a stable state. Venue C2 man's 3 km individual chase, Columbia and Russia state has improved, the Chinese players are relatively stable. Site C2 level in the woman's individual pursuit race, the Dutch team score improved rapidly, and upward to the first, States members of the state is stable, powerful force, sprint and fast is the main advantage of the team, member of the Chinese team is injured at the restoration. Venue C1 man's 3 km individual chase race, China and Argentina are relatively stable and competitive status, Canada in all aspects of the upgrade faster, in a rising state. Venue C4 woman's 500 meters individual time race, China, Holland, Australia, are stable. Site C2 level woman's 500 meters time trial venue, the Netherlands, China, the competition is fierce, the Dutch in stable stage. China and the United States are in increasing in site mixed team racing season. China, Spain, Russia, in recent years, their competition results are little ups and downs, strength difference is tiny, so they will be the biggest surprise in the game in Rio 2016 Paralympic Game."
POSTER PRESENTATION

COMPARATIVE STUDY BETWEEN THE LEVEL OF TAEKWONDO PRACTITIONERS FLEXIBILITY WITH ADVANCED BASIC LEVEL OF TAEKWONDO PRACTITIONERS

Physical activity and health
Elisa Vieira Martins
Universidade de Mogi das Cruzes
BR

“Background: The TaeKwonDo emerged from the junction of the old martial arts for over two thousand years ago in South Korea, mode assists in the development of various physical valences, including flexibility, where this is the ability to perform certain motions in joints with adequate range of motion.

Methods: The sample consisted of 40 TaeKwonDo practitioners divided into two groups with 20 practitioners each, the advanced level group conducts training there is 74.05 months and the basic level group conducts training there is 10.5 months. A health TaeKwonDo the Alto Tiete was chosen, where practitioners held the twenty body joint movements that make up the Flexitest passively, every movement contains a scale from 0 to 4 for a total of five possible movements, the results found in each movement isolated to be added results in the overall index of flexibility called Flexindice.

Results: The data obtained on the score achieved in Flexitest showed that at the basic level group 55% of the volunteers obtained the average flexibility (-), already in the advanced level group only 5% received the medium flexibility (-), and 15% They achieved the excellent rating.

Conclusions: Through the study was able to compare the flexibility of TaeKwonDo practitioners entry-level and advanced level, where the advanced level group most participants showed a high degree of flexibility and only 5% of them were classified as medium (-); at the basic level group participants are evolving the degree of flexibility, where 55% of them are classified as medium (-) and only 10% of them managed to get good rating.”
Comparative Study of Chinese and French Coaches’ Winter Training of Canoe Slalom

Elite performance
GaoPing
Wuhan Sports University
CN

“Background: Based on the winter training practice of the Chinese Canoe Slalom team in 2014, this paper made a comparative research of the Chinese and French coaches’ winter training of canoe slalom from three aspects: training thinking, training content and methods. A survey was conducted between the Chinese and French coaches who were hired for the national Canoe Slalom team, analysis on the difference of their winter training was made to provide a reference for the Chinese Canoe Slalom team to develop a systematic winter training model.


Results: The test in the initial period of winter training in 2014 showed great gap of the competitive level between the Chinese Canoe Slalom athletes and the international excellent players. The gap of competition result is 8 seconds, bench press and bench pull of key women Canoe athletes are 10-15KG less than the international level, the gap of VO2max/kg is 5.4 ml/kg/min.

The French coach took the specialized training as the key point of the winter training, the proportion of the specialized training and physical training should be 6:4. The Chinese coaches followed this way in the earlier stage due to learning from the European experience. Yet, Considering the actual competitive level status of the Chinese athletes in the Olympic Game in Rio, our national team must pay more attention to the influence of the deficient physical ability on their performance, and learn from the foreign training approach critically.

On the winter training content, the Chinese coaches divides the physical training and specialized training clearly, and automatically treated the physical ability as independent section, such as strength, speed, anaerobic and the aerobic training, ignored the physiological function. However, the French coach integrated the physical training with the specialized training and comprehended physical ability as physiological function combined with physical fitness. He followed the biological adaptation law and the over-recovery principle to design the training plan and started the training with aerobic exercise, then the strength and speed under the anaerobic glycolysis energy supplying system and the anaerobic phosphagen energy supplying system.
On the training method, the Chinese coach tended to be monotonous, dull and the training load and action standard were not required strictly. The French coach emphasized the action criterion and standard, controls the training load and rest time strictly, recorded the data in details and made feedback of the training performance to the athletes in time. He is good at applying the discrete training method, complete training, competitive training, data statistics and video analysis methods to organize the training.

**Conclusions:** The Chinese coaches need to understand the essence of the training approach of French coach profoundly, learn the advantages of French coaches from training principles and rules, transform their thinking that focused more on the technique and lay more emphasis on strengthening the physical ability of the national team in winter training."
POSTER PRESENTATION

Comparison of Jump Test and accessory Stride Sensor Polar Bluetooth to evaluate the vertical jump height.

Technology in sports

"Rodrigo Luiz da Silva Gianoni, Yuri Lopes Motoyama, Gilmar Esteves"
"Federal University of São Paulo, Federal University of São Paulo, Federal University of São Paulo"
"BR, BR, BR"

“Background: The performance jump countermovement was appointed as a sensitive tool to check the performance increase, thus, there has been technological tools for results collection. Object: This study aims to compare system using the stride sensor Polar Bluetooth® with the contact platform System Jump Test (Hidrofit) with dimensions 100x66 (pattern) to acquire the value of jumps in the vertical jump test to be getting more tool for monitoring performance.

Methods: To conduct this study will be recruited 18 volunteers to perform two different vertical jump protocols: the squat jump (SJ) and the counter-movement jump (CMJ). The number of volunteers was obtained from the sample calculation generated by the software GPower® to an beta in 80%.

Results: Using Spearman approach, we found a moderate correlation in SJ test (0.7) and a strong correlation in CMJ test (0.8).

Conclusions: There is no means difference between utilization of Polar and the Contact Platform."
Comparison of Technical Actions between Futsal and Soccer Game in Children

Sport pedagogy


“São Paulo State University – UNESP, São Paulo State University – UNESP, São Paulo State University – UNESP, São Paulo State University – UNESP, São Paulo State University – UNESP, São Paulo State University – UNESP, Department of Physical Education, UNESP, Bauru, SP”

“BR, BR, BR, BR, BR, BR, BR, BR”

“Background: Futsal is a sport played on the court that was created from the soccer rules, and has its own characteristics. Many recognized professional soccer players worldwide claim that the practice of futsal in childhood contributed to the development of skills that later helped in the practice of soccer. The importance of the practice of futsal on the development of soccer gaming skills is still uncertain. The aim of this study was to compare the technical actions carried out in the soccer (SC) and futsal (FS) game.

Methods: The sample consisted of 8 players of U-10 (9±3, 1 years, 1, 39±0, 5 m, 33, 0±13, 0 kg) and 4 players of U-12 (11, 5±0, 6 anos, 1, 52±0, 03 m, 45, 5±9, 0 kg), a social project called Soccer School, developed at São Paulo State University - UNESP - Bauru campus, with one class per week of 1h30min. Players were evaluated in two games 15 minutes without interval, both with goalkeepers: one grass soccer field (11x11) and other hard surface futsal court (5x5). Court dimensions: Sub-10 = 36x18m and Sub-12 = 38x19m. Soccer field: Sub-10 = 65x52m and Sub-12 = 72x58m. The games were filmed and subsequently analyzed the technical actions: pass (Ps), finishing (Fi), dribbling (Dr), tackles (Tc) and all contacts with the ball (CT). The statistical analysis comprises the paired t-test (P<0.05).

Results: The results demonstrated that the FS game led children more contact with the ball as well as more specific technical actions such as passes, finishing and tackles, in comparing to the SC.

Conclusions: Futsal (5x5) is a great option for the development of soccer skills, since during the same period of the game the players had more contact with the ball in comparing to the soccer game (11x11). Considering also the purpose of initiation to form the soccer player, the practice of futsal can help in the development of soccer game skills. On the other hand, in the absence or unavailability of court, the
soccer game in format of the small side game in field, similar to futsal (5x5), can also be an alternative to provide more contact with the ball and the development of soccer skills more than the official game format (11x11)."
Comparison of the concentric and eccentric phases of the hip and knee muscles of women with patellofemoral pain syndrome during the single leg Rehabilitation

"Marcelo Martins Kalytczak, Paulo Roberto Garcia Lucareli, Amir Curcio dos Reis, André Serra Bley, Fabiano Politti"

"Nove de Julho University, Nove de Julho University, Nove de Julho University, Nove de Julho University, Nove de Julho University"

"BR, BR, BR, BR, BR"

Background: Patellofemoral pain syndrome (PFPS) is a common disorder of the knee joint complex which affects both active and sedentary women. The cause of this disorder is multifactorial and its etiology has not yet been completely explained. Biomechanical factors and muscle function are often analyzed in attempts to identify the etiology of PFPS and establish effective treatment plans that will lead to clinical improvements in patients. To compare the concentric and eccentric activity and the temporal order of peak activity of the hip and knee muscles of women with patellofemoral pain syndrome during the single leg triple hop test (SLTHT).

Methods: Fourteen healthy women (CG) and 14 women with PFPS (PFG) were included in this investigation. Integral EMG (iEMG) data was calculated for the eccentric and concentric phases of the second jump in the SLTHT, with a focus on the following muscles: gluteus maximus, gluteus medius, biceps femoris and the vastus lateralis. The length of time that each muscle needed to reach the maximal peak of muscle activity from the first contact of the foot with the ground (during the landing) was also calculated.

Results: A significant increase in the iEMG (p < 0.05) was recorded in the eccentric phase, when compared with the concentric phase, for the gluteus maximus and gluteus medius muscles (CG and PFG) and for the vastus lateralis muscle (PFG). The vastus lateralis muscle was the first muscle to reach the highest peak of activity in the PFG, and the third to reach this peak in the CG.

Conclusions: In the present study, there was a significant increase in the activity of the vastus lateralis muscle during the eccentric phase of the jump, when compared with the concentric phase. There was also a temporal anticipation of its peak in activity among women with PFPS."
POSTER PRESENTATION

COMPARISON OF THE EFFECTS OF IMMERSION IN COLD WATER vs PLACEBO EFFECT FROM IMPLEMENTATION OF SYSTEMATIC IN VARIABLE CLINICAL AND PSYCHOLOGICAL.

Rehabilitation

"Gabriela de Carvalho, Jessica Kirsch Micheletti, Franciele Marques Vanderlei, Aryane Flauzino Machado, Jayme Netto Junior, Carlos Marcelo Pastre"

"Estadual University Paulista, Estadual University Paulista, Estadual University Paulista, Estadual University Paulista, Estadual University Paulista, Estadual University Paulista"

"BR, BR, BR, BR, BR, BR"

“Background: Recovery methods are common used in sports to improve the performance of athletes. Cold Water Immersion (CWI) is emphasized in this scenario, obtaining gains in the recovery of several variables, as like as in clinical variables. However, the applicability is also influential in psychological variables thereby placebo effect must be studied to better understand the actual effectiveness of the technique.

Methods: Cross-over study type performed in a period of 4 weeks. The sample was composed of 10 male athletes of high performance allocated randomly into two groups: placebo group (PG) and experimental group (EG). Subjects remained with their training routine with frequency of six times a week. The intervention occurred at the end of each physical training four times a week where PG participants were immersed in thermo neutral water (15 min, 27 °C) with the addition of an oil, which was originally reported as being effective in the recovery process as well as CWI, and the EG participants underwent CWI (15 min, 13 °C). After two weeks the groups changed the interventions between them. The variables analyzed were pain perception, perception of recovery and psychological questionnaire, these were collected at baseline and after the 2nd and 4th weeks of training. The distribution was tested for normality by the Shapiro-Wills test. For the analysis of moments (pre vs. post-intervention) was used paired t test and for comparison between groups (CWI vs placebo) t test was used unpaired. The level of significance was set at p < 0.05 for all tests.

Results: For items of psychological questionnaire was statistically significant difference between the PG moments for the physically ready outcome (Mean values and standard deviation of the pre and post-intervention: 6.08 ± 3.42, 8.76 ± 1.09), indicating an improvement of the physical condition, and muscle pain outcome to EG, where at the time post-intervention values are presented lower (mean values and standard deviation of the pre and post-intervention: 4.32 ± 3.96, 0.58 ± 0.46). There was
no statistically significant difference between groups. For clinical, pain perception and perception of recovery, there was no statistically significant difference between the groups and between times.

**Conclusions:** It can be concluded that CWI compared to placebo has a tendency to improvement in pain after systematic application, but to the other points is not presented as a superior technique.”
Comparison of the Training Variables and Muscle Response between Elite Runners Allergic and Non Allergic

Elite performance

"Gerson dos Santos Leite, Renata N Teixeira, Celso RF Carvalho"
"University of Sao Paulo, University of Sao Paulo, University of Sao Paulo"
"BR, BR, BR"

"Background: The prevalence of allergy in athletes has been increasing, especially, in elite endurance athletes. Allergy influences wellbeing and probably, the athletic performance, however, its influences on daily training and muscle response remains unknown. The purpose of this study was to compare the training variables and muscle response between elite endurance athletes with and without allergy.

Methods: Forty male elite runners aged between 20 and 40 years were assessed in this cross sectional study. The performance time required for the athletes' inclusion were 2h30min in marathon, 1h10min in half marathon and 33min in 10km. The athletes were submitted to a blood sample to determine immunoglobulina E (IgE) specific and creatine kinase (CK) levels. Athletes levels of specific IgE ≥ 0.35 kU/l were included in the allergic group (AG). The training routine of athletes was assessed by a specific questionnaire based on the last week of training, with questions about: Number of sessions (NS), hours of training (HT), training volume in kilometers (TV), rating perception recovery (RPR) and rating perceived exertion (RPE). The training load (TL) was calculated by multiplying the RPE x TV. Statistical analysis: comparison between groups was performed using the Mann-Whitney test for nonparametric data and t test for parametric data, the significance level was set at 5%.

Results: Twenty-two athletes were included in the allergic group (AG) and 18 in the non allergic group (NAG). There was no difference between groups for NS; HT; TV; RPR; RPE; TL and CK. Both allergic and non allergic athletes presented CK within the normal range for elite athletes (AG = 322.2 ± 192; GNA = 373.4 ± 197.8).

Conclusions: It seems that allergy in elite runners does not influence training variables and muscle enzyme response."
POSTER PRESENTATION

Comparison of Two Methods For Tracking a Tennis Player Motion in Competition

Technology in sports


"University of Campinas, University of Campinas, University of Campinas, University of Campinas, State University of Londrina, University of Campinas, State University of Londrina, University of Campinas"

"BR, BR, BR, BR, BR, BR, BR, BR"

"Nowadays one of the most used method to obtain information about a sport player motion in competition is the 2D automatic tracking based on video images. Such methods apply computer vision techniques to extract the player position in function of time and allow the calculation of the total distance coverage by the athlete, its instantaneous and average speed among many other important variables useful to characterize the player performance. After the pioneering studies in soccer, some recent papers used such 2D methods for tracking tennis players. However, no study was found in the literature comparing the results of such 2D tracking method with a more accurate and reliable 3D method in tennis. Therefore, this study intends to compare the results provided by a 2D and a 3D player tracking methods during an official tennis match of the ATP 250 World Tour. The designated 3D method used four fixed cameras (JVC, 60 fields/second), located at higher positions of the bench gymnasium. The cameras were calibrated (DLT) using 72 control points distributed in a volume of 11x11x2.6m in one of the court halves. The accuracy of the 3D method was assessed through a rigid bar test (912.3 mm) was moved throughout the calibrated volume. The maximum error found was of 38mm, with a mean error of 3 mm and a RMSE of 12 mm. The 2D method used one fixed video camera (Casio, 30 Hz) to capture and process the images. The camera was calibrated with a 2D method that used 6 control points measured at the plane of the court. The 2D tracking method was tested with three different post-processing procedures. The first one tracked the player and delivered the results fully automatically (2D automatic). The second one applied the automatic tracking followed by a procedure using a low-pass digital filter (Butterworth 2nd order, 0.375 Hz cutoff frequency), as described in the literature. The third procedure applied the automatic measures and correcting manually by a human operator when, eventually, discrepancies were detected (2D manual correction). Taking the results provided by the 3D method as the ground truth, the results delivered by the three other 2D procedures were compared. The worst results were obtained by the 2D automatic procedure, in x-coordinate, with a $R^2=0.83$, and
a maximum error of 1.19 m. The filtering procedure improved slightly the results with $R^2=0.90$ a maximum error of 1.14 m. The 2D manual correction procedure presented the better results, with a $R^2=0.96$ and maximum error of 0.77 m. Although the regression analysis comparing 2D procedures against the 3D method showed relatively high coefficients of determination (over 0.83), meaning that 2D methods can explain a high percentage of the variability, errors of over 1 meter in the player’s position were found. Taken into account that distances between positions are used to calculate cumulative variables such as distance covered, the results have to be taken carefully and requires further analysis to conclude about the equivalence of 2D and 3D methods."
Comparison Study on Energy Expenditure between Level pace running and Varied pace running in College Students

Physical activity and health
"Yupeng Cui, Minghua Zhao, Xing Huang, Shoufu Yan"
"CN, CN, CN, CN"

**Background:** Obesity is the result of long-term dietary energy intake exceeds energy consumption. How to increase the energy consumption by exercise or proper control calorie intake by diet are the main measures taken in weight control all over the world. In city driving cars with frequent starts and stops, especially in the rush hour, often result in a significant increase in vehicle fuel consumption, in contrast driving cars at a constant speed on highway will save fuel. In order to provide positive data support for weight control by exercise, energy expenditure and exercise intensity of level pace running and varied pace running in college students at the same distance and average velocity was compared in the study.

**Methods:** Eleven college students, 9 males, 2 females, averaged 21.4 ± 0.3 years old, 67.3 ± 7.0 kg in weight, 171.0 ± 6.5 cm in height, with the same exercise level and habit, were subjects of the study. The subjects undertook two treadmill running respectively, the first running was a level pace running of 3 kilometers at a velocity of 8 km/hour (exc-1), the second running of 3 kilometers was a varied pace running, with a velocity between 5km/hour-12km/hour which varied every 100 meters and averaged 7.97 ± 2.47km/hour (exc-2). There was a rush time of 1 week between the two running with the same arrangements (the same time in the morning and the same treadmills). There was a 10-15 min warm up of the subjects before each running, and triaxial accelerometers (Produced by the US company of Actigraph, model of wGT3X+) were worn at waist of the subjects. Energy expenditure, METs, step frequency, and heart rate were measured, with data sampled every 1 minute. Descriptive statistical analysis was taken, with a significant level of P<0.05.

**Results:** The average heart rate (153.0 ± 28.5 b/min) and METs (9.2 ± 2.0) of the subjects during the exc-1 were significantly higher (P<0.05) than that (147.56 ± 20.3 b/min, and 8.0 ± 2.0) during the exc-2, and there was a significant difference (P<0.05) in the step frequencies (153.3 ± 17.3 vs 144.1 ± 18.4 steps/min). The energy expenditure of the subjects in exc-1 (10.5 ± 2.3 kcal/min) was significantly higher (P<0.05) than that (9.8 ± 1.8 kcal/min) during the exc-2.
higher (P<0.05) than that (9.3 ± 2.2 kcal/min) in exc-2, but there was no significant difference (P=0.942) in the average velocity of exc-1 (8.0 km/hour) and exc-2 (7.97 ± 2.47 km/hour).

**Conclusions:** Level pace running compared with varied pace running will lead to a more energy expenditure in human, with a higher heart rate, METs and step frequency, under the conditions of the same running velocity and distance."
POSTER PRESENTATION

Competition in Rhythmic Gymnastics: the Subjective Judgment as Specify Stress Factor

Sport psychology

"Monique Marques Longo, Karine Ferreira Jorge Aragão, Jessica Costa da Cunha Mello"

"University of State of Rio de Janeiro, University of State of Rio de Janeiro, University of State of Rio de Janeiro"

"BR, BR, BR"

"Background:

The subjective judgment typical of rhythmic gymnastics (RG) competitions as a source of stress is the subject discussed in this paper. We also aim to present the influences of pre-stress and competitive in high performance athletes training in rhythmic gymnastics and identify the individual and situational factors that cause such behavior typically in this sport. I

The RG is a sport where the evaluation is subjective. The personal conception of perfect movement bases final result and assigns a score. This factor produces some specific influences in stress before and at the moment of competition. (Fonseca, 2011; Nakashima, 2008).

Methods:

The Methodology adopted had as typology an argumentative dissertation, what means, a bibliographic study, describing the documental analysis. De Rose Junior, Nakashima, Cevada and Fonseca were the theoretical background of this work.

Results:

The research show: (1) Rhythmic gymnastics (RG) is female sport, characterized by the grace, beauty, specific body language and main physical flexibility valence. These factors influence different type the stress production before and at the moment of competition. (Fonseca, 2011; Nakashima, 2008); (2) the RG high performance requires a high technical rigor of biomechanical movement that is judges normally by some person that have personal ideas about the perfect movement. This subjective judgement foster high level of anxiety in competitors; (3) the use of five specific equipment (rope, ball, hoop, ribbon and clubs) foster the insecurity in athletes because, in some way, these equipment is out of control of gymnast.; (4) normally, competitive gymnasts are 15 and 20 years. They don't have emocional and cognitive development finished. So they have to be support by some phycological professional more intensive than one adult gymnast; (5) the individual factors that influence the production of stress are the physical state, technical conditions, experiences, aspirations, and your level of expectation. The situational factors are kind of competitive, as the site and the material of the
games, the preparation, the training, arbitration, cheerleading etc. Both factors could be softened by
Knowledge of the gymnast identity and psychological work.

Conclusions:
Our research showed some specific factors of Rhythmic Gymnastic that produces high level of stress
in gymnasts. The main focus was the subjective judgment of the movement and score, that is
characteristic of this sport. It is necessary that athletes, coach and psychologists have knowledge of
such factors to operate the best way to deal with the variables while maintaining a satisfactory level of
performance, and can so individual and collective goals be achieved."
Coordination of trunk in archers

Elite performance

“Nadjila Tejo Machado, Fernando Carvalheiro Reiser, Elder de Sousa Palha Santos, Tuany Toribio Valtner, Ulysses Fernandes Ervilha, Marcelo Saldanha Aoki, Fernando Henrique Magalhães, Luís Mochizuki”

"University of São Paulo, University of São Paulo, University of São Paulo, University of São Paulo, University of São Paulo, University of São Paulo, University of São Paulo, University of São Paulo"

"BR, BR, BR, BR, BR, BR, BR"

“Background: Archers need to coordinate forearm muscles agonists and antagonists during the shoot. Muscles spanning one joint can coactivate and increase stiffness to stabilize this joint. Archery is a sport which needs strength and stability control especially in the forearm and shoulder girdle. Consistency in archery depends on correct posture and adequate muscles activation during shoot. Central Nervous System controls posture in two actions: Anticipatory Postural Adjustments (APA) and Compensatory Postural Adjustments (CPA) during perturbation. APA is applied to stabilize the Center of Mass (COM) of body before perturbation, to avoid the risk of imbalance induce by the forecoming perturbation. CPA is reflex response elicited by sensory information and is also a mechanism to restore COM position in perturbation. Archer positions the bow with one forearm extended, while the other hand push the rope and holds the arrow. These two movements preceed the arrow release, which perturbs the standing position. Muscle activation in archery remains unclear especially in activation patterns of archers. The objective of study is described activation patterns of trunk in simulation of competition in archery.

Methods: Eleven archers (5 men and 6 women) of Brazilian Team of Archery participated into this study (21.1±1.4 years old, 6.8±1.5 years of experience). The surface electromyography (EMG) of several muscles: Pectoralis Major Clavicular Dominant; Upper Abdominal Dominant; Serratus Anterior Dominant; Multifidus Dominant; Latissimus Dorsi Dominant; Trapezius Upper Dominant; Serratus Anterior Nondominant; Deltoid Posterior Nondominant, electrodes positions in skin according recommendations in literature (Cram, Kasman & Holtz, 1998). Dominant side is pull the string and nondominant support the bow. EMG wired data were recorded, filtered, demeaned and rectificed. Sampling frequency was 2 kHz. Accelerometer data set in the fist determined the beginning of the movement, it is the largest peak in the graph of acceleration by time. Pre-test starting with Maximum Voluntary Contraction. In warm up shoot 3-arrows groups (18 arrows in Warming up). Twelve 6-arrows
groups (each archer has shot 72 arrow to the target) were shot by each archer to target 70 m away. Processed EMG signal divided for CPA, 50 milliseconds-150 milliseconds after clicker. Average and standard deviation across all subjects and all trials correspond of EMG signal during the CPA.

**Results:** This study identified that the muscle Multifidus Dominant and Serratus Anterior Nondominant have similar differences in EMG when compare standard deviation. Pectoralis Major Clavicular, Upper Abdominal Dominant, Serratus Anterior Dominant, Latissimus Dorsi Dominant, Trapezius Upper Dominant and Deltoid Posterior Nondominant present more variability because standard deviation is bigger than mean for EMG. The activation sequence of the postural muscles expected that other studies may have more intervals for CPA and add APA intervals.

**Conclusion:** In Conclusion is more variability in EMG of CPA data.
Correlation between Quality Indicators of Household Environment and Motor Development of Children from Maringa City.

Physical activity and health

"Guilherme Futoshi Nakashima Amaro, Caroline de Carvalho Picoli, José Luiz Lopes Vieira, José Irineu Gorla"

"MARINGA STATE UNIVERSITY, MARINGA STATE UNIVERSITY, MARINGA STATE UNIVERSITY, CAMPINAS STATE UNIVERSITY"

"BR, BR, BR, BR"

"Background:

The child's home environment has been touted as one of the main external factors that directly influence the child development (RODRIGUES and GABBARD, 2007). It is understood that in the first years of your life is that child starts construction of motor behaviors through adaptations and exploitation of the environment in which it lives (DEFILIPO, 2012). Thus it is extremely important to provide opportunities to practice motor activities offered by the environment. (SOARES, et al 2013; RODRIGUES and GABBARD, 2007; NOBLE et al 2012). Based on this framework the family residence can be considered a determining factor in the promotion of the child's motor development.

Methods:

The aim of this study was to determine the relationship between indicators of the quality of the home environment and motor development of preschool children 36-42 months of age, the Child Education Municipal Centers Maringá - PR. The sample consisted of 109 preschool children 36-42 months of age, of both sexes.

How measurement instrument were used: a) the questionnaire Affordances in The Home Environment for Motor Development - AHEMD-SR developed by Rodrigues, Saraiva and Gabbard (2005) and b) for motor tests was used Movement Assessment Battery for Children, 2nd edition - MABC-2, proposed by Henderson, Sudgen and Barnett (2007), translated and validated by Valentini, Ramalho and Oliveira (2013). Data collection was carried out in the school environment for the battery of motor tests, since the questionnaire was sent to parents to answer in your home. For data analysis we used the Kolmogorov-Smirnov test to verify the normality of the data; the Mann Whitney U test for comparison of the sexes; and the Spearman test to correlate the indicators of quality of home environment and motor development, adopting p <0.05.

Results:
The results show that most environments provide better motor development, although there is a lag of daily activities related to pre-school, where there is a lack of fine motor materials. Correlating the environmental quality indicators with the motor development, correlation was obtained between the Interior Space with the skills to put coins with the nondominant hand and Interior Space with balance on one leg.

**Conclusions:**

It was concluded that the indicators of the quality of the home environment have a directly influence on motor performance. The quantity and quality of the materials affect the motor development of preschool children."
Correlation Between Sprint Test 20m and Vertical Jump Test in Soccer Players

Elite performance

“João Guilherme Cren Chimimazzo, João Paulo Castilho Gonçalves Costa, Clayton Mendes Santos, Marcelo José de Souza, Carolina de Moraes Dias, Elvis Aaron de Souza”

“UNICAMP, HWT, HWT, HWT, HWT, HWT”

"BR, BR, BR, BR, BR, BR"

“Background: Physical training in soccer requires the development of different physical capacities, including strength and speed. These capacities are considered of great importance for the achievement of specific actions of the game at high intensity. The aim of this study was to analyze the association between the performances of young soccer players in the sprint test of 20 m with the vertical jump test with countermovement (CMJ).

Methods: 21 male soccer players participated in this study. The athletes presented an average age of 17.38 (SD ± 1.53), height 1.74 m (SD ± 0.062) and weight 66.98 kg (SD ± 6.66). To assess the speed at 20 meters, two photocells were used (CEFISE®, São Paulo) connected to a computer provided with the software Speed Test 6.0. Regarding strength, CMJ test protocol was conducted in the contact platform (CEFISE®, São Paulo), connected to a computer with the Jump System 1.0 software. Pearson's correlation coefficient was used to analyze the linear association between the variables.

Results: The average performance in the sprint of 20m was 3.01 ± 0.16 s. For vertical jump the average was 37.72 ± 3.67 cm. The correlation between the two variables presented the coefficient of $r = -0.530$ (p=0.0142), showing a moderate and significant correlation.

Conclusions: These results suggest that the increase of power levels will also increase the 20m sprint speed, and with this, power exercises are important to improve the speed of athletes in soccer players.”
Correlation of Proprioception with Cognitive Functions and Emotion in Community-Dwelling Elderly Individuals

Sport and quality of life for adolescence and aging

"Yiqing Li, Xiangjiang Rong, Xin Dai, Yang Li"

"Capital University of Physical Education and Sports, Capital University of Physical Education and Sports, Capital University of Physical Education and Sports, Capital University of Physical Education and Sports "

"CN, CN, CN, CN"

“Background: Falls are the leading causes of unintentional injuries in the elderly and thus a pose a major hazard to our aging society. Proprioception plays an essential role in balance control because it is used by the central nervous system to mediate muscle control of joint stability, posture, and movement. Knee proprioception is arguably the most important. In the current study, it has been reported that cognitive impairment is correlated with physical function. Thus, the aim of the study is to analyze the relationship between the proprioception and the cognitive and emotion in older individuals.

Methods: Thirty-seven participants were healthy volunteers aged 50-70 years old, from a community-based sample. The subjects received an explanation of the procedures and methods and provided informed consent before the experiment. Proprioception can be assessed by measuring joint position sense. The proprioception test consisted of an active reproduction of active positioning test. Joint position sense was tested at 15 degrees, 30 degrees, and 60 degrees knee flexion. Three trials were completed at each angle. The main outcome measure was joint position sense absolute error (AE). Cognitive parameters included simple reaction time test and visuospatial memory span test. Emotion tests were assessed using the Beck Anxiety Inventory (BAI), State Trait Anxiety Inventory-state portion (STAI-Form Y), Beck Depression Inventory (BDI) and Rosenberg Self-esteem Scale (RSES). The collected data were analyzed by correlation analysis using the SPSS program (ver. 20).

Results: The simple reaction time test was a strongly positive correlated with left knee joint proprioception at 15 degrees (r=0.64, p=0.00). BDI was positive correlated with left knee joint proprioception at 30 degrees (r=0.40, p=0.02). RSES was negative correlated with right knee joint proprioception at 15 degrees (r=-0.34, p=0.05). BAI was a strongly positive correlated with right knee joint proprioception at 60 degrees (r=0.43, p=0.01). BDI was a strongly positive correlated with right knee joint proprioception at 60 degrees (r=0.57, p=0.00). AI was positive correlated with right knee joint proprioception at 60 degrees (r=0.38, p=0.03).
Conclusions: This study indicates that the knee proprioception level is associated with the cognitive functions and emotion in community-dwelling elderly individuals. This Conclusion warrants further studies."
Cortical and hippocampal levels of brain derived neurotrophic factor (BDNF), adrenocorticotropic hormone (ACTH) and corticosterone throughout the lifespan of rats submitted to exercise during adolescence.

Neuroscience and sport

“Andréa Dominguez Carvalho, Jessica Salles Henrique, Alexandre Aparecido de Almeida, Angélica Begatti Victorino, Ricardo Mario Arida, Laila Brito Torres, Francisco Romero Cabral, Sérgio Gomes da Silva”

“Federal University of Sao Paulo, Federal University of Sao Paulo, Federal University of Sao Paulo, Federal University of Sao Paulo, Hospital Israelita Albert Einstein, Hospital Israelita Albert Einstein, Hospital Israelita Albert Einstein”

"BR, BR, BR, BR, BR, BR, BR, BR"

**Background:** There are reports that life experiences at early ages such as physical activity in childhood and adolescence can reduce the future risk of brain disorders and enhance lifelong brain functions. However how early physical activity promotes such effects are not well understood. A possible explanation is that physical exercise can stimulate neuronal growth, resulting in a neural reserve which could be extracted throughout the life course. The present study was designed to investigate the hypothesis of neural reserve induced by early physical activity. To do this, we evaluated the cortical and hippocampal levels of BDNF, ACTH and corticosterone during the aging course of rats submitted to physical exercise during adolescent period.

**Methods:** Forty-eight male Wistar rats were distributed into exercise (EX, n=24) and control (CTL, n=24) groups. Rats from EX group were submitted to an aerobic exercise program during the 21st and 60th postnatal day (P21-P60). Afterward, cortical and hippocampal levels of BDNF, ACTH and corticosterone from the EX and CTL groups were investigated at different life stages: 0 (P60), 30 (P90), 60 (P120) and 90 (P150) days after last exercise session. The BDNF, ACTH and corticosterone levels were quantified by mean of Luminex xMAP system (MAGPIX technology).

**Results:** After the last physical training session (at P60), a significant increase of hippocampal BDNF (p = 0.002) and a decrease of cortical ACTH (p = 0.03) were detected in EX group in relation to CTL group. At P90, a significant decrease in hippocampal BDNF level was observed in the Ex group when compared to the CTL group (p = 0.016). At P150, levels of hippocampal ACTH (p = 0.003) and cortical corticosterone (p = 0.043) were lower in Ex group than in CTL group.
Conclusions: Our results indicate that changes in the cortical and hippocampal levels of proteins and hormones linked to cellular growth and stress may occur throughout life of rats exercised in youth.”
POSTER PRESENTATION

Cross Cultural Validity and Measurement Invariance of the Organizational Stressor Indicator for Sport Performers (OSI-SP) Across Three Countries

Sport psychology
"R. Arnold, V. Ponnusamy, C-Q Zhang, D. Gucciardi"
"University of Bath, Institut Sukan Negara, Hong Kong Baptist University, Curtin University"
"GB, MY, HK, AU"

"Background: Organizational stressors are a universal phenomenon which can be particularly prevalent and problematic for sport performers. In view of their global existence, it is surprising that no studies have examined cross-cultural differences in organizational stressors. One explanation for this is that the Organizational Stressor Indicator for Sport Performers (OSI-SP), which can comprehensively measure the organizational pressures that sport performers have encountered, has not yet been translated from English into any other languages nor scrutinized cross-culturally. The first purpose of this study, therefore, was to examine the cross-cultural validity of the OSI-SP. In addition, the study aimed to test the equivalence of the OSI-SP’s factor structure across cultures.

Methods: British (n = 379), Chinese (n = 335), and Malaysian (n = 444) sport performers participated in this study. The participants represented a variety of individual and team sports at standards ranging from club to international. Participants completed the OSI-SP to measure the dimensions of the organizational stressors they had encountered over the past month. To analyze the data, confirmatory factor analyses (CFAs) were used.

Results: CFAs confirmed the cross-cultural validity of the factorial model for the British and Malaysian samples (CFI range: .93 to .94; RMSEA range: .05 to .06); however the overall model fit for the Chinese data did not meet all guideline values. Examining the Chinese data at a subscale level revealed that the logistics and operations, team and culture, coaching, and selection factors all generally displayed acceptable fit; however, the goals and development factor did not. When removing this subscale and testing the fit of the 17-item, four-factor model to the Chinese samples’ data, acceptable values were evident. Support was also provided for the equality of factor loadings, variances, and covariances on the OSI-SP across the British and Malaysian cultures.

Conclusions: This study demonstrates that organizational stressors can be accurately measured by the OSI-SP in a first-order, five-factor model regardless of if they are encountered in a British or Malaysian cultural context. Future research is required to further examine the appropriateness of the goals and development subscale with Chinese sport performers and also extend the usage of the
indicator to additional cultures. The findings of this study are theoretically, empirically, and practically important since they offer support for the external validity and cross-cultural applicability of the prior conceptualization and operationalization of organizational stressors, and provide scholars and practitioners with sound knowledge and understanding on the cross-cultural existence and optimal measurement of these demands."
POSTER PRESENTATION

Description of a Physical Functional Assessment Protocol for Asymptomatic Individuals

Sport and quality of life for adolescence and aging

"Guilherme dos Reis Dias, Danilo Pereira Alves, Jefferson John da Silva Santos"

"Serviço Social do Comércio, Serviço Social do Comércio, Serviço Social do Comércio"

"BR, BR, BR"

"Social Service of Commerce (SESC) is a private social institution, which develops programs and projects that encourage the practice of sports aiming the quality of life and the development of physical and cognitive abilities. It is know that the analysis of complex body movement patterns enable the identification of weaknesses and help professionals to prescribe exercises for specific aims, maintain or restoring the functionality. Because of this, the goal of this study was to suggest an evaluation protocol for the functional capabilities through physical exercises, based on assessments of SESC’s regulars.

Participated in this study 161 volunteers (46 men; 115 women). All of the subjects were members of the SESC, have a history of physical activity and are asymptomatic. They were divided into three groups according to their age: Group of young adults aged between 20 and 39 years (G.young) with a mean age (MA) of 31.59±4.73 years, average body mass index (BMI) of 25.20±4.54 and an average waist-hip ratio (WHR) 0.87±0.05; Group of adults aged between 40 and 59 years (G.adults) with a MA of 49.40±5.94 years, BMI of 26.71±3.63 and average WHR of 0.92±0.07; and Group of older people aged over 60 years (G.old) with a MA of 68.80±4.62 years, BMI of 27.46±4.13 and average WHR of 0.95±0.04. The task used was based in the performance of movements that emphasize each of the physical abilities. In order to evaluate the movement patterns, seven tests have been used: 1) Coordination: lunges with trunk rotation; 2) Flexibility: Elevation alternating segments, bringing knee elbow in opposition; 3) Agility/Power: Sideshift with implement launch the ground and recovery in the air; 4) Balance: Stiff (one leg) with inverted crucifix; 5) Core stability: Side plank with trunk rotation and adduction of the upper limbs; 6) Resistance: Swing with implement and 7) Strength: isometric squat with front elevation. Data collection occurred by completing ten aspects observable for each exercise, which contained understanding, alignment, posture and joint movements.

The dependent variable analyzed was the efficiency ratio for the exercise calculated in percentage (performing magnitude): zero (0%) when the individual did not meet any of the recommendations outlined in the exercise; and from one to one hundred (1-100%) when the requested task was
accomplished. A one-way ANOVA with repeated measures was conducted with data from each group to analyze the performance.

There was no significant difference between the groups. Coordination: \[F(5; 161)=3.957, p=0.1441\]; Flexibility: \[F(5; 161)=0.079, p=0.9256\]; Agility/Power: \[F(5; 161)=1.202, p=0.4136\]; Balance: \[F(5; 161)=5.252, p=0.1047\]; Core: \[F(5; 161)=1.251, p=0.4026\]; Resistance: \[F(5; 161)=1.088, p=0.4411\] and Strength: \[F(5; 161)=0.305, p=0.7573\].

The results confirmed the primary hypothesis, in which the protocol was expected to be able to measure the physical capabilities efficiently. Besides, the secondary hypothesis, which assumed that the adjustments made in the exercises by age did not affect the performance of the groups, was confirmed as well.
**POSTER PRESENTATION**

**Determination of oxygen consumption from the relationship between HR-VO2 continuous and intermittent test**

Elite performance

"Henrique Santos da Silva, Alexsandro Santos da Silva, Gabriel Fortunato da Silva, Rodrigo Fernandes Junior, Julio Wilson dos Santos"

"São Paulo State University – UNESP, São Paulo State University – UNESP, São Paulo State University – UNESP, São Paulo State University – UNESP, São Paulo State University – UNESP"

"BR, BR, BR, BR, BR"

**Background:** The relationship between heart rate (HR) and oxygen consumption (VO2), (HR-VO2) shows linearity in the continuous exercise. From this linear relationship between HR-VO2, HR has been used to estimate VO2 and calculate the caloric expenditure in intermittent exercise, as in soccer and futsal. Although the VO2 can be estimated by the HR in continuous exercise by the linear relationship obtained in treadmill running, this relationship is not well understood in intermittent exercise. It is likely that the estimated VO2 in exercises or intermittent sports, from the HR-VO2 relationship of continuous exercise may overestimate the real VO2, since which occur accelerations, decelerations, changes of direction and other intense activities that may interfere with HR-VO2 linear relationship. The aim of this study was to determine whether the equations obtained by the HR-VO2 relationship in a continuous test (CT) on a treadmill and an intermittent test with recovery on the court (ITR) are able to estimate the VO2 at different intensities.

**Methods:** Eight professional futsal players, from team of the National League of Brazil (25.0 ± 4.3 years, 179 ± 6 cm; 76.4 ± 5.7 kg and 17.2 ± 3.0% fat) were evaluated. The players underwent two maximal tests (CT and ITR), for determination of maximal oxygen consumption (VO2max) with initial intensity of 8 km/h until exhaustion. HR-VO2 relationship was obtained by linear regression of each subject individually for each test. Based on HR-VO2 regression equation of each test, VO2 was calculated for each intensity in both tests, VO2 estimated in continuous test (VO2c) and VO2 estimated in ITR test (VO2i) and compared with the real VO2 (VO2r) of ITR test. VO2 and HR were used by the calculations of the average at the final 30 seconds of each test stage. Pearson correlation was used to verify the relationship between FC-VO2 of the two tests. ANOVA by repeated measures was used and post-hoc Newman-Keuls (P <0.05).

**Results:** VO2max was higher in the TC when compared to the ITR (50.78 ± 2.67 and 47.06 ± 4.73 mL/Kg/min, respectively) as opposed to the maximum heart rate, which was higher in the ITR (178 ± 30.5).
8:58) compared to CT (184 ± 7.92). There was no difference between the speed that was reached at VO2 tests (p> 0.05). Both tests showed significant correlation between HR-VO2 (TC: 0.94 ± 0.02 to ITR: 0.86 ± 0.07). Only the intensity of 8 km/h the results did not differ. In all other intensities (9-16 km/h) VO2c, estimated by the equation in continuous test differed significantly from VO2r and VO2i. Considering the mean of all the intensities, the use of CT regression equation overestimated VO2r by 15%, whereas the equation obtained by ITR test underestimated by only 0.4%.

**Conclusions:** The VO2c estimated by HR based on the regression equation in the CT test differed from VO2r, while with the equation in the ITR test did not. The use of HR-VO2 relationship.
POSTER PRESENTATION

Development of a system for measuring weight distribution during measurement of isometric forces and range of motion of wheelchair athletes

Sport nutrition

"Rob Zanders, Bart Roovers, Annemarie de Witte, Monique Berger"


"NL, NL, NL, NL"

“Background:
Performance of wheelchair sports is influenced by the wheelchair-athlete interaction. For example, isometric force generation to the rim and weight distribution between front and rear wheels can influence performance in wheelchair court sports. Position and movement of the trunk while driving the wheelchair will influence this weight distribution and therefore the rolling resistance of the wheels. To get more insight into the wheelchair-athlete interaction during wheelchair activities, measurement of these factors is necessary by athletes in their own sports-wheelchair. The aim of this study is to develop a measurement platform for measuring weight distribution during trunk motion and during measurements of static isometric forces.

Methods:
Based on literature and interviews with experts, needs and requirements were determined. The platform should; 1) measure the weight distribution between front and rear wheels during trunk motion in the sagittal plane and 2) measure the maximal isometric forces to the rim in their own wheelchair. Furthermore, the platform must remain in place, the wheelchair must be stable on the platform and the transport must be easy.

Based on these requirements, the platform is designed and manufactured. To test the reliability of the weight on the balance scales, there were two tests performed; a static and dynamic test. During the static test, known weights were used to check the platform outcome of weight distribution. During the dynamic test, five participants performed an isometric force test. All participants performed the dynamic test five times. ICC values were calculated with SPSS (version 22.0) to indicate the reliability.

Results:
The measurement platform consisted of two separates plates both with an independent balance scale (underneath connected to a computer). Behind the platform there is a force transducer connected to
the footplate of the wheelchair (MacMesin AFG 1000N). The top of the plates is covered with synthesis basketball court material to improve the ecological validity.

The outcome of the static test, was an ICC of 0.998. The ICC of the dynamic test was 0.955, which is considered as good for these type of measurements 1. Both ICC outcomes re linked to the reliability of the balance scales.

**Conclusions:**

From the results it can be concluded that the platform can measure reliably weight distribution and can be used in measurements of trunk motion and isometric forces of wheelchair athletes. Trunk flexion might influence the center of gravity of the athlete and therefore, the weight distribution. In future research the platform will be used to measure the influence of trunk flexion on weight distribution between the front and rear wheels during wheelchair actions and during maximal isometric force measurements."
POSTER PRESENTATION

Development of the Safe Hurdle for Competition
Technology in sports
"Wang ping, Wang Zheng-zhen, Chen Wei-jian"
"Guangdong University of Petrochemical Technology, Beijing Sport University, Guangdong University of Petrochemical Technology"
"CN, CN, CN"

Background:
The concept of a new hurdle frame aiming at solving the problems of “fear Bar” and “fell bar” in hurdle training and hurdle competition was proposed in the paper, which focused on exploring the maximum safety, fairness and convenience methods in hurdle process and achieving the innovation and upgrading of hurdle equipments.

Methods:
The experiments of implement competition safety design hurdle frame are based on the designed test of a buffer resistant spring, the base elevation arc, baffle switch button and other components to validate the feasibility of the buffer and utilized designed to test and then to improve the sliding uplift such as the overall design of the rolling test.

Results:
By extending the time of hitting the bar, the methods were proved to help the athletes buffer the hit bar impulse and decrease the impulse and they have more time to react in hurdle process and then to control body posture or movement adjustment; meanwhile, through the spring of elastic resistance and baffle authorities suction, the frame provided the range of resistance in 3.6-4.0 kg which is consistent with the relevant provisions of the IAAF. Through base lifting device it is designed to ensure the vertical distance from the top of the column board to the ground remain the same in the process of hurdles. The design of automatic reset and the bar rolling buffer type base gives full consideration to the convenience and the production cost.

Conclusions:
The competition type safety hurdle frame can effectively improve the safety of hurdles aircraft and take into account the fairness and convenience, which are also in accordance with “Athletics Competition Rules (2014-2015)” requirements applicable to competitions and training and it will be the major changes to achieve hurdle equipments project in the future."
POSTER PRESENTATION

Diabetes mellitus, memory and balance: acute effect of exercise

Physical activity and health

“Mariana Eiras Borges, Alessandra Mussi Ribeiro, José Alexandre Curicacos de Almeida Leme, José Rodrigo Pauli, Eliete Luciano, Luciana Mendonça Arantes, Ricardo José Gomes”

“Universidade Federal de São Paulo, Universidade Federal de São Paulo, Unesp, Unesp, Unesp, Unesp, Unesp, Universidade Federal de São Paulo”

"BR, BR, BR, BR, BR, BR, BR"

“Background:

Diabetes Mellitus (DM) is chronic disease associated with cognitive impairment. Regular exercise training is effective in reducing cognitive impairment, but there are few studies about the acute effects of exercise on these aspects. Thus, the aim of this study was investigate the effect of acute aerobic exercise in memory and balance, as well as the IGF-1R, GSK-3β and tau proteins in the hippocampus and cerebellum of diabetic rats induced by alloxan (32 mg / kg).

Methods:

The study was divided into two experiments. In experiment I, 20 male Wistar rats randomly assigned into groups: control evaluated immediately after exercise (C0), control 24 hours after exercise (C24), diabetic evaluated immediately after exercise (D0) and diabetic assessed 24 hours after exercise (D24). In the second experiment (n=20), the animals were divided into sedentary control group (CS), exercise control (EC), sedentary diabetic (SD) and diabetic exercise (DE). Molecular analysis of the hippocampus and cerebellum (pIGF-1R, pGSK-3β and ptau) were performed immediately after exercise in C0 and D0 groups, and 24 hours after exercise in C24 and D24 groups. In the experimental II, behavioral analyses were performed using body balance testing and object recognition task. Data were expressed as mean ± standard deviation error and analyzed using Student’s t test and/or two-way ANOVA, with a significance level of p <0.05.

Results:

The results showed deficit of short term memory in the DS group and increase in the DE group. Furthermore, the DS group showed higher number of errors in crossing the balance beam. In the cerebellum there was increase in GSK-3β phosphorylation in C24 and D24 when compared to D0, in addition there was increase IGF-1R in C24 when compared to D0. In the hippocampus, acute exercise was able to increase phosphorylation of GSK-3β and IGF-1R in C24 and D24 groups when compared to D0 group.
Conclusions:

Taken together, results show that DM leads to an impairment in short term memory and balance, and acute exercise is able to improve these parameters accompanied by increase in the phosphorylation of proteins signaling pathway in the hippocampus and cerebellum."
POSTER PRESENTATION

Discuss about the cause and strategy of the moral deficiency of Chinese athletes

Sport ethics and integrity
Gaohaokun
Chengdu Sport University
CN

“Background: The establishment of Chinese market economy system pour new opportunity and activity into Chinese sports. The excellent representation which the athlete did in the sports match reflect the high quality level of Chinese athletes. Nevertheless, there exist many problems about Chinese sports, particularly some occurrence that disobey sportsmanship happening to athletes. This article regarding the deficiency of athletes as the object of research, exploring the cause of this appearance and offering the strategy and suggestion.

Methods: The research method of this dissertation mainly include literature analysis, expert interviews and case study method. In this paper, always adhere to the principle of combining qualitative and quantitative analysis, to the scientific and objectivity which research results.

Results: Among the reasons for the moral deficiency of Chinese athletes, we can probe into from five aspects: 1. Deviation of the Sport system. "national sports system"in China combine national interests with Sports closely. However, the principle of supremacy of national interests conduced the unfair and inequitable selection system of athletes. 2. Influence of economy system. the establishment of the socialist market economy system raising the enthusiasm of athletes. However, it also influence and strike the sports morality of athletes. The interests would drive athlete to do some false things. 3. The lagging of relevant legislation. Without the compulsive guarantee of law, moral chaos and irregular self-management would become inevitable during the game. 4. The shortage of moral education. In China, the athletes' education focus on improvement of skills. This principle unilaterally pay attention to athlete’s achievement in match, often neglect the culture study and moral cultivation. 5. Weak organizational regulation. Sports organization needs not just internal oversight, what’s important is supervision of external groups and society. Sports administrators have some wrong ideas, such as the eagerness for quick success. 6. The irregularity of reward and punishment mechanism. Reward and punishment can effectively control sports morality. But Chinese athletes’ s rewards and punishment mechanism evaluate by "Championitis" and achievement is unfair.

Conclusions: The phenomenon of moral deficiency of Chinese athletes happens oftentimes, this article consider the cause of this phenomenon is the shortage of politics, economics, laws, morality and...
organizational regulation. Therefore, for purpose of change this situation, there are some suggestions as following: Primarily, weaken the relationship between politics and Sports, carrying out the spirit of friendship, solidarity and fair which regard the Olympic tenets as the core. Secondly, establish a set of reward and punishment mechanism adapted to market economy system. Meanwhile, strengthen relevant construction of sports laws and regulations, so as to govern athletes’ ideology morality. Then, supplemented by sports moral education to enhance the level of morality and culture. In the end, intensify the supervision of sports organizations to ensure that it won’t affect the transformation of athletes’ moral idea.”
POSTER PRESENTATION

Discuss on Chinese Reserve Talents Cultivation in Competitive Sports

Sport development
Deng Chenliang
University of Electronic Science and Technology of China
CN

“Background:
This paper aims to provide theoretical References for related departments to seek a way with Chinese characteristics in the training of competitive sports reserve talents, which comforts to the needs of Chinese political and economic development as well.

Methods:
Mainly adopting documentation and interview, this paper reviews Chinese competitive sports reserve talentes training system from three aspects, including talents cultivating concept, training system, and cultivating mode. Moreover, this paper explores the problems in this system and puts forward targeted suggestions.

Results:
According to different training methods, Chinese current cultivating system of competitive sports reserve talents can be divided into three types. Take training degree into consideration, the first type can be classified into four levels. The first level includes traditional sports item schools, ordinary teenager sports clubs, and general pilot schools which have high level sports training teams with. The second level is regarded as various physical education schools and amateur sports training teams of all sizes. The third level consists of professional teams from provinces and cities, high-level university sports teams, and specialized sports teams. The forth level refers to national teams of all kinds of sports. In terms of cultivating characters, the second type falls into specialized teams, professional teams and amateur training teams. According to management departments, the third type could be divided into high-level university sports teams which are managed by physical cultural administrative departments and ministry of education, amateurish youngsters sport schools and sports activities in middle and primary schools managed together by physical cultural administrative departments and ministry of education, professional teams and clubs exclusively operated by ministry of industry, and competitive sports schools and clubs formed spontaneously in society. There are mainly four cultivating modes for Chinese current competitive sports reserve talents: “Ding Junhui Mode”, “Wenzhou Mode”, “Tsinghua Mode”, and traditional “Nationwide Mode”. Through comprehensive analysis of training
concepts, system, and mode of Chinese competitive sports reserve talents, several problems, including strong government administrative participation, low efficiency rate of resource allocation, blurry boundary of property right of sports school, deficiency of promoting system, disconnection between sports training and culture education, obvious contradiction between single investing body and multi-interest groups still exist.

**Conclusions:**

In order to establish a healthier training system for competitive sports talents, it is suggested that the cultivating mode should be developed from single to pluralism; the concerns should be transformed from sporting achievements to all-round development of human beings; and the cultivating modes should be transformed to correspond with socialist market economy, rather than planned economy."
POSTER PRESENTATION

Dissatisfaction with auto body image in adolescents overweight

Physical activity and health
"Caroline Ferraz Simões, Caio Machado de Oliveira Terra, Adriano Ruy Matsuo, João Carlos Locateli, Nelson Nardo Junior"
"State University of Maringá, State University of Maringá, State University of Maringá, State University of Maringá, State University of Maringá"
"BR, BR, BR, BR, BR"

“Background: Obese individuals present a concern about both the shape and body weight with a normal dissatisfaction level. The dissatisfaction with the own body has been frequently associated to the difference between the real body perception and the relative desire to an ideal body. This way, the present study has the aim to verify the level of auto body image dissatisfaction of adolescentes.

Methods: The study sample was composed of 24 adolescents with overweight or obesity, aged to 15 from 18 years old. To the auto body image assessment was applied the nine silhouettes scale proposed by Stunkard (1983). The dissatisfaction is the result of the subtraction of the silhouette real by the ideal. To data analyze was used the ANOVA to repeated measures, considering the significance level of p<0, 05.

Results: When analyzed the separation of the dissatisfaction levels by quartiles (25, 50, 75, and 90) is possible to observe a difference between the pre-intervention moment and the post intervention moment over the control group, this can be understood because the dissatisfaction levels considered as the percentiles (25, 50, 75, and 90) were respectively 1, 2, 3, and 4. At the post intervention moment, respectively 1, 2, 4, and 5. The same pattern is observed when the frequency analyze was performed (relative and absolute), because at the pre-intervention moment, the adolescents classified with a low dissatisfaction were 8 (33, 3%), and this remain the same at the post intervention moment. The dissatisfaction mean presented frequencies of 14 (58, 3%) and 15 (62, 5%), high dissatisfaction of 2 (8, 3%) and 1 (4, 2%) respectively in the pre and post intervention.

Conclusions: The current study indicates that although the adolescents did not have submitted to a multidisciplinary program of obesity treatment, the fact of comparing the control group together presented a little impact over the variables studied."
POSTER PRESENTATION

Dissemination and Scientific Research Application in High Performance Sport in Brazil

Governance and policy

"Cacilda Mendes dos Santos Amaral, Flávia da Cunha Bastos, Maria Tereza Silveira Böhme"

"University of São Paulo, University of São Paulo, University of São Paulo"

"BR, BR, BR"

Background:

Science becomes important in the structure of Brazilian sport after the implementation of postgraduate courses in the 1970s. However, there was an abandonment of public policies that made use of Universities and research institutes resources to carry out research activities aimed at high performance sport. It is essential to allocate resources and infrastructures to laboratories and to join teaching and research institutions with the confederations and federations in order to understand the demand and disseminate knowledge. Therefore, the aim of this study was to understand the dissemination mechanisms of science (scientific research) at the federal, state and municipal levels and analyze how athletes and coaches evaluate the applicability of science in their practice.

Methods:

This exploratory research was performed by documental analysis, through analyzing the official media and publications of sport governing bodies at the federal, state and municipal levels; and by field research, through questionnaire and descriptive statistical analysis to questions concerning access to scientific research and its applicability in training, to 449 athletes and 83 coaches representatives of different competitive levels and Olympic sports.

Results:

At the federal level, it was possible to identify the publication of a journal held by the COB, the “Revista Laboratório Olímpico”, initiative aimed to spread science and knowledge produced by other institutions. Among the states and municipalities analyzed, it was found that none had a formalized communication and dissemination channel to serve scientific content. No scientific research database, regularly updated, was found that can be queried by technicians and Confederations at the federal and state levels. Only the city of São Paulo showed initiative in this area, by making available to the general public, on the official website of the Municipal Government Body, some scientific publications, but this content has no regularity in its update. Among coaches, 90% state that they have not received material on scientific knowledge at least once a year and 95% evaluate as insufficient the dissemination of scientific information. As for the applicability of scientific research for athletes, most evaluate it as reasonable.
(22%), low (18.8%) and very low (23.2%), while 18.8% said they do not know. Among the coaches, the applicability is also evaluated by majority as reasonable (29%), low (31.6%) and very low (18.4%).

**Conclusions:**

Thus, it is safe to say that the dissemination of scientific research possesses a communication failure between the organs of the science and the actual practice of Brazilian Olympic sports training programs, despite the efforts to disseminate scientific information through the initiative of the “Revista Laboratório Olímpico” of COB. It shows a gap between science and practice, contributing to the fact that professionals working in the development and training of athletes, not meet their needs regarding scientific support to the practice of high performance sport."
Diversity and Inclusion Management - Rio 2016 Committee Social Legacy

Governance and policy
"Lucyana de Miranda Moreira, Eloise Soares Brillo"
"University of Mogi das Cruzes, RIO 2016 ORGANISING COMMITTEE FOR THE OLYMPIC AND PARALYMPIC GAMES,"
"BR, BR"

"Background: Rio 2016 Games will be a unique opportunity to inspire people worldwide, as one of its social intangible legacies. Rio 2016 needs to manage a complex and heterogeneous workforce of more than 150,000 workforce and to deliver that, is required to develop a challenging organizational culture. One of its pillars should be Diversity and Inclusion (D&I) management, responsible for building a culture to reach an inclusive environment to all clients during Olympic and Paralympic Games. These clients will be people for all parts of the world, different cultures, ethnicity, gender, belief, age, sexual orientation, religion, nationality, disability, etc.

Case presentation: Diversity should be an organizational core value for all workforce, responsible to deliver it throw their daily responsibilities, and above that, a shared core value between Rio 2016 and its stakeholders that are responsible to maximize D&I social impact. D&I program was developed based on actions that could embed Rio 2016 Organizational Culture, External Corporative Image, Products and Services. In relation to Organizational Culture, the first action was leadership alignment, defining strategy and positioning. Based on that, next steps to achieve D&I were developed, such as: Training – train all workforce to have right attitude and knowledge; Communication – Workshops and internal news about relevant issues; Engagement – celebration of important milestones; Dialogue – creation of employees networks to discuss strategy and possible actions; Monitoring – people survey to monitor inclusion aspects; Attraction – focused on recruitment developed to attract specific social segments and specific recruitment program; and Policies – workforce policies and benefits that reflect D&I strategy. To build an external corporate image was necessary to create a specific communication plan including press and digital media. It was necessary to continuously communicate D&I strategy, manifesto, milestones and celebrate important dates in all communication channels. Rio 2016 products and services delivery also needed to be aligned with D&I strategy. Games stakeholders involved in Games products and services needed to follow the same standards. In order to achieve that, the most important path is the leadership engagement. No one is able to better understand the area delivery
than its own leaders. They needed to be committed to D&I standards and deliver it every day in their business, as well as monitoring and coaching suppliers and contractors.

**Conclusion**: Diversity and Inclusion is a core value for an Organizing Committee that intend to create a positive social impact, considering that Games have the power to engage society in many aspects, including social transformations. After Games, millions of people will be able to live D&I values, and after that, disseminate an inclusive culture in their countries and environment in the future. As a legacy, D&I management provides an opportunity of different people living in an inclusive environment, valuing their differences and providing positive attitudinal changes together with creating equal opportunities, not only in sports, but also in their own live."
POSTER PRESENTATION

Does Resistance Exercise with versus without Blood Flow Restriction Alter Appetite in Trained Men?

Sport nutrition

“Mariana Eiras Borges, Alessandra Mussi Ribeiro, José Alexandre Curiacos de Almeida Leme, José Rodrigo Pauli, Eliete Luciano, Luciana Mendonça Arantes, Ricardo José Gomes”

“Universidade Federal de São Paulo, Universidade Federal de São Paulo, Unesp, Unesp, Unesp, Unesp, Universidade Federal de São Paulo”

"BR, BR, US, BR, BR, BR, BR"

“Background: A single session of resistance exercise is capable of changing appetite, demonstrating that high load training session may reduce food intake post-exercise. However, it is not clear whether resistance exercise with blood flow restriction (BFR) at low-loads may alter appetite in a similar manner. Thus, the aim of this study was to compare the acute effect of resistance exercise with versus without BFR on appetite.

Methods: Twelve apparently healthy trained men (mean ± SD – age = 23.33 ± 3.77 years, body mass index = 24.49 ± 2.80 kg/m2, body fat percentage = 11.44 ± 4.69 %, and one repetition maximum [1RM] load for the knee extension machine = 112.08 ± 20.72 kg and biceps curl = 41.91 ± 6.69 kg) participated in a crossover randomized counterbalanced design study. Subjects participated in three sessions separated by 3-5 days. In the first session, anthropometric measurements were taken and the 1RM test and familiarization session were performed. In the second and third sessions, knee extension and biceps curl were executed for BFR and traditional resistance exercise (TRE). Both methods were standardized by total work with three sets of eight repetitions at 70% of 1RM for TRE and three sets of 16 reps at 35% of 1RM for BFR. A cadence of one second for eccentric and concentric contractions was followed and one-minute rest interval between sets and five minutes between exercises were provided. BFR was applied at the most proximal portion of the limbs using a 76 mm wide elastic knee wraps placed on the arms (biceps curl) and thighs (knee extension). Appetite was assessed through visual analogue scale with 100mm in length with words anchored at each end, expressing the most positive and the most negative rating. This scale was used to assess hunger (HG, cm) and prospective food consumption (PFC, cm) before, immediately, 30 min, and 60 min post-exercise. To compare appetite measurements, a two-way ANOVA with Newman-Keuls post hoc was used.

Results: There were no significant differences between BFR and TRE for appetite at rest and post-exercise (P > 0.05). When compared to rest (intragroup), HG significantly increased 30 min and 60 min post-exercise.”
post BFR (P < 0.05). There was also an elevation of PFC immediately post-session BFR, and 30 min and 60 min post-exercise for both methods of training (p < 0.05).

**Conclusions:** The resistance exercise with BFR tends to increase the post-exercise appetite, both by HG and by PFC. Thus, it seems that BFR may not be the best option when aiming to suppress HG.”
Does resistance training intensity influence functional improvement in older adults?

Physical activity and health

"Ewertton de Souza Bezerra, Lucas Bet da Rosa Orssatto, Rafael Luíz Sakugawa, Isabel Heberle, Guilherme Barcelos, Antônio Renato Pereira Moro"

"UFAM/UFSC/FAPEAM, UFSC, UFSC, UFSC, UFSC, UFSC"

"BR, BR, BR, BR, BR, BR"

**Background:** Deficit in elderly muscle strength results in reduction of functional performance in activities of daily living. Therefore, resistance training (RT) is an effective strategy to change this situation. Training intensity seems to have a great importance attenuating these consequences. Therefore, the aim of the present study was to investigate the intensity-dependence for upper-body functional performance improvement in older adults.

**Methods:** Eighteen untrained older adults volunteers (9 men and 9 women) were randomized in two groups: HI-High intensity (n=9, 61±6 years; 77±12kg; 1.66±0.1m) and LI-Low Intensity (n=9, 66±6 years; 77±12kg; 1.65±0.1m). Subjects were tested and retested before the RT period (T1) for baseline values. RT effects were assessed after 12 (T2) and 24 (T3) sessions. On each test day, a five-repetition maximum (5-RM) for seated row; hand grip strength test (HGS) and local muscular endurance for elbow flexors (LME) were performed. The subjects trained with seated row for 24 sessions, 3 times per week with at least 48 hours of rest between sessions. Groups trained with different intensities ((p<0, 001) and equal volumes (HI- 3 x 5 RM, 83% 1-RM estimate and LI 1 x 15 RM, 66% 1-RM estimate), where the HI group has a rest interval of 120s between sets. Before each training session, the groups performed a specific warm-up, consisting of 10 repetitions with approximately 50% of the resistance used in the training session. The training resistance was increased by 5–10% for the next session when subjects were able to perform more than repetitions scheduled for the session. Independent sample T-test was used to verify differences between groups for intensity of 1-RM estimate. All comparisons were analyzed by means of two-way ANOVA analysis of variance for repeated measures (group x time). Post-hoc was performed using Bonferroni corrected when main effects or interactions were significant (p<0.05).

**Results:** Baseline values were similar between groups (p>0.05). After 24 sessions of RT the LME significantly increased for LI group (20±0.7) compared with HI group (17±0.7), p=0, 023. In other way, 5-RM (48±4 and 51±4; p=0.57) and HGS (33±3 and 34±3; p=0.91) did not show difference between groups. When compared moment within of the groups, both showed the same results, in LME T3 was
different for T1 (p=0.006) and T2 (=0.020), however for 5-RM, T1 was different for T2 and T3 (p<0.001), as well as, T2 was for T3 (p<0.001). The HGS no showed changes during three moment for both groups (p>0.05).

**Conclusions:** The intensity seems to make no difference to improve upper body maximum strength (5-RM) in untrained older adults, because both intensities showed improvement over time. LME showed better adaptation for LI group because of training specificity (1 x 15). Finally, different intensities do not influence change in HGS."
Dynamic Force Exercise Improve Cognition and Mood Profile

Sport psychology

"Marcus Vinicius Lucio dos Santos, Ricardo Bottura, Marco Tulio de Mello, Sergio Tufik, Hanna Karen Moreira Antunes"

"Universidade Federal de São Paulo, Universidade Federal de São Paulo, Universidade Federal de Minas Gerais, Universidade Federal de São Paulo, Universidade Federal de São Paulo"

"BR, BR, BR, BR, BR"

"Background: Over the years the resistance exercise (RE) becomes notorious because of its effects on the psychobiological aspects. However, doubts still remain particularly related acute responses. The objective was to investigate the effects of different sessions of RE in mood and cognition.

Methods: Participated thirteen young average age and BMI respectively 29.92 ± 3.07 years and 24.88 ± 2.63kg /m2, which were submitted to an acute session of dynamic force (DF) and muscle resistance (MR) lasting 50 minutes, with an interval of seven days between sessions. Before, immediately after (IA), 30 and 60 minutes after the end of the sessions, the volunteers were evaluated for mood profile by Brunel Mood Scale – BRUMS, Visual Analogue Scale of Humor – VAMS, Experience Subjective Scale Exercise - SEES, STAI trait and state and cognition by Digit Span - concentrated attention and mental control Test; Game Dice Task - decision making under risk test; Vienna Test System - reaction time test, simple and multiples choices test; N-Back -work memory. Was used the two-way ANOVA with post hoc Duncan, adopting p <0.05. The protocol was approved by Unifesp Ethics Committed (#1634/08).

Results: The results revealed that the DF condition showed decrease in the mean motor (p <0.01) IA observed in reaction time test. The tension-anxiety analyzed by BRUMS decreased 30 (p = 0.03) and 60 (p = 0.03) minutes after exercise when compared to baseline. It showed in DF condition an increased in mental sedation (p = 0.03), and decrease in anxiety (p = 0.02) IA when compared to baseline by VAMS test. In the MR condition, positive well-being (p = 0.03) decreased IA and psychological distress scale (p = 0.02) increased IA when compared to the baseline by SEES test.

Conclusions: Our data suggest that the exercise of DF promotes a beneficial effect on aspects of mood and cognition when compared to MR exercise."
POSTER PRESENTATION

Effect of an eight-week plyometric training on different surfaces on the jumping performance of male volleyball players

Elite performance

"Celil Kaçoğlu, Özkan Çimenli, Fatma Çimenli"
"Anadolu University, Erciyes University, Anadolu University"
"TR, TR, TR"

Background

Plyometric training on different surfaces may be associated with different training-induced effects on some neuromuscular factors related to the efficiency of the stretch-shortening cycle (Impellizzeri et al., 2008). Vertical jump on sand surface is lower than hard surface because of sand surface is more instability and this instability decreases maximum power and take off velocity. Furthermore jump kinematics is different on sand surface than hard surface (Giatsis et al., 2004). Arazi et al. (2014) recommended that training on hard surface for sprint, jump performance and trainin on sand surface for agility and strength performance according to results their study performed 6 week plyometric training on different surface of healthy male subjects (Arazi et al., 2014). Although the majority of studies in volleyball players performance were evaluated on hard surfaces and there are very limited studies the effects of different hard surfaces such as wooden or synthetic material on volleyball performance. Therefore the aim of these study was to investigate the effect of 8 week plyometric training performed on two different surfaces that wooden and synthetic surfaces on jumping performance of adult male volleyball players.

Methods

Thirty six male volleyball players whose ages differs between 18-24 were voluntarily participated in this study. All participants were randomly divided 3 groups; wooden surface (n:12), synthetic surface (n:12) and control group (n:12). Wooden and synthetic surface experimental training groups performed 3 days a week for 8 weeks. The training program that include 20 different plyometric exercise drills and these drills performed through that 8 week training period. All tests were performed by the subjects for three groups before and after 8-week plyometric training. SPSS program was used to evaluate the data. Paired samples t test was used to determine the difference between measurements. One-way ANOVA was performed to determine the difference between groups.

Results
Statistically significant difference was found after the 8 weeks plyometric training on the vertical and horizontal jump parameters in favor of the experimental group (p<0.05). But, no significant difference was found between wooden and synthetic surface volleyball players jump performance (p>0.05). It is observed that wooden and synthetic surface doesn't affect to jump performance of volleyball players. According to these results plyometric training program effective on jump performance of volleyball players despite this training surface doesn't effect on jumping performance.

**Conclusion**

As a Conclusion, plyometric training was found to increase the jump capacity of volleyball players. The comparison of wooden and synthetic surface groups did not revealed a statistically significant difference which shows that wooden and synthetic surfaces has not a positive effect on athletes jump performance and only plyometric training makes a positive difference. This study will contribute to literature and will shed light on sport training studies to be conducted and will contribute coaches while preparing training programs.
POSTER PRESENTATION

Effect of an Instructional Program on the Performance of Figures in Swimming Synchronized Athletes.

Sport psychology

"⁰Kátia Ponciano, ¹Maria Regina Brandão, ¹Danilo Sales Bocalini, ¹Luis Felipe Tubalgi Polito, ¹Aylton Figueira Júnior, ²Marcos Alencar Adaide Balbinotti, ¹, ³Marcelo Callegari Zanetti."

"São Judas Tadeu University, São Paulo, SP, Brasil¹ Université du Québec à Trois-Rivières, Québec, Canada² UNIP - São José do Rio Pardo, SP, Brasil³"

BR

“Background: Introduction: The relevance and worldwide projection of synchronized swimming, either as competitive sport, artistic demonstration and/or as an activity with social appeal, is undeniable. However, it should be noted that, even within these different conditions, the final performance has an important and significant role, not only to the athletes, but also to all those who are directly and indirectly involved with it. As a result new training methods and ways which can contribute to the improvement of the performance levels have been increasingly researched and proposed. Objective: The objective of this study was to investigate the effect of an instruction program on the performance of figures. A figure is a combination of basic body positions and transitions. When a judge evaluates a figure in synchronized swimming, two important components are considered: design and control.

Methods: This study took as research objects 23 participants of the “Torneio Primeiros Passos” and the “Campeonato Paulista de Verão de Nado Sincronizado” of São Paulo, with an average of three years of practice, in the following age groups: infant (N=13) and youth (N=10), aged 9 to 15 years (12.13 ± 1.98). This sample represents 90% of the population of synchronized swimmers in the city of São Paulo. The study comprised two different moments, time 1 (T1) and time 2 (T2), performed during the above mentioned competitions, on 09/12/2015 and 10/03/2015 respectively. T1 referred to the baseline and T2 included a briefing session on the criteria of evaluation and classification of the figures by the referees of the modality. The instruction program was carried out 24 hours before T2 by an international arbiter who was not acting as such at any of the moments. Student’s “t” test was used for paired samples in order to test the difference in their performance in the two moments, T1 and T2.

Results: The average values obtained in the two moments were (T1 = 48.74 ± 6.67) and (T2 = 52.54 ± 7.45). This result (t(22) = - 6.86, p <0.01) shows that the instruction program has acted positively and significantly on the performance of the figures executed by the athletes.
**Conclusions:** It must be considered that instruction program proved to be effective in improving the execution of the figures by these athletes, which is shown in the value of the figures. However, one cannot literally state that this intervention alone has generated such an effect, as other variables, such as learning, training sessions, physiological and psychological perceptions, may have influenced the result, despite the short space of time between collections (3 weeks), suggesting the need for further quantitative and qualitative studies with other modalities and a larger number of athletes.”
**POSTER PRESENTATION**

**Effect of body size and level of performance on throwing speed of female Portuguese handball players**

Elite performance

"Daniel Souza Pinto, Karla Paixão de Souza, Philippe Roberto Guimarães, Maria Luisa Dias Estriga"

"University of Porto, Federal University of Juiz de Fora, Federal University of Juiz de Fora, University of Porto"

"BR, PT, BR, PT"  

**Background:**

Handball is an intense and intermittent team sport with repeated high-intensity explosive actions such as sprints, jumps, throws and body contacts, which are combined with intervals of low-intensity activities such as standing and walking. Success in team handball is established by several technical, tactical, anthropometric, mental and physical performance variables.

In this sport, the overhead throw is notably one of the key performance indicators. Studies suggest that a faster throw can distinguish athletes from different levels of performance.

It has been reported that athletes specialized in throwing events are taller, heavier and more musculously build than non-throwers. Several studies has concluded that elite players has greater body size (height and weight) when compared with lower level players in different contexts. Likewise, studies have shown a strong correlation between body size and athletic performance in handball.

The purpose of the study was to verify the effect of anthropometric variables and performance level of female handball athletes from division 1 and 2 of the Portuguese national championship in two different types of overhead throw.

**Methods:**

28 adult female handball players from two teams were selected, 13 from a first division club and 15 from a second division club. All athletes were well-trained in the selected motor task of the study. Both teams participated in the Portuguese Handball Championship (2014/2015).

Basic anthropometric variables were measured (weight and height) and a radar gun (Stalker ATS II Sports Radar) was used to evaluate the ball speed in two different types of throw: 7m penalty shot and the 9m jump shot with a 3-step run-up. Resin was used as desired.

**Results:**

Results has shown that first division players are heavier and taller (p<0.05) than players from second division. In both teams, the 9m jump shot was faster (p<0.05) than the 7m penalty shot.
The first division players has achieved higher ball velocities in both types of shot than the second division players.

**Conclusions:**

In Conclusion, athletes from a higher level of performance has greater body size and throw with higher ball velocities in both 7m penalty shot and 9m jump shot, when compared with lower level players. These results showed that body size is positive related with throwing speed, and a higher and heavier handball player can throw the ball faster."
Effect of bowling on one’s distraction

Sport psychology
Shigeru MURAMATSU
Yokohama City University
JP

“Background:

Study on the bowling is a center of sports physiological and biomechanical ones, generally is not observed verification for the psychological effects such as “distraction” also say its features. Therefore, the present study was intended to examine the distraction effect of bowling.

Methods:

Eight university students were recruited to find out how bowling contributes to one’s distraction. The Profile of Mood Scale (POMS), salivary amylase activity (SAA), and heart rate variability (HRV) were measured before and after four games of bowling.

Results:

Every score of Tension-Anxiety, Depression-Dejection, Anger-Hostility, Fatigue, and Confession taken in the POMS lowered, and the Depression-Dejection score was statistically significant (p<0.05). Any significant change in the SAA and the HRV were not observed. No significant relations were seen between their game scores and the changes in POMS.

Conclusions:

Conclusively, bowling can give positive effects on one’s distraction regardless of the game scores."
POSTER PRESENTATION

Effect of Classical and Individualized Protocols of Chronic Exercises in the Muscle Nociceptive Threshold of Rats

Physical activity and health

"Graciana de Azambuja, Beatriz Botasso Gomes, Leonardo Henrique Dalcheco Messias, Fúlvia de Barros Manchado Gobatto, Maria Cláudia Gonçalves Oliveira-Fusaro"

"School of Applied Sciences, UNICAMP, School of Applied Sciences, UNICAMP, School of Applied Sciences, UNICAMP, School of Applied Sciences, UNICAMP, School of Applied Sciences, UNICAMP"

"BR, BR, BR, BR, BR"

"Background: Muscle pain has important socioeconomic impact and regular exercise has been described as an efficient alternative therapy, not only for reducing pain, but also by the absence of the common side effects of commercially available analgesics. However, it is well known that the body adapts to exercise intensity over time and individuals with chronic muscle pain conditions usually respond to exercise differently from healthy individuals. These evidences suggest that an exercise protocol adjusted for individual physiological conditions may be interesting for a significant reduction of muscle pain. Therefore, the aim of this study was to verify if a classical protocol of exercise, with generalized loads, and an individualized protocol of aerobic exercise were able to enhance the muscle nociceptive threshold and compared the efficiency of both.

Methods: Male Wistar rats (200 – 250g) from the CEMIB-UNICAMP were used and all experimental procedures were approved by the Ethics Committee in Animal Research of UNICAMP (3869-1). They were divided in control group (without exercise), classical exercise group (loads at 4% of body weight) and individualized exercise group (loads at 80% of the Maximum Lactate Steady State, MLSS). The animals included in exercise groups were submitted to a water adaptation protocol and the MLSS test. The exercise protocol consisted of 40 min. of swimming, 5 days a week, during 10 weeks. After five weeks of exercise, the loads of the individualized group were adjusted according to a new MLSS test. Every 2 weeks of exercise, the nociceptive threshold of rat’s gastrocnemius muscle was performed by the analgesimeter Randall Selitto.

Results: Both exercise groups showed an increase in muscle nociceptive threshold after 10 weeks of exercise when compared to control group (p<0.05. Bonferroni test). In addition, the individualized exercise group showed a better efficiency, from second week of exercise, in increasing muscle nociceptive threshold when compared to classical exercise and control groups (p<0.05. Bonferroni test).
Conclusions: These data demonstrated that chronic exercises are able to increase muscle nociceptive threshold. They also suggest that individualized protocols of exercises are more efficient in reducing the perception of muscle pain.
POSTER PRESENTATION

Effect of foot and hip muscle strengthening in patients with plantar fasciitis: A randomized controlled clinical trial

Rehabilitation

"Liu Chiao Yi Danilo, Kamonseki, Geiseane Goncalves, Imperio Lombardi Junior, "
"Federal University of São Paulo – UNIFESP - Santos, Brazil, Universidade Paulista, Federal University of Sao Paulo, Federal University of Sao Paulo"

"BR, BR, BR, BR"

Background: Stretching of the plantar fascia and triceps surae muscle is often employed in the conservative treatment of plantar fasciitis. However, there is no evidence if combining foot and hip muscles strengthen would be benefit. The aim of the study was compared the effect of stretching with and without muscle strengthening of the foot alone or foot and hip on pain and function in patients with plantar fasciitis.

Methods: Eighty-three patients with plantar fasciitis were allocated to one of three treatment options for an eight-week period: Foot Exercise Group (FEG e extrinsic and intrinsic foot muscles), Foot and Hip Exercise Group (FHEG e abductor and lateral rotator muscles) and Stretching Alone Exercise Group (SAEG). Main measures: A visual analog scale for pain, the Foot and Ankle Outcome Score and the Star Excursion Balance Test. All evaluations were performed before treatment and after the last treatment session.

Results: Improvements were found in all groups regarding the visual analog scale, the pain, activities of daily living, sports and recreation, quality of life (p < 0.001) and other symptoms (p < 0.01) subscales of the Foot and Ankle Outcome Score as well as posterolateral movement, posteromedial movement and composite score (p < 0.001) on the Star Excursion Balance Test. No time-group interactions were found for any of the variables (p > 0.05).

Conclusions: All three exercise protocols analyzed led to improvements at eight-week follow-up in pain, function and dynamic lower limb stability in patients with plantar fasciitis."
Effect of Holistic Gymnastics in the Flexibility of Girls (10-12 years)

Physical activity and health

"Fernanda Fonseca dos Santos Lopes, Cecilia Guarnieri Batista"
"Universidade Estadual de Campinas, Universidade Estadual de Campinas"
"BR, BR"

"Background:
Flexibility is partially determined by genes, and most studies suggest that women are more flexible than men. Good flexibility improves movement, influences posture, prevents lower back pain and neck tension. At the onset of adolescence, it tends to be reduced and the situation can be reverted by physical activities. Holistic Gymnastics (HG) is one possibility to improve flexibility. The typical classes include relaxation, postural reeducation, stretching and balance. Relaxation involves self massage with balls, sticks and rolls, in slow movements which stimulate the proprioceptive system. Static stretching is frequently used for many reasons: facility of execution, relief of muscular pain and respect to the limits of tissue expansion. The aim of the present study was to assess the effect of HG in the increment of flexibility of lumbar and pelvic articulation in healthy 10-12 years old girls.

Methods:
The experimental study was done in public schools with 43 10-12 years old girls. The experimental group (EG) comprised 22 girls who received 9 weekly classes of HG and the control group (CG), 21 girls. Two measures of flexibility were taken: a) angle between the acromion, trochanter and posterior iliac spine through photogrammetry (software SAPO), and b) fingertip-to-floor (FTF) distance (tape measure).

Results:
a)Angle: For EG, the mean before HG was 86, 8 ° and 92, 4 ° after HG. For CG, the initial mean was 92° and the final mean was 81, 8 ° (9 weeks later, without HG). The difference, statistically significant at 0, 05 level, indicated an increase in flexibility for EG and a reduction in CG.
b)Fingertip-to-floor test: For EG, there was a reduction of 7, 7cm in the distance fingertip – floor and for CG, an increase of 2, 9 cm. Those results were in agreement with the first measure.

The experimental study demonstrated an increase in flexibility for EG that was attributed to HG intervention.

Conclusions:
Holistic Gymnastics is a modality of physical activity which increases flexibility in girls at the onset of adolescence.

The adoption of this modality of physical activity could contribute to health promotion and to healthy habits in the school population."
POSTER PRESENTATION

Effect of Light Level on Extroverted and Introverted Swimmers’ Performance: an Exploratory Study

Sport psychology

"Ana Carolina Gomes, Cassio Meira Junior, Flávio Pires"

"University of Sao Paulo, University of Sao Paulo, University of Sao Paulo"

"BR, BR, BR"

“Background: Extroverts are known as active and talkative people, while introverts are more quiet and calm. It happens due to cortical activation level of each of them, in the extroverts, these levels are low and they need to increase their activation, on the other hand, introverts already have high levels of cortical activation and need to reduce these levels, in order to find a comfortable level for both.

Methods: This study aimed to analyze, how the effect of bright light can influence the performance of extroverts and introverts swimmers by swimming crawl in a semi-Olympic pool in two different times, dealing, in the first one, with bright light and in the second one with light deprivation, besides measuring time, heart rate, frequency of stroke and using the Borg scale, to understand how the personality traits are associated with performance, in an attempt to find the suitable setting for each trait and also to contribute to the development of athletes throughout their careers. In order to check the swimmer's personality, the Eysenck Personality Questionnaire (EPQ) were applied to 20 young and adults swimmers of both sex, in Sao Paulo, Brazil.

Results: The results indicated extroverts swimmers seem to have a higher performance in time, rating of perceived exertion (RPE), stroke frequency, than the introverts when there was bright light, while the introverts show up better results in time and RPE in the light deprivation. The heart rate of both groups increased during the light deprivation, caused by the fear to swim in the dark, but the heart rate from introverts occurred more regularly.

Conclusions: Personality is considered a set of characteristics that give a pattern of unique and own relationships of each individual. Know them and understand them is essential to deal with several athletes in a team. Regarding the results of EPQs, it was observed that 60% of the swimmers tend to be introverts and only 15% have a tendency to extroversion, confirming the theory that athletes from individual sports
are likely to be more introverted than extroverted; the other 25% were in a neutral range and are known as ambiverts.

In the test performed in the pool, it was observed that the extroverted group performed better on bright light when compared with the introverted. Introverts swimmers, had better results of the RPE and the time when they were in the light deprivation, reaffirming that individual differences reflect on the neurophysiological functioning contrast, in other words, introverts prefer light deprivation stimuli to feel comfortable and to decrease the level of cortical activation while extroverts tend to look for bright light stimuli to raise these levels. The level of light appears to have been capable of influence them.

The stroke frequency from the extroverts decreased considerably when they were swimming in the dark. Introverts athletes also decreased stroke frequency over the stipulated route, however it was not observed descriptive difference between the different levels of brightness.

It should be noted that the personality is only one factor that can influence the performance of athletes."
POSTER PRESENTATION

Effect of Long Term Aerobic Exercise on Blood Fatty Acid Composition in Severe Obese Adults

Physical activity and health
"Guo Yin, Chen Wenhe"
"Ltd, Hunan Normal University, Shanghai Dianfeng Fitness Co."
"CN, CN"

“Background:
Severe obese adults were recruited for a 16-week exercise to lose weight, so as to observe obese subjects' blood fatty acid composition, lipids, insulin, leptin, adiponectin and lipoprteinlipase during the long term aerobic exercise intervention and discussed the effects of aerobic exercise on lipid metabolism.

Methods:
12 severe obese adults aged of 22.17±4.78 were selected from the fully closed weight loss camp in Shanghai. Before intervention, the subjects were provided the exercise prescriptions based on their health and exercise capacity. Heart rate (HR) was chose to monitor the exercise intensity. Target HR= resting HR+ HR reserve× (20%~40%). The exercise program was easy control and long duration such as swimming, fast walking, jogging, aerobics, etc. According to the working out energy requirement based on the age, weight and BMR, professional dieticians offered reasonable daily calories and nutrition. The subjects were taken fasting blood tests and measured body morphology index before intervention and the last morning of 4th, 8th, 12th, 16th weeks intervention in order to observe the changes of body shape, lipids, insulin, insulin, leptin, adiponectin, lipoprteinlipase and blood fatty acid composition.

Results:
After 16 weeks, the subjects' body weight, body fat percent, waistline, hip circumference, waist hip ratio all dropped significantly. At the 8th and 16th week, serum TFA, UFA, MUFA, PUFA, n-6 PUFA, n-3 PUFA declined significantly; Serum palmitic,γ-linolenic, palitoleic, oleic, linoleic,α-linolenic dropped after the intervention At the 8th week, stearic did not change significantly, but had a declined significantly at the 16th week; DHA dropped significantly at the end of the 8th week; Oleic/TFA dropped at the 8th week, palmitic/TFA rose at the end of 16th week but at that time α-linolenic/TFA, γ-linolenic/TFA dropped significantly. 16 weeks later, subjects’ Serum triglyceride, total cholesterol, LDL-C and fasting plasma glucose dropped. Compared with levels before intervention, HDL-C/LDL-C rose at the end of the 8th, 12th and 16th weeks. Insulin and HOMA-IR dropped at the end of the 8th, 12th...
and 16th weeks, and had significant statistical significances. Leptin declined gradually, and had significant statistical significance at the end of the 8th and 12th weeks. The insulin level in the 16th week dropped very significantly, but Adiponectin and lipoprteinlipase rose gradually after intervention.

**Conclusions:**
Long term aerobic exercise intervention would significantly bring down obese subjects’ body weight, body fat percent, BMI, fat mass and improve their body shape; Severe obese subjects have emerged the lipid metabolism disorder and insulin resistance. 16 weeks aerobic exercise could improve their blood lipids and insulin, and bring down their serum fatty acid composition and leptin, which would improve their fasting serum lipoprotein lipase activity. It played an important role in improving lipid metabolism and promoting health in obese adults."
Effect of resistance exercise training on baroreflex sensitivity in spontaneously hypertensive rats

Physical activity and health
"Moisés Felipe Pereira Gomes, Mariana Eiras Borges, Elizabeth De Orleans Carvalho De Moura, Vitor Rossi de Almeida, Alessandra Medeiros"

"Federal University of São Paulo (UNIFESP), Federal University of São Paulo (UNIFESP), Federal University of São Paulo (UNIFESP), Federal University of São Paulo (UNIFESP), Federal University of São Paulo (UNIFESP)"

"BR, BR, BR, BR, BR"

“Background: Baroreceptors act as regulators of blood pressure (BP), however, its sensitivity is impaired in hypertensive patients. Among the recommendations for BP reduction, exercise training has become an important adjunct therapy in these population. Therefore, the aim of this study was to evaluate the effect of resistance exercise training in spontaneously hypertensive rats (SHR).

Methods: SHR and Wistar rats 8 weeks old at the beginning of the experiment were randomly divided into 4 groups: sedentary control (SC, n=8); trained control (TC, n=8); SHR sedentary (SHRS, n=8) and SHR trained (SHRT, n=8). Resistance exercise training was performed in climb a vertical ladder (1.1×0.18 m, 2-cm grid, 80° incline) with weights attached to their tails, 5 times per week, during 8 weeks. Body mass and BP were measured weekly by semi-analytical scale and tail plethysmography system, respectively. After resistance exercise training period, the animals underwent arteriovenous implanted catheters for direct registration of pulsatile arterial pressure. Baroreceptor reflex control of heart rate (HR) was tested by loading/unloading of baroreceptors with phenylephrine (3, 5 and 10 µg - iv) and sodium nitroprusside (5, 15 and 20 µg - iv). Phenylephrine and nitroprusside injections (0.1 ml, bolus injection) were given in a random order, and subsequent injections were not made until the recorded parameters had returned to pre-injection levels.

Two-way ANOVA was used to determine the differences among the groups followed by Student D’Agostino and Pearson post hoc test and was adopted p <0.05 as significant result.

Results: After the resistance exercise training period SHR had lower body mass (SHRS 256.3±8.37 g and SHRT 246.9±7.75 g) compared to control groups (SC 310.7± 11.44 g and TC 295.3 ± 11.20 g). Resistance exercise training was able to increase the soleus muscle mass in SHR (SC 0.046±0.005 g/mm, TC 0, 063±0, 006 g/mm, SHRC 0.027±0.002 g/mm and SHRT 0.056±0.003 g/mm). BP was not altered by resistance exercise training. On the other hand, in relation to baroreflex sensitivity,
Bradycardic response was improvement in the SHRT group (SC -2.67±0.06 bat/mmHg, TC -3.2±0.16 bat/mmHg, SHRS -1.3±0.1 bat/mmHg and SHRT -2.6±0.2 bat/mmHg) although tachycardia response was not altered by resistance exercise training (SC -3.3±0.2 bat/mmHg, TC -3.3±0.1 bat/mmHg, SHRS -1.47±0.06 and SHRT -1.6±0.1).

**Conclusions:** Resistance exercise training was able to promote improvement on baroreflex sensitivity of SHR since promoted improvement in bradycardic response despite not having reduced BP."
POSTER PRESENTATION

EFFECT OF STRENGTH EXERCISE WITH AND WITHOUT BLOOD FLOW RESTRICTION ON MOOD STATE OF BASKETBALL PLAYERS

Sport psychology

“Julio César Gomes da Silva, Rodrigo Ramalho Aniceto, Leandro Sávio Ribeiro Oliota, Vitor Bruno Torres, Elídio Alves Pereira Neto, Wanessa Kelly Vieira de Vasconcelos, Maria do Socorro Cirilo de Sousa”

“Federal University of Paraíba, Federal University of Paraíba, Federal University of Paraíba, Federal University of Paraíba, Federal University of Paraíba, Federal University of Paraíba, Federal University of Paraíba”

“BR, BR, BR, BR, BR, BR, BR”

“Background: A high intensity strength training session has been able to negatively influence the athletes state of humor. However, it is unclear whether the low intensity blood flow restriction method (LIBFR) may alter the mood state. Thus, the aim of this study was to compare the acute effect of LIBFR and the traditional method (TM) on the mood state of basketball players.

Methods: This is a quasi-experimental, randomized and crossover study. The sample consisted of 11 trained basketball players with age (19.9 ± 2.8 years), height (180.8 ± 7.8 cm) body mass index (22.1 ± 1.9 kg/m²). The subjects underwent three sessions with a 7 days interval between the experimental sessions. At the 1st session were held anthropometric measurements, prescription of blood flow restriction, 1RM test, familiarization with exercise and metronome; the 2nd and 3rd session experimental, was performed the squat exercise in LIBFR or TM. The methods have been standardized by the total work, the TM condition performed 3 sets of 10 repetitions at 75% of 1RM with 2 minutes break and LIBFR 4 series of (30, 15, 15, 15) repetitions to 30%1RM, 80RFS% and 30 second interval, both with execution speed of 2 sec for each execution phase, concentric and eccentric. The prescription of the blood flow restriction technique was performed using as phymomanometer attached to the proximal thigh being inflated to a point where that the auscultatory pulse verified by vascular doppler positioned over the posterior tibial artery was interrupted. The mood state profile (MSP) was measured by the Brunei mood scale (BRUMS), and were analyzed the positive (force) and negative (tension, depression, anger, fatigue and confusion) domain sand the score of MSP, before and immediately after the session. The score calculation for MSP is equal to positive domain - negative domains. To compare the measurements of mood state was used the independent t test.
Results: The tension, depression, anger and confusion domains, showed no significant difference between and with in groups (p>0.05). The force domain showed a significant difference between the moments before and after (p = 0.002) for LIBFR, however there was no difference between LIBFR and TM. Regarding the fatigue domain, the LIBFR and the TM presented significant increase in pre and post. In addition LIBFR showed a greater change in relation to TM. The MSP score only presented significant difference in the LIBFR in the pre and post moments.

Conclusions: It is concluded that the LIBFR had greater acute changes to the domains of MSP, being able to negatively influence the MSP score in athletes."
POSTER PRESENTATION

EFFECT OF WATER GYMNASTICS IN BLOOD PRESSURE OF HYPERTENSIVE ADULTS

Physical activity and health

"Vanessa Matos Fraga, Daniele Tavares Martins-Meneses, Fábio Tanil Montrezol, Daniele Tavares Martins-Meneses, Alessandra Medeiros"

"Universidade Federal de São Paulo, Federal University of São Paulo, Universidade Federal de São Paulo, Universidade Federal de São Paulo, Federal University of São Paulo"

"BR, BR, BR, BR, BR"

“Background: Together with ageing there is an increase in blood pressure levels, thus physical activity is one of the most recommended non-pharmacological treatment. Water gymnastics is a exercise that involves numerous advantages, one of those, is the comfort proportioned by water temperature. Objective: The objective of the present work was to evaluate the effects of water gymnastics program in blood pressure, physical fitness, quality of sleep and the likelihood of having sleep apnea (SA) of hypertensive adults. Methods: We evaluated 21 sedentary hypertensive subjects of both sexes. The water gymnastics was conducted over 13 weeks, 3x/week, 50min/day. Resting blood pressure, height, body weight, waist and hip circumferences, functional capabilities, as well as sleep quality and likely to have sleep apnea were evaluated. Results: There was a significant decrease in systolic blood pressure and a significant increase in strength, muscular and aerobic endurance, coordination, agility, dynamic balance and flexibility. In addition, it identified the reduction the likelihood of sleep apnea, but there was a deterioration in quality of sleep. Conclusion: water gymnastics was effective in reducing systolic blood pressure, in improving of functional capacity variables, and in reducing probability of sleep apnea in hypertensive subjects, but promoted worsening of the quality of sleep.”
Effectiveness of intrinsic muscles of the foot strengthening in the mobility of the medial longitudinal arch: a systematic review

Rehabilitation

"Isabela Buck, Thiago Malheiros, Nara Rejane Cruz, Liu Chiao Yi"

"Federal University of Sao Paulo, Federal University of Sao Paulo, Federal University of Sao Paulo, Federal University of Sao Paulo"

"BR, BR, BR, BR"

"Background:

Foot intrinsic muscles (IMF) weakness may influence the mobility of the medial longitudinal arch (MLA), beyond the functionality of the entire lower limb kinetic chain during sports activities [1]. There is no consensus in the literature about the IMF strengthening, regarding training volume, treatment time and benefits of the Short foot exercise (SFE) [2]. The aim of the study was to conduct a systematic review of the IMF strengthening on MLA mobility.

Methods:

The research was led by two independent reviewers. Literature search was made using the following databases: PubMed, LILCAS, and SciELO. Were used the following words for the searching: medial longitudinal arch, intrinsic foot muscle, training, short foot exercise. The period covered was from June 2015 to January 2016, including studies from 2010 to 2015. The revision is in accordance with PRISMA guidelines.

Results:

Forty-three studies were found. Among them, six were randomized controlled trials and two cross-sectional studies. Twenty-five were read entirely, and eight were selected and included. All studies demonstrated that IMF strengthening improves mobility on MLA, having better results than Navicular drop and Height arch index in the static posture. In three researches the strength improved dynamic balance significantly. Two studies shown that SFE got a better IMF activation range when compared to Toe towel curls exercise. One study showed that the intervention group was better at functional test of running and jumping. The intervention period ranged from two to 12 weeks. The majority concentrated between four and eight weeks, and the frequency depends of the intervention period. Regarding training volume most studies indicate to hold the muscle contraction for five seconds, except one article that didn’t described the exercise range. Two of them performed the exercises daily, and only one
article had load application. The exercise evolution varied according to the volunteer performance or was previously stipulated.

**Conclusions:**
The evidences show that SFE as the best to strengthen the MIP, allowing to volunteer better performance in functional activities and dynamic balance of the lower limb, even greater mobility on ALM. Currently there is no clear evidence of training volume and intervention time.

**References**
[1] HASHIMOTO, T. e SAKURABA, K. Strength training for the intrinsic flexor muscles of the foot: effects on muscle strength, the foot arch, and dynamic parameters before and after the training. J. Phys. Ther. Sci. 2014. 26: 373-376.


**Acknowledgements**
The authors thank the Coordination of Improvement of Higher Level Staff (CAPES) for the financial support."
POSTER PRESENTATION

Effects of “Acupuncture Serum” on Proliferation and Differentiation of C2C12 Myoblasts

Sport medicine and injury prevention

"Qi Zhang, Jingmin Liu, Li Zhao"

"Tsinghua University, Tsinghua University, Beijing Sport University"

"CN, CN, CN"

“Background:

Regeneration of skeletal muscles is crucial to the therapeutic effect on skeletal muscle dysfunction, such as skeletal muscle injury, sarcopenia, and muscle atrophy. Lots of research indicate that Chinese acupuncture treatment can promote regeneration of skeletal muscles and help repair muscle function. C2C12 cells, the mouse myoblastic cell line, have been widely applied as the model of muscle regeneration in vitro. This study is meant to detect the effects of acupuncture serum (collected from subjects who received acupuncture treatment) on proliferation and differentiation of C2C12 myoblasts, and then investigate the possible mechanism of acupuncture inducing regeneration of skeletal muscle.

Methods:

(1) Preparation of serums: 4-month-old male Sprague-Dawley rats were randomly assigned into two groups: acupuncture group (immobilized and then acupuncture), and control group (only immobilized for the same time as acupuncture group). Rats of acupuncture group underwent needling at Housanli (ST 36) and Huantiao (GB 30) in both hind limbs. After 2 weeks, blood was collected from abdominal aorta and acupuncture serum and control serum were separately isolated for preparation;

(2) Assessment of proliferation of C2C12: Cells were divided into four groups and were cultured in proliferation medium, consisting of Dulbecco’s modified Eagle’s medium (DMEM) separately supplemented with 10% fetal bovine serum (FBS) (group A), 10% acupuncture serum (group B), 10% control serum (group C) and 10% mixed serum (composed of 5% acupuncture serum and 5% FBS) (group D). The cell proliferation was determined by MTT assay and cell growth curve, which was formed by counting the number of cells every day under an inverted microscope; 

(3) Assessment of differentiation of C2C12: Morphological observation determined the appropriate concentration of acupuncture serum to induce differentiation of C2C12, and then cells were assigned into three groups, cultured in differentiated medium respectively containing 2% acupuncture serum (group AS), 2% control serum (group CS), and 2% horse serum (group HS). Fluorescent immunocytochemistry were applied to detect the expression of myosin heavy chain (MHC) as a specific marker of myoblast
differentiation, and the morphological changes of C2C12 were observed with phase contrast microscopy.

**Results:**

(1) The results of MTT assay and cell growth curve indicate that group B has a significantly stronger proliferative response than group A and C, and group C has a significantly stronger proliferative response than group A; (2) Acupuncture serum can promote differentiation of C2C12 more significantly at the concentration of 2% than other concentration; (3) The level of MHC in group AS is significantly higher than group CS and lower than group HS, as is the same with the level of fusion of cells in morphological observing.

**Conclusions:**

Acupuncture serum at the concentration of 10% and 2% can respectively promote proliferation and differentiation of C2C12 in vitro; Compared with FBS, serum of rats can accelerate proliferation of C2C12 at a markedly higher rate, which suggests serum of rodents may be more suitable to maintain C2C12.
POSTER PRESENTATION

Effects of a 12-week sensorimotor training program on static balance and single hop test performance of basketball players

Sport medicine and injury prevention

THATIA REGINA BONFIM
PUC MINAS
BR

“Background: Lower limbs injuries are common in basketball athletes, especially in the ankle joint. Single stance instability is a risk factor for lower extremity injuries. Therefore, the development of the proprioception and balance may play an important role in injury prevention. For example, diminished postural stability is a risk factor for ankle sprain occurrence and ankle sprains result in impaired postural stability. The sensorimotor training has been used to improve the balance and sports-related skills as well as for prevention and rehabilitation of lower limbs sport injuries as ankle sprain. The aim of this study was to investigate the effectiveness of 12-week sensorimotor training program on static balance and single hop test performance of young basketball players.

Methods: Fifteen players (15.5±0.8 years) from one team into seventeen years old basketball category participated in the study. Participants were tested for static balance and single hop test at the beginning and at the end of 12-week sensorimotor training program. The static balance was performed in single leg stance (both right and left) positions with eyes closed. The participant was instructed to sustain the stable position for as time as possible and the time of static balance was registered. The single hop test was performed with the participant on the leg to be tested, hopped, and landed on the same limb. The distance hopped, measured at the level of the great toe, was measured and recorded to the nearest centimeter from a standard tape measure that was permanently affixed to the floor. The participants underwent the sensorimotor training program lasting for twelve weeks. The program was administered in sessions lasting 30 minutes. The training program was developed into multi-station proprioceptive and balance exercises, consisted of one-leg and double-leg static and dynamic balance drills, with eyes open and closed. The demands and duration of those exercises increased progressively.

Results: The results showed that basketball players who participated in 12-week sensorimotor training program exhibited a significantly improvement on static balance (p<0.05) and single hop test performance (p<0.05).

Conclusions: In conclusion, the sensorimotor training program was effective for improving static balance and single hop test performance, which is a basketball-specific action. It is possible...
recommend sensorimotor training program to enhance static balance and hop performance to reduce possible future injuries in the lower extremity.”
**POSTER PRESENTATION**

**Effects of a health Program On sleep time, fat percentage, cortisol and physical activity levels in obese adolescents of Monterrey, Nuevo Leon. México**

Physical activity and health

"Marco Antonio Enríquez Martínez, Oswaldo Ceballos Gurrola, Raul Lomas Acosta, Armando Cocca, Jose Alberto Valadez Lira"

"Autonomous University of Nuevo Leon Mexico, Autonomous University of Nuevo Leon Mexico, Autonomous University of Nuevo Leon Mexico, Autonomous University of Nuevo Leon Mexico, Autonomous University of Nuevo Leon Mexico"

"MX, MX, MX, MX, MX"

**Background:** Obesity has been associated with low levels of physical activity, psychological problems and high levels of caloric intake, new evidence shows that sleep time has become a marker related with sedentary behaviors, fatness, and higher levels of cortisol. Objective: Evaluate the Effects of a health Program On sleep time, fat percentage, cortisol and physical activity levels in obese adolescents of Monterrey, Nuevo Leon. México

**Methods:**

A pre post study with a sample of 51 adolescents randomized into two groups: Control (CG) and experimental (EG). They participated during 4 months in a health program. CG had 4 weekly sessions of 60 minutes of physical activity, one weekly session nutritional counseling and 2 weekly sessions of light therapy 45 minutes. EG received regular school Physical activities. The percentage of fat was taken by BOD POD, the sleep time and physical activity levels (PA) were measured with (Actigraph GTx3), and salivary cortisol.

**Results:**

The results after the pre post comparison showed significant decreases in EG in body fat percentage ($P = 0.015$) cortisol ($p = 0.41$), and an increase of PA ($p=0.20$). In the CG only a significant increase was observed in percentage of fat ($p = 0.004$). Sleep time was positively correlated with and fat mass (kg) ($r=0.44$ $p<0.01$).

**Conclusions:**

The health program with the intervention of physical activity and nutritional counseling, shows favorable effects in decreasing the percentage of fat and increase PA levels. It is recommended in interventions related to health promotion include sleep time as health and obesity marker."
POSTER PRESENTATION

Effects of a Low Volume Protocol and a High Intensity Power Training with Postmenopausal Women

Physical activity and health

"Everton dos S. Barros, João P. Botero, Wagner Prado, Johny Almeida, Renato A. Garcia, Ricardo S. Leite, Matheus Guidugli"

"Federal University of São Paulo, Federal University of São Paulo, Federal University of São Paulo, Federal University of São Paulo, Federal University of São Paulo, Federal University of São Paulo"

"BR, BR, BR, BR, BR, BR"

“Background: Menopause is characterized by hormonal changes and emotional instability promoting negative impacts in quality of life (QOL). Physical exercises may be an alternative approach to manage the symptoms associated with climacteric syndrome, due it’s effect for retarding the degenerative processes associated with aging. Previous studies demonstrated that 2 or 3 sections per week of resistance training with high volume (3 series, 10 repetitions in various equipments that involve big and small muscle groups) are able to improve QOL, body composition and strength in postmenopausal women, in this pilot study we describe the effects of resistance training performed twice a week with low volume on QOL and body composition in postmenopausal women.

Methods: Four volunteers (age: 57, 5±10, 0y) were submitted to a 12-week resistance training with workload based on 1 maximum repetition test (1RM) ( bench press with free weight, leg press 45º, squat and rowing). In the first 2 weeks, volunteers performed 2 series from 8 up to 12 repetitions (50-65% 1RM). Afterwards the workload were increased to 75-85% 1RM. QOL was assessed as means of SF-36, body composition was estimated by BIA, all evaluations were performed at baseline and after 12 weeks.

Results: It was observed increments on maximum power on squat (pre: 45.5±8.7; post: 68.5±10.0), supine (pre: 25.0±3.8; post: 30.5±3.8), leg press (pre: 147.5±15.0; post: 195.0±20.8) and rowing (pre: 67.5±6.5; post: 77.5±8.7). Body mass (pre: 73.2±12.1; post: 72.5±13.7) and fat mass (pre: 28.2±3.1; post: 27.7±3.4) were decreased and lean mass (pre: 71.8±3.1; post: 72.3±3.4) was increased. Related to QOL the volunteers reported better scores in response to resistance training (from 76.3±11.1 to 91.3±6.3, in functional capacity).

Conclusions: Resistance training performed only 2 times a week with low volume and high intensity may be an alternative intervention to prevent declines in QOL in postmenopausal women."
POSTER PRESENTATION

Effects of acute physical exercise in the light phase of sleep in rats with temporal lobe epilepsy

Neuroscience and sport

“Cristiano de Lima, Ricardo Mario Arida, Monica Levy Andersen, Daniel Ninello Polesel, Rodrigo Luiz Vancini, Tathiana Aparecida Fernandes de Alvarenga1, Gabriela Matos, Sergio Tufik”

“UNIFESP, UNIFESP, UNIFESP, UNIFESP, UNIFESP, UNIFESP, UNIFESP, UNIFESP”

“BR, BR, BR, BR, BR, BR, BR, BR”

“Background: Patients with epilepsy present sleep disturbances that may adversely impact their quality of life, which can in turn facilitate encourage seizure occurrence. Evidence from human and animal studies has demonstrated that exercise can exert beneficial effects, such as a reduction of seizure susceptibility and an improvement of quality of life of individuals with epilepsy. Exercise has been found to be beneficial for enhancing the quality of sleep among patients with neurological disorders. Thus, the analysis of sleep patterns induced by exercise could provide information about the mechanisms by which exercise can exert a positive influence on epilepsy. Objective: Our aim was to investigate the influence of an acute exercise session on sleep pattern in rats with temporal lobe epilepsy (TLE).

Methods: Twenty male Wistar rats were randomly assigned to 4 groups: control (C); acute exercise (EX); epilepsy (E) and epilepsy acute exercise (EEX). Two sleep electrocorticography recordings were performed during the light phase [baseline and day 2 (after the acute physical exercise session)]. The following sleep parameters were evaluated: wakefulness, slow wave sleep (SWS), rapid eye movement (REM) sleep and total sleep time (TST). After baseline recording, the exercise groups (EX and EEX) were submitted to an exercise session on a motor-driven treadmill at 12 m/min for 30 minutes. Twelve hours later, the rats were submitted to the second sleep recording.

Results: At baseline, the E group showed a higher wakefulness and a lower TST, SWS and REM sleep compared with the C group. After acute exercise, there was an increase in TST and SWS and a decrease of wakefulness in EEX (+11.10%, +20.29% and -11.25%, respectively) and EX (+5.20%, +11.60% and -8.12%, respectively) groups.

Conclusions: These findings suggest that acute physical exercise positively impacts the sleep pattern of rats with TLE, inducing a more consolidated sleep."
POSTER PRESENTATION

Effects of Anaerobic Threshold Training on Cardiovascular and Rowing Performance in Para-Rower

Elite performance

"Khaothin Thawichai, Rachnavy Pornthep"
"Suranaree University of Technology, Suranaree University of Technology"
"TH, TH"

“Background:

The aim of this study was to examine the effects of anaerobic threshold training on cardiovascular and rowing performance in para-rower.

Methods:

Two athletes, arm and shoulder (AS) class, and Thai national para-rowing team participated in the study. All participants performed pre- and post-training tests on heart rate, blood pressure, and one thousand meter rowing performance on water. The anaerobic threshold training regimen performed an eight-week on rowing ergometer combined with normal rowing training program on the water.

Results:

Following training, changes in heart rate (HR), systolic blood pressure (SBP), diastolic blood pressure (DBP) and mean arterial pressure (MAP) had occurred for this study. But not significantly lower levels of times in rowing performance on water post-training tests.

Conclusions:

The data of this study show that anaerobic threshold training did improve the cardiovascular fitness. However, it cannot improve rowing performance on water of para-rower.”
POSTER PRESENTATION

EFFECTS OF BETA-ALANINE SUPPLEMENTATION ON PERFORMANCE AND RECOVERY OF VOLLEYBALL ATHLETES

Elite performance

"Jean Carlos Silvestre, Rodrigo Luiz da Silva Gianoni, Gilmar de Jesus Esteves, Paulo Eduardo de Assis Pereira, Yuri Motoyama, Domingos Pandeló, Kelvin Tanaka, Rafael Yshihara, Paulo Henrique Silva Marques de Azevedo"

"Federal University of São Paulo, Federal University of São Paulo, Federal University of São Paulo, Federal University of São Paulo, Federal University of São Paulo, Federal University of São Paulo, Federal University of São Paulo, Federal University of São Paulo"

"BR, BR, BR, BR, BR, BR, BR, BR"

"Background:

Volleyball is characterized for being intense exercise, leading to exacerbated production of hydrogen ions (H+), generating imbalance in the body and leading to fatigue process. The aim of this study was to analyze the effect of supplementation of beta-alanine in the performance by strength and potency test.

Methods:

Fourteen volleyball players were evaluated on two occasions through strength and potency test. The additional subjects with beta-alanine (BA) or maltodextrin (PL) in a randomized design, double-blind, during the taper period. The amount of beta-alanine and placebo was 6.4 g/day, 7 times per week, including game days, over a period of 3 weeks. The athletes were evaluated on two occasions through strength and potency test (jump test), the subjects were submitted to a vertical jump test to determine the elevation of the center of gravity relative to the ground, all held heating lasting 5 minutes, which consisted of jumps activities and then the athletes performed five jumps in the jump test with an interval of 30 seconds between each jump, the maximum height is taken as the arithmetic average of the three best jumps.

Results:

As a result for strength and power testing, it was not found significant difference between groups, and the values for pre week, 1st week, 2nd week and 3rd week from: 43.56±3.40, 46.06±4.36, 46.25±4.02, 46.17±4.41 and 44.61±4.85, 45.83±5.38, 47.54±4.84, 46.56±5.34 (for BA and PL groups, respectively). In the intragroup analysis, significant difference was found for the BA group compared to the pre- and post-supplementation (44.02±3.59, 46.98±4.41, p = 0.48). For the same group, a large magnitude of
effect size compared to baseline were found for the 1st week (0.752) (44.02±3.59 and 47.13±3.88), a smaller value compared to the 2nd week (0.529) (46.25±4.02), and a high value compared to the 3rd week (0.665). As for the PL group, we found a low magnitude values relative to baseline with 3 weeks (0.242, 0.28, 0.36, respectively).

Conclusions:
In this sense, we can conclude that BA supplementation may be an effective strategy in taper period to increase strength and power in volleyball athletes."
Effects of Caffeine in anxiety and performance in healthy young

Sport nutrition

"Raquel Rocha de Campos, Marcus Vinicius Lucio dos Santos, Jorge Tavares de Souza, Sérgio Tufik, Ronaldo Vagner Thomatieli dos Santos, Hanna Karen Moreira Antunes"

"Federal University of São Paulo, Federal University of São Paulo, Federal University of São Paulo, Federal University of São Paulo, Federal University of São Paulo, Federal University of São Paulo"

"BR, BR, BR, BR, BR, BR"

"Background: Improved of mood is frequently reported with caffeine intake, probably by improve reaction time, cognitive tasks, attenuate fatigue of exercise and increase arousal threshold, suggesting that caffeine could contribute to the ability to tolerate prolonged aerobic exercise. However, some studies failed to find a significant association between caffeine, mood and performance.

Methods: To investigate the influence of Caffeine in physical performance, anxiety and physiological responses, seven healthy male subjects (21.86±2.61yrs; 75.81±11.83kg; 1.75±0.05m; 24.60±2.91kg/m2), was submitted to a completion of a 10 km cycling time-trial with analyses of ventilatory responses (ergospirometry). The exercise was performed in two conditions separated by 7 days: Placebo- PLA (Psyllium 5-15 mg with 250 mL of water) and Caffeine – CAF (6 mg/kg with 250 mL of water), 30 minutes before start the exercise in a double-blind protocol. For these conditions, the subjects answered an anxiety status questionnaire (Idate Trait-State), and temperature and arterial blood pressure was collected before (B), immediately after (IA) and 30 minutes after (30’) finishing of the exercise. Rated Perceived Exertion (RPE) Scale was used to measure the intensity of exercise during the protocol. The situations were compared by T-Test or two-way ANOVA with post-hoc Duncan test, with significance p≤0.05. The protocol was approved by Unifesp Ethics Committed (#1.009.434).

Results: We not observed differences related to the ventilatory parameters, blood pressure, RPE and temperature during the 10 Km cycling time trial when compared Placebo vs. Caffeine conditions and when compared the different time-course. Curiously, we observed increase of anxiety state IA exercise when compared to B, with decrease of this scores at 30’ in PLA condition (27.83±6.55 (B); 33.33±3.01 (IA); 28.17±5.38 (30’), the CAF condition not show significant differences (33.57±7.21 (B); 33.43±3.95 (IA); 31.29±4.99 (30’).

Conclusions: The Caffeine was not sufficient to influence physical performance in a 10 km cycle time trial test, however, the caffeine maintain anxiety state without change."
POSTER PRESENTATION

Effects of Chocoletti on Recovery Athletes of the Brazilian Team Category sub-23, World Three-Times Rafting Championship

Sport nutrition


“Federal University of São Carlos, Federal University of São Carlos, Federal University of São Carlos, Federal University of São Carlos, University Center of Votuporanga, Physical Education at State University of Roraima, Federal University of São Carlos, Federal University of São Carlos”

“BR, BR, BR, BR, BR, BR, BR, BR”

“Background: Played in three days of competition and consisting of 4 tests, the modality of Rafting, in which Brazil is a world reference, requests from athletes a high demand for fitness and synchronism in the small boat handling, with high metabolic and income demand. Although there are many types of protein supplements for high-level athletes, especially in the form of powder or capsules, a few are shown in the form of “fresh food” as studied: a product based on type A milk, cocoa and sugar. This study aimed to determine the effects of supplementation with Chocoletti on the recovery and performance of the tri world Rafting Champions team athletes, Under-23.

Methods: Therefore, athletes of the Brazilian team sub-23 Rafting (n = 7), who signed the informed consent and agreed to participate in this study, and after the initial assessments (pre-supplementation), made the daily intake of two bottles of Chocoletti (175g per bottle), 30 minutes post-training in a pre-competition period during seven weeks. The offered product was well evaluated by the athletes for being displayed as a high palatability food. After seven weeks, the athletes were reassessed (post-supplementation), over the following and same variables as in the initial assessments: 1) Biochemical evaluations: blood count, blood glucose, total cholesterol, triglycerides, creatinine, hormones (TSH, T3, T4, Cortisol), Uric acid, Urine I, Electrolytes, and Oxidative Stress (TNF-α, IL-6, Vit E, MDA and GPX), 2) Physical Rating: anthropometry, body composition, Aerobic Power.

Results: Initial assessments characterized the homogeneity of the sample, since all athletes showed normal values in biochemical evaluations, as they showed similarity of responses in aerobic reviews and body composition. All variables also indicated healthy conditions of the athletes. After the seven-week period, and maintenance of training volume, post-supplementation ratings did not show significant changes in biochemical evaluations. The concentrations of the oxidative and metabolic stress and...
protein catabolism markers did not change, and an indication that the offered product was able to act on the recovery of athletes. Athletes also showed a significant reduction on fat mass, with maintenance of lean body mass, which promoted a better body composition without changes in the lipid profile. Regarding the physical and performance assessments, athletes had a significant 15% increase in VO2max.

Conclusions: We concluded that the used product (Chocoletti) was able to assist in the recovery and maintenance of the physiological variables of Brazilian athletes world champions of rafting, which can be attributed to the product composition: milk and cocoa proteins."
POSTER PRESENTATION

EFFECTS OF COLD WATER IMMERSION ON POST-EXERCISE RECOVERY: METABOLIC ANALYSIS

Rehabilitation

"Natanael Pereira Batista, Gabriela de Carvalho, Jessica Kirsch Micheletti, Aryane Flauzino Machado, Jayme Netto Junior, Carlos Marcelo Pastre"

"São Paulo State University, São Paulo State University, São Paulo State University, São Paulo State University, São Paulo State University"

"BR, BR, BR, BR, BR"

"Background: Post-exercise recovery is part of the physical training in athletes and represents the return of some systems to baseline, including metabolic. The Cold Water Immersion (CWI) is presented as a recovery strategy and consists of immersing parts of the body in water with a temperature equal to or lower than 15°C. How muscle fatigue is a result of training, and one of his markers is the concentration of lactate, is of fundamental importance viable recovery strategies for their removal. Therefore, the objective was analyze the immediately recovery after a training and to verify the metabolic parameter about lactate from the use of immersion in cold water as recuperative technique.

Methods: A sample of 64 soccer players were randomized into two groups, control group (CG) and experimental group (EG). Participants underwent a training (50 minutes) and immediately after the intervention performed for 15 minutes, GE received the CWI (13 ± 1 °C) and GC stay sitting. The blood lactate concentration was measured during specific recovery times up to maximum two hours post-training. Statistical analysis was performed using the statistical package SPSS Statistics 22.0. Initially, sphericity of the data was tested by Mauchly’s test. In case of violation of the sphericity assumption, the Greenhouse-Geisser corrections were used. The mean and standard deviation were considered. Data were analyzed using Repeated Measure Analysis of Variance (Bonferroni’s test) which provides information of time, group and interaction effects. Effect size (ES) was calculated using partial eta squared and interpreted as small (≥0.01), medium (≥0.06) or large (≥0.14).

Results: Both groups recovered at the same time (2 hours after exercise), the time effect 0.00 (ES: 0.752), group time effects of 0.164 (ES: 0.033) and the effect group was 0.0049 (ES: 0, 075 ).

Conclusions: The recovery of the lactate behavior in blood, a metabolic variable, occurred at the same time for both groups (2 hours post-exercise), showing that CWI does not interfere with removal of lactate post-exercise compared to passive recovery."
POSTER PRESENTATION

Effects of Concurrent Training in Muscle Strength of Elderly with Metabolic Syndrome: Controlled Clinical Trial.

Physical activity and health

"Vania Fernanda Clemente Agner, André Andriolli Taffarel, Camila Baldini Mourão, Isabel da Silva, Sara Pereira, Marcia Carvalho Garcia, Maria Stella Peccin, Império Lombardi Júnior"

"Federal University of São Paulo, Federal University of São Paulo, Federal University of São Paulo, City Hall of Saints, Federal University of São Paulo, Federal University of São Paulo, Federal University of São Paulo, Federal University of São Paulo"

"BR, BR, BR, BR, BR, BR, BR, BR"

"Background:

Metabolic Syndrome (MS) has a high prevalence in the elderly population. The concurrent training (CT) consists of resistance exercise and aerobics, in the same exercise session. The scientific literature has shown that the TC promotes the elderly both cardiovascular gains and when the neuromuscular adaptations. This study aimed to investigate the effects of a CT program about muscle strength, walking function, metabolic and anthropometric profile, cardiovascular risk, consumption of medicines and quality of life in older adults with MS.

Methods:

A controlled clinical study, randomized and blind, performed in the city of Santos - SP. There were 41 elderly participants, of both genders, divided into control group (n = 18) and intervention group (n = 23), and subsequently submitted to the assessments: Test 1 repetition maximum (1RM) for 12 muscle groups; 6-minute walk test (6MWT); analysis of blood concentrations cholesterol and glucose; use of medicines; SF-36 questionnaire. The intervention group was conducted 2 x per week, totaling 24 CT sessions with 50 minutes of strength exercises on weight machines, six muscle groups of the upper limbs and six of the lower limbs, with 40-70% of 1 RM and 40 minutes of walking exercises (70 -85% of Maximum Cardiac Frequency). The control group received guidance on aging, but did not perform physical exercise.

Results:

There were significant differences, in the intergroup analysis, for increased muscle strength in appliances: knee extensor, rigth knee flexor, left knee flexion, adduction hip, hip abduction and leg press, bench press, row, pull triceps and front pulley. There were larger displacement of the 6MWT in the elderly in the intervention group (p = 0.001). The elderly group submitted to exercise protocol
reduced their consumption of antiglycemic of the biguanide class \((p = 0.002)\). There were no changes in the metabolic and anthropometric profile, cardiovascular risk and perception of quality of life for seniors.

**Conclusions:**
This clinical trial may subsidize information about prescribing (dose-response) of CT in elderly patients with MS, to increase muscle strength and walking, while reducing the consumption of hypoglycemic-biguanide drugs."
POSTER PRESENTATION

Effects of Concurrent Training on Obese Post-menopausal Women’s Balance and Strength in an Interdisciplinary Health Program.

Sport and quality of life for adolescence and aging


"Federal University of São Paulo, Federal University of São Paulo, Federal University of São Paulo, Federal University of São Paulo, Federal University of São Paulo, Federal University of São Paulo, Federal University of São Paulo, Federal University of São Paulo"

"BR, BR, BR, BR, BR, BR, BR, BR"

“Background: Aging is increasing in Brazil as well as obesity. Different strategies have been used in order to minimize the consequences of these occurrences. This research aimed to study the effects of concurrent training (resistance training and aerobic in the same session) on obese post-menopausal women's balance and strength, participants of an interdisciplinary health program.

Methods: Two groups were formed, Training Group – TG (n=19, and mean age of 57, 42 years) and Control Group - CG (n= 05, and mean age of 58 years) to fulfill 12 weeks of interdisciplinary intervention (Physical Education, Nutrition and Psychology), being the only difference the concurrent training in Training Group. The concurrent training consisted in 3 sessions per week with 1 hour of duration. The nutritional orientation and psychological attendance occurred fortnightly with 1 hour per session. Evaluations were made in anthropometry, body composition, balance and strength. Average and standard deviation were calculated as well as the statistic differences among variables, significance level was set at 5%.

Results: By the end of the intervention there were significant increases to Training Group at the knee articulation strength (flexion at 60°/s, extension and flexion at 300°/s) and significant decrease at Body Mass Index and in the median frequency Anteroposterior of the open eyed semitandem stand (balance). The Control Group increased significantly the waist circumference and hip-to-waist ratio.

Conclusions: The concurrent training within an interdisciplinary intervention shows benefits on balance, but mainly in the variables of muscular strength in obese post-menopausal women."
Effects of contralateral antagonist contraction on acute performance of ipsilateral agonist exercise: a cross over study

Physical activity and health
“Cauê Vazquez La Scala Teixeira, Diego Rezendo Cortes, Alexandre Lopes Evangelista, Danilo Sales Bocalini, Paulo Henrique Marchetti”

“Federal University of São Paulo, Metropolitan University of Santos, Nove de Julho University, São Judas Tadeu University, Methodist University of Piracicaba”

“BR, BR, BR, BR, BR”

**Background:** In the constant search for performance improvement in resistance training, different techniques and training methods are created and constantly reinvented by practitioners and strength coaches. One of the methods that still lacks research is the ipsilateral agonist-contralateral antagonist. This method consists in performing an exercise that requires simultaneous contractions of contralateral antagonists muscles, for example, the right elbow flexors and the left elbow extensors. Some authors suggest that muscle tension and consequently acute performance are enhanced when the contralateral antagonist muscle is contracted at the same time as it performs the movement of the ipsilateral agonist. But no studies were found about the method. Thus, the aim of this study was to investigate the influence of contralateral antagonist contraction on acute performance and perceived exertion of ipsilateral agonist exercise.

**Methods:** Seventeen young, healthy, resistance trained men (age: 23.3 ± 4.9 years, height: 173.0 ± 5.2 cm, and total body mass: 74.2 ± 7.35 Kg, BMI: 24.8 ± 2.2 Kg/m², resistance training experience: 3.3 ± 2.3 years, 1RM test of right elbow flexion: 22.6 ± 4.6 kg) were recruited to participate in the current study. Volunteers attended three sessions in the laboratory. In the first session 1RM test of right elbow flexion exercise with dumbbell on Scott bench was performed. The following two sessions were randomized. In the control session, the subjects performed a maximum repetition test in right elbow flexion exercise with dumbbell on Scott bench with 75% 1RM, adopting free cadence. The experimental session was similar, but the subjects were instructed to maintain maximal voluntary isometric contraction of the left elbow extensors during the test, keeping the left arm parallel to the body. At end of workout sessions, the total number of repetitions correctly performed to voluntary fatigue and the perceived exertion measures was evaluated. Volume load was calculated by multiplying the total number of repetitions by the load (kg). A Paired Sample t-test was used to compare differences
between experimental condition and control for all dependent variables. The P-value of 0.05 was used to determine statistical significance.

**Results:** Significant differences ($p < 0.001$) were found between experimental session at maximum repetitions at 75% 1RM (control: $12 \pm 3$ reps; experimental: $14 \pm 4$ reps) and total load (control: $212 \pm 59$ Kg; experimental: $238 \pm 59$ Kg) (Figure 1). No differences ($p = 0.749$) were found on RPE between interventions (control: $7.5 \pm 1.2$, experimental: $7.4 \pm 1.0$).

**Conclusions:** The maximum voluntary contraction of contralateral antagonist positively influenced the performance of repetition maximum test in the ipsilateral agonist exercise, reflecting a significantly increase in TL, with no differences in the perceived exertion relative to control session."
**POSTER PRESENTATION**

**Effects of exercise protocol training on histopathology and fibrosis process in a jaw muscle of an experimental model of Duchenne muscular dystrophy**

Sport medicine and injury prevention

"Mariana Cruz Lazzarin, Hananiah Tardivo Quintana, Vivianne Izabelle de Araújo Baptista, Flavia de Oliveira"

"Federal University of Sao Paulo, UNIFESP – Campus Baixada Santista, Federal University of Sao Paulo, UNIFESP – Campus Baixada Santista, Federal University of Sao Paulo, UNIFESP – Campus Baixada Santista, Federal University of Sao Paulo, UNIFESP – Campus Baixada Santista"

"BR, BR, BR, BR"

**Background:** Duchenne muscular dystrophy (DMD) is caused by mutations in dystrophin gene, impairing skeletal muscle integrity and stability. The mdx mice (X-chromosome-linked muscular dystrophy), an experimental model of DMD, also have mutation in the dystrophin gene, leading to mechanical instability for skeletal muscle. Due to regeneration-degeneration cycle, muscle tissue begins to show chronic inflammation and histopathological changes and muscle fibrosis. The physical exercise may have local and systemic effects due to action of cytokines released after training session. Cytokines concentration increased in blood induces systemic anti-inflammatory action, resulting in an important mechanism for everse or minimize chronic inflammatory processes. The aim of this study was to analyze the effects of aerobic exercise training on the histopathology and fibrosis in a jaw muscle of the mdx mice.

**Methods:** C57BL/10 and C57BL/10-Dmdmdx male mice with eight weeks old were distributed into four groups (n=5): Sedentary Control (SC), Trained Control (TC), Sedentary Mdx (S-Mdx) and Trained Mdx (T-Mdx). Procedures were approved by the Experimental Animal Use Committee of UNIFESP (CEUA 8165240614). Trained groups were submitted to seven weeks of aerobic exercise, five times a week at a high intensity speed for 60 minutes with treadmill downward of -15°. After euthanasia, masseter muscles were taken and specimens were stained with hematoxylin and eosin and Sirius Red. Histopathological and connective tissue (ct) analysis was performed through semiquantitative score. Statistical analysis of data was performed using two-way ANOVA.

**Results:** In SC and TC histopathological analysis showed muscle fibers with homogeneous morphology, polygonal shape and peripheral nuclei. In contrast, S-Mdx and T-Mdx showed morphological variety of cells (polygonal and round muscle fibers), size variety, centralized nuclei, fiber necrosis and inflammatory infiltrate. Mdx groups had higher histopathological scores than C groups.
Mdx groups was influenced by physical training, and T-Mdx group had the lowest score that S-Mdx (p<0.05). Connective tissue analysis of SC and TC presented ct in endomysium and perimysium regions. In contrast, S-Mdx and T-Mdx showed thickened ct in endomysium and perimysium, characterized by intense muscle fibrosis process. The semiquantitative results of ct evidenced that Mdx groups had higher percentages of ct than Control groups (p<0.05). Furthermore, masseter muscle was influenced by physical training and T-Mdx showed lower percentage of ct than S-Mdx (p<0.05).

**Conclusions:** The exercise training protocol reduced the histopathology and fibrosis in masseter muscle of mdx mice as a systemic effect of aerobic exercise.
POSTER PRESENTATION

Effects of Gait Training with Body Weight Unloading on Gait Initiation of Individuals with Gait Impairment

Rehabilitation

"Gabriela Lopes Gama, Melissa Leandro Celestino, Ana Maria Forti Barela"

"Cruzeiro do Sul University, Cruzeiro do Sul University, Cruzeiro do Sul University"

"BR, BR, BR"

“Background: The use of body weight support (BWS) has been commonly used in gait rehabilitation of individuals with gait impairment in conjunction with treadmill. For gait, those systems reduce the load that should be overcome by the subject during walking, promoting symmetry between paretic and nonparetic limbs on the body weight distribution and step length as the erect posture is maintained, which seen to be the requirements for a good gait performance. Usually, steady-state gait is evaluated when a gait training protocol using BWS is employed. However, one aspect that would be interesting to investigate is the transition between a standing still position and the execution of the first step, know as the gait initiation (GI). In this way, we raised two questions: would subjects with gait impairment improve their performance on gait initiation after a gait training protocol with BWS? Would the walking surface that BWS is employed influence the possible improvement? Although the target population in this study was stroke survivors, who usually present gait impairment, the results of this study could be useful for any population that present gait impairment or injury that may compromise locomotion. In this way, the purpose of this study was to investigate the effects of gait training with BWS on a treadmill and over the ground on the performance of gait initiation of stroke survivors.

Methods: Fifteen individuals with chronic stroke (> 6 months) were randomly assigned to two gait training with BWS groups: treadmill group (TMG, n=8) or overground group (OGG, n=9). Both groups underwent gait training three times/week for 6 weeks. During the training session, TMG walked continually on a treadmill as the OGG walked on both directions (back and forth) along a 7m walkway. GI was assessed before and after the 6 weeks period. All individuals were instructed to initiate gait with the paretic limb from a quite stance position with one foot on each force plate, side-by-side at a comfortable and self-selected speed. Passive reflective markers were placed on main anatomical landmarks of lower limbs for subsequent calculation of kinematic variables. Step length of paretic limb and displacement of center of pressure (CP) in the medial-lateral (ML) and anterior-posterior (AP) directions were calculated.
Results: Overall, gait training with BWS promoted increase on step length regardless the surface which
BWS was employed. On the other hand, only the OGG improved CP displacement in the ML direction
during the postural phase.

Conclusions: The results of this study revealed that gait training with BWS improve the performance
of gait initiation of individuals with gait impairment. Besides that, additional benefits can be reached in
this task when the training is conducted over the ground, improving lateral stability that can reduce fall
risks. Taking together, those findings can encourage the use of BWS to implement gait training of
different populations and setting such as athletics rehabilitation."
POSTER PRESENTATION

Effects of Gait Training With Body Weight Unloading on the Gait Performance of Impaired Individuals

Rehabilitation

"Melissa Leandro Celestino, Gabriela Lopes Gama, Dinah Santos Santana, Ana Maria Forti Barela"
"Cruzeiro do Sul University, Cruzeiro do Sul University, Cruzeiro do Sul University, Cruzeiro do Sul University"
"BR, BR, BR, BR"

“Background: Partial Body Weight Support (BWS) Systems have been Broadly Employed During Gait Rehabilitation. However, BWS is more Commonly Combined with a Treadmill, Mainly because Treadmills might Stimulate Rhythmical Steps and can be Accommodated in a Small Place. If one takes into Account that Overground is the most Common Surface Everyone Walks, it would be Interesting to Investigate if the Surface that BWS is Employed would Influence the Results of a Gait Training Protocol. In the Present Study, we Investigated if the Employment of BWS on a Treadmill or over the Ground would Yield any Differences in Gait Improvement of Stroke Survivors. Although the Target Population was Stroke Survivors, the Results of this Study could be Useful for Any Population that Present Gait Impairment or Injury that may Forbid Locomotion. Besides that, it is Important to Highlight that Stroke is a Common Disease, Affecting 33 Million of the All World Population, and Locomotion may be Impaired due Stroke. Therefore, the Goal of this Study was to Investigate if the Surface that BWS is Employed (i.e. Treadmill vs. Overground) would Influence the Gait Performance of Stroke Survivors.

Methods: Twenty-eight Stroke Survivors were Randomly Allocated to two Different Training Groups with BWS: Treadmill Group (TMG, n=14) and Overground Group (OGG, n=14). Except for the Surface that BWS was Employed, Both Groups Underwent Gait Training 3 Times per Week for 6 Weeks. To Verify Any Training Effect, Steady State Walking was Assessed Before and Right After the 6-weeks Period. Six-minutes Walking Test (6-MWT) and Gait Analysis were Employed. For the Gait Analysis, All Individuals Walked at a Self-Selected Speed with Reflective Markers Placed Over their Main Anatomical Landmarks. Specific Cameras (Vicon) Recorded the Trajectories of those Markers and the Following Parameters were Calculated: Mean Walking Velocity and Step Length of Paretic and Nonparetic Limbs.

Results: All Individuals Increased their Resistance, Walking Speed and Step Length of Nonparetic Limb after Gait Training Regardless the Surface BWS was Employed. On the Other Hand, only those
Individuals that over Went Gait Training with BWS Over the Ground Increased Step Length of Paretic Limb.

**Conclusions:** Gait Training with BWS Promotes Benefits in Terms of Endurance and Velocity. However, Only Stroke survivors that Received Gait Training Over the Ground Could Improve Step Length of Paretic Limb. In this way, if Treadmill is Chosen to Employ BWS System, it is Important to Take Some Time to Orient Individuals with Gait Impairment During Overground Walking in Terms of Step Execution.”
POSTER PRESENTATION

Effects of Inclusive Physical Education Intervention on Students without disabilities in the Current Chinese Compulsory Education

Sport eligibility and inclusion

"Mei Jin, WANG Jiahong, LIU Yang"

"Soochow University, Soochow University, Soochow University"

"CN, CN, CN"

“Background:

Inclusive physical education in China is still a brand new field. In recent years, a lot of studies focused on the thoughts and theories of inclusive physical education abroad (Li Qun Li, 2000; Chen Shu, 2012; Liu Yang, 2012), however, there was no action study or experimental study on the effects of practice of inclusive physical education in China, and the most of concerning studies were based on literature review and theoretical analysis. By exploring the problems and influences, the study analyzed the reasons of negative and positive outcomes, and discussed how we can move to efficient inclusion under the current Chinese compulsory education system. The purpose of the study is to analyze effects of inclusive physical education intervention on attitudes and accomplishments of physical education of students without disabilities.

Methods: Participants: There were 30 students including 12 girls and 18 boys and 1 boy with mild intellectual disability in the intervention class (C1). There were 30 students including 14 girls and 16 boys in the non-intervention class (C2). The intervention were carried out for C1 in the second semester of 2012-2013 school year, and there were two physical education classes in every week. Instruments were Questionnaire CAIPE-R and Adjective Checklist. Evaluation of Students’ Physical Education: The evaluation of the students’ physical education was according to curriculum outline, including 50 meters running, one minute passing volleyball to the wall, one minute jumping rope, and medicine ball throwing.

Results: Attitudes toward inclusion and changes to sports rules, and scores of physical education tests were compared between a 3rd grade class in which a student with a mild intellectual disability was included and a 3rd grade class without students with a disability. Independent-Samples T-Test indicated no difference in scores of physical education test between two classes and students in C1 had more favorable attitudes toward changes to sports rules. Paired-Sample T-Test indicated the decrease in general attitudes toward inclusion in C1 after intervention.

Conclusions: It was argued that including students with a mild intellectual disability in general physical education would not have negative effects on students’ achievements in physical education, and lead
to positive attitudes toward changes to the sports rules. Inappropriate supports might block the expected interaction. Test-oriented and elite-centered education thoughts made it hard to create the climate that efficient inclusion required."
**POSTER PRESENTATION**

Effects of Inspiratory Muscle Training on Cardiorespiratory Function of Wheelchair Rugby Athletes

Sport development

"Jeter Pereira de Freitas, Pablo Rodrigo de Oliveira Silva, Agnaldo Lopes, Fernando Guimarães, Miriam Raquel Meira Mainenti, Patricia dos Santos Vigário"

"UNISUAM, UNISUAM, UNISUAM, UNISUAM, ESEFEX, UNISUAM"

"BR, BR, BR, BR, BR, BR"

**Background:** Physical deficiency is associated with negative changes in general health state, including impaired cardiorespiratory function due to low mobility, muscles atrophy and others. Sports practice has been increasing among people with physical deficiency since it is related to a better health profile, quality of life, socialization and self-esteem. Wheelchair rugby (WR) is a sport modality adapted for people with tetraplegia or tetraequivalence, which has an intermittent characteristic of effort – aerobic and anaerobic. Therefore, an optimal cardiorespiratory capacity is desirable to have a better sports performance. In the last years, the adoption of inspiratory muscle training (IMT) in order to improve cardiorespiratory function been increasing in many sports modalities, including those for athletes with deficiency. Thus, the aim of this study was to evaluate the effect of inspiratory muscle training on cardiorespiratory function of wheelchair rugby athletes.

**Methods:** A non-randomized study was performed with 06 WR athletes age = 34 (23-42) years, weight = 72, 3 (57-90) kg, height = 1, 8 (1, 7-1, 8) m, functional classification = 2, 5 (0, 5-3, 5). The IMT was performed during six weeks, two times/day. Athletes should perform 30 forced inspirations followed by long expirations, but not maximum, with load adjusted between 50% and 60% of the maximum inspiratory pressure (Classic, Powerbreathe, United Kingdom). All participants underwent a cardiopulmonary exercise testing with metabolic respiratory gases analyses on an arm cycle ergometer in order to assess the cardiorespiratory function. The considered variables were: final power (W) and oxygen consumption during exercise peak (VO2peak). The effect of IMT on cardiorespiratory variables was evaluated with the Wilcoxon test (p<0.05; SPSS 21.0) and descriptive analysis were presented as median (minimum-maximum values).

**Results:** After the intervention, it was observed that athletes showed statistically higher final power [pre=42, 5 (24, 0 – 80, 0) W vs. post=55, 0 (32, 0 – 90, 0) W; p=0, 04]. Regarding VO2peak, although it was not observed statistically significant differences in the median value of the group after the intervention, 50% of the athletes showed higher VO2peak values after the intervention associated with...
higher final power; about 33% maintained the same VO2peak, but with increased final power; and 17% decreased VO2peak for the same final power, reflecting a better economy of motion.

**Conclusion:** Inspiratory muscle training seemed to be effective in order to improve cardiorespiratory function of wheelchair rugby players and, therefore, may be included in the training routine to improve sports performance. Another variable evaluated was the VO2 peak, that didn't present difference statistically significantly after 6 weeks of IMT, however, 50% of the athletes presented a bigger value after the intervention.

**Conclusions:** The results obtained on this study point that the addition of IMT in the routine of training can improve the car.
POSTER PRESENTATION

EFFECTS OF PHYSICAL EDUCATION IN DEVELOPING SKILLS MOTOR IN

Physical activity and health

"Marlon Magnon Valdevino Leite, Eric Leal Avigo, José Angelo Barela"

"University Cruzeiro do Sul, University Cruzeiro do Sul, University Cruzeiro do Sul, São Paulo State University, Rio Claro, Brazil."

"BR, BR, BR"

"Background:"

Changes in Motor Repertoire Occur Throughout the Live, More Dramatically During Childhood. Physical Education Activities Play a Critical Role Improving Proficiency of Fundamental Motor Skills. However, it is Still Unknown if Previous Improvements of These Skills Would Last for Future Experiences. Therefore, the Purpose of this Study was to Examine Fundamental Motor Skill Proficiency in Children with Different Physical Education Intervention in the Following Years.

Methods:

Seventeen Children Who Had Previous Physical Education (PE) and 15 Children who did Not Have Previous Physical Education (NPE), Throughout the First Grade of Elementary School, Participated of this Study. All Children were Video Taped Performing the Locomotor and Object Control Skills of the TGMD-2, Proposed by Ulrich (2000), at the End of the First Grade and of the Third Grade. Three Evaluators Inspected the Respective Motor Skill Performance and Scored Them, Based upon the Performance Criteria, Obtaining the Raw Score and Equivalent Motor Age.

Results:

The Results Showed that, at the End of the First Grade, the Locomotor Raw Score was Higher for the Children with PE, but Such Difference was Not Observed at the End of the Third Grade. For the Object Control, Raw Score was Higher at the End of the First and Third Grades for the Children with PE Compared to the Children with NPE.

Conclusions:

These Results Suggest that Physical Education Promotes Development of Fundamental Movement Skill Proficiency, which Persists for the Subsequent Years for Manipulative Motor Skills."
**POSTER PRESENTATION**

**Effects of resistance exercise program in mice with Alzheimer's Disease**

Neuroscience and sport

“Matheus Libarino Santos, Giovana Pellizzon, Christiane Gimenes, Caio Souza, Juliana Trevizo, Eduardo A. da Silva, Alexandre J. Lima, Jansen Fernandes, Sergio Gomes da Silva, Ricardo Mario Arida, Beatriz M. Longo”

“Federal University of São Paulo, Federal University of São Paulo, Federal University of São Paulo, Federal University of São Paulo, Federal University of São Paulo, Federal University of São Paulo, State University, Federal University of São Paulo, University of Mogi das Cruzes, Federal University of São Paulo, Federal University of São Paulo”

“BR, BR, BR, BR, BR, BR, BR, BR, BR, BR, BR”

**Background:** Alzheimer's disease (AD) is a neurodegenerative disease that mainly affects functions such as cognitive behavior and memory. Considering these cognitive deficits and the absence of an effective treatment, physical activity has emerged as an alternative treatment to prevent or retard the progression of AD. It has been shown that aerobic exercise is able to increase neurogenic factors, modulate inflammation and decrease the number of amyloid plaques present in the brain, especially in the cortex and hippocampus. Here, we hypothesized whether a program of resistance exercise could interfere on the reduction of amyloid plaques and number of neurogenic cells in the cortex and hippocampus. To investigate this idea, we evaluated the effects of a resistance exercise program in the brain of transgenic mice for AD.

**Methods:** Double transgenic mice with APPswe/PS1dE9 mutation, with 7-9 months old were used as Alzheimer's disease model, and the respective wild type mice (WT) used as controls. Mice were divided into four groups: AD with exercise (AD+EX; n =6), control with exercise (WT+EX; n =6), AD without exercise (AD; n =5) and control without exercise (WT; n =5), and the exercise groups were subjected to resistance exercise of climbing force with overload. Following a maximum load test once a week, each animal was subjected to the resistance exercise protocol consisted of eight climbing series with a progressively heavier load. Each series contained an average of 8 to 12 climbing movements, 5 days/week, 4 weeks. After the last day of exercise, animals were perfused with paraformaldehyde (4%), their brains were removed from the skull, frozen and cryostat cut (30µm). The slices were processed for immunohistochemistry for β-amyloid (6E-10) to stain the amyloid plaques in the cortex and hippocampus, and for doublecortin (DCX) staining neurogenic cells in the hippocampus.
Results: Quantitative analysis of amyloid plaques indicated a significant reduction of β-amyloid in both cortex ($p = 0.0031$) and hippocampus ($p = 0.0285$) of the AD+EX group; the DCX positive cells counted in the hippocampus indicated a reduction in neurogenesis in both AD and AD+EX groups ($p < 0.005$), although no significant difference was detected between the groups subjected to physical activity.

Conclusions: Our data indicate that the resistance exercise program is able to reduce the number of amyloid plaques in both hippocampus and cortex, with no direct effects on neurogenesis. Based on these results, the resistance exercise (in addition to the aerobic exercise) can be proposed as a new candidate in the adjuvant treatment of AD."
POSTER PRESENTATION

EFFECTS OF STRENGTH TRAINING IN MALE TRIATHLETES

Elite performance

“Luiz Antonio Domingues Filho, Emilson Colantonio, Idico Luiz Pellegrinotti”

“Human Movement Sciences Department - Study Group and Research in Physical Activity and Health – GEPAFS – Federal University of São Paulo; Post Graduation Program in Human Movement Sciences - Methodist University of Piracicaba, Human Movement Sciences Department - Study Group and Research in Physical Activity and Health – GEPAFS – Federal University of São Paulo, Post Graduation Program in Human Movement Sciences - Methodist University of Piracicaba”

“BR, BR, BR”

“Background: Physical training adapts the body to best accomplish a particular task. In the case of triathlon, training aims to improve the athlete’s performance for the competition. One way to improve this performance is the strength exercises. The aim of this study was to investigate the influence of a specific weight training program in the organics and neuromotor variables of triathletes

Methods: 14 male athletes of national level competition were recruited. The training was divided in 24 muscular activity sessions during 12 weeks. The adaptation phase consisted of 08 sessions, using a load of 60% to 65% of a maximum repetition (1 MR). The specific phase had duration of 16 sessions using a load of 65% to 80% of a 1 MR. The subjects were divided in two groups: experimental group (G 1), and control group (G 2), where the first group trained with weights and the other did not. Tests and data collection were made in three distinct moments: the first, before starting the weight training; the second, after four weeks (after session 8) and the third one, after twelve weeks (after session 24). The Mann Whitney test for small samples was used to statistics analyze the following variables: time of swim in 400 meters of crawl (TS 400m), maximum oxygen uptake (VO2max), maximum power (PP w.kg-1), medium power (PM W.kg-1) and fatigue index (% FI). The significance level was set at p<0.05

Results: In comparison between values obtained in 400m of swimming for experimental and the control group, the results showed significant differences between groups for all moments T1 (p=0.019), T2 (p=0.036), and T3 (p=0.013), respectively. Regarding the VO2max, the experimental group presented a range among the three moments, while the control group showed constant values. As for the maximum and medium power, the results obtained in the last assessment (T3) confirmed statistically significant differences, being for PPW.kg -1 (p=0.048) and PMW.kg -1 (p=0.041) for the experimental group. For the fatigue index (%FI) in average, there was a slight improvement in the experimental group throughout the study
Conclusions: The main results indicated that the weight training proposed for triathlete’s provided a significant improvement in the time of swimming, in the maximum and medium power."
POSTER PRESENTATION

Effects of Sun Salutation Sequence on Health-Related Physical Fitness in Obesity Women

Physical activity and health
"Khaothin Thawichai, Rachnavy Pornthep"
"Suranaree University of Technology, Suranaree University of Technology"
"TH, TH"

“Background:

Hatha yoga is considered the most relaxing form for relaxation and restoration but sometimes use a term that covers all forms of yoga. Sun salutation is one step in the science of yoga and a part of Hatha yoga. It is an ancient science that has health benefits for life and procedure exercise of external organs as well as the internal organs maintained. It was the kind of physical exercise that is most effective for health in person are performed every day to still healthy throughout. However, few investigations have focused on quantification of sun salutation practice on health-related physical fitness in obesity women. Therefore, this study was to examine the effects of an eight-week of sun salutation sequence on health-related physical fitness in obesity women.

Methods:

The participants were thirty obesity women and volunteer from the staff of Nakhon Ratchasima College, Nakhon Ratchasima, Thailand. Participants were divided into two groups, a sun salutation group, and control group. The sun salutation group performed in an eight-week sun salutation sequence training and the control group did not perform any exercise training techniques. Both groups were tested before and after eight-weeks of the study on health-related physical fitness including muscular strength and endurance, flexibility, cardiorespiratory fitness, body composition, and pulmonary function.

Results:

This study show that participants in the training group perform significantly different higher scores in cardiorespiratory fitness, flexibility, and pulmonary function. There was no change in muscular strength and endurance and body composition than the participants in the control group.

Conclusions:

Sun-salutation sequence training two days a week for eight-week are also used which is beneficial for health-related physical fitness on cardiorespiratory fitness, flexibility, and pulmonary function. However, no more beneficial for muscular strength and endurance and body composition in obesity women.”
**POSTER PRESENTATION**

**Effects of Taekwondo Experience in an Exergame Combat’s Practice**

Technology in sports

"Andressa Formalioni, Daniel Meiato, Lucas Lilge, Cesar Vaghetti, Fabrício Del Vecchio"

"Federal University of Pelotas, Federal University of Pelotas, Federal University of Pelotas, Federal University of Pelotas, Federal University of Pelotas"

"BR, BR, BR, BR, BR"

**Background:** Individuals with experience in sports that can be played as exergame (EXG) could reach different intensities those without experience. Additionally, they also would present gestures and efforts distinct from non-experienced people. The aim of present study was to evaluate the effort level in an EXG combat sport, considering Taekwondo experience.

**Methods:** Were enrolled 14 boys (12 to 16 yo), 7 with more than 6 months of experience in Taekwondo (TKD group) and 7 physically active with no experience in combat sports (NTKD). Both groups showed no experience in the Xbox 360™ and with the EXG Fighters Uncaged© (Ubisoft Entertainment S.A). The participants played a single match of 6-round against the same virtual opponent. The heart rate (HR) were collected before (HRREST) and during the match to obtain peak (HRPEAK) and mean (HRMEAN) values. The percentage of age-predicted maximal HR (%HRMAX) was calculated using the 208 - (0.7*age) equation. We punctured 15µl of blood from earlobe before, immediately after, 2min, 4min and 6min after the match, and the lactate concentration [LAC] was analyzed in Yellow Springs 2300®. The rate of perceived effort (RPE, 0-10 OMNI scale) was registered after the match. The video analysis was conducted by Taekwondo specialist, who quantified the techniques. Data were show with mean (SD), the comparisons between groups (TKD and NTKD) and between techniques (kicks and punches) were made with 2-way ANOVA, with Tukey post-hoc. Were conducted bivariate correlations with Pearson’s test. The significance level was set in 5%.

**Results:** The mean time of practice was 1min07s to TKD and 1min10s to NTKD group. We found no differences between groups to RPE, HRPEAK (TKD=90.1±14.7% and NTKD=79.8±17.2%; t=1.7; p=.25) and HRMEAN (TKD=74.2±15.7% and NTKD=66.6±18%; t=1.2; p=.41). To [LAC], were found no differences between groups (F1, 6=2.9; p=.14), but between moments (F4, 3=13.4; p<.001), with significant interactions (F4, 3=5.6; p=.02). We found higher values in TKD group in the 4th (3.9±1.13 vs 2.37±0.61 mmol/L; t=4.31; p=.005) and 6th (3.98±1.63 mmol/L vs 2.2±0.67 mmol/L; t=5.01; p=.002) minutes. We found differences in the type of techniques applied (F1, 6=52.5; p<.001) with significant interactions (F1, 6=10.6; p=.02). Both groups used more punches than kicks (83±22 punches vs 23±11
kicks; \( t=12.9; \ p<.001 \), and the NTKD groups applied more punches (96±21 vs 69±22 punches; \( t=4.2;\ p=.03 \)). We found significant correlations between kicks and RPE (\( r=-.69; \ p=.01 \)) and between punches and [LAC] in the 2nd (\( r=.64; \ p=.02 \)) and 4th min (\( r=.61; \ p=.03 \)), and with HRMEAN (\( r=.61; \ p=.03 \)).

**Conclusions:** We found small differences in physiological variables between groups, with higher values to [LAC] during the 4th and 6th min post-EXG in TKD group. The technical differences were small, with more punches in NTKD. We highlight significant increments in HR and [LAC] during EXG combat's practice, despite no effect of previous experience in combat sports."
Electromyographic activity of Upper Trapezius and Serratus Anterior Muscles in Volleyball Players during the Block

Sport nutrition

"Yanne de Toledo Pinho, Ricardo Luis Fernandes Guerra, Helga Tatiana Tucci"

"Federal University of São Paulo, Federal University of São Paulo, Federal University of São Paulo"

"BR, BR, BR"

**Background:** Understanding shoulder muscle activity during fundamentals of volleyball may help to define shoulder protocols for training and rehabilitation, reducing the risk of injury and increasing sports performance. The objective of the study was to analyze the surface electromyographic activity (SEMG) of upper trapezius (UT) and serratus anterior (SA) muscles in volleyball players during the block. Block is the technical action that has the greater propensity to cause shoulder injury due to the large impact of upper extremity with the ball. **Methods:** Five healthy, right-handed males were recruited. The study had two stages: (1) physical evaluation; (2) UT and SA SEMG data collection during the execution of block. Each athlete performed up to 5 attempts of block, with an interval of 30 seconds. Attempt was considered appropriate when the ball just touched the right hand. Only the corrected first 3 attempts were considered for analysis. The Block phases “arm elevation”; “touch on the ball” and “arm lowering” were delimited by a trigger for further windowing of the SEMG in each phase. Also, SEMG of muscles were sampled during three maximal voluntary isometric contractions (CIVMs) collected in the position of muscle function. Signal was sampled with a 16-bit A/D converter board, frequency of 2 kHz per channel and simultaneous acquisition. Myoelectric signal were sampled by a disposable Ag/AgCl bipolar electrode (20mm inter-electrode distance) connected to a sensor with automatic gain (Miotec©, RS, Brazil). A channel was used as a trigger. A circular disposable electrode was fixed in the sternum for reducing acquisition noise. SEMG signal were filtered at a frequency bandwidth of 20-500Hz and after windowed in each phase. Then, raw signal was normalized by the mean value of the 3 MVICs of the respective muscle. Thus, the normalized electromyographic activity was expressed in percentage values. Percentage values of normalized SEMG were compared between phases. Normalized electromyographic variables were analyzed by the model of analysis of variance with repeated measures and then by the method of multiple comparisons of Bonferroni. The level of significance was set at α=0.05. **Results:** UT showed greater active [mean=88.32 (standard deviation=28.78)] in the “touch on the ball” compared to “arm elevation” [34.20 (11.09)] and “arm lowering” [33.23 (20.02)]. SA showed greater active in the “touch on the ball” [101.26 (44.32)] compared to “arm elevation” phase.
and “arm lowering” [26.63 (13.16)]. **Conclusion:** Results suggested that UT muscle showed greater activation when compared to SA muscle in almost all analyzed phases. However, serratus anterior was the most recruited muscle in the “touch of the ball”, phase where subjects executes the greater amount of force among all analyzed phases of block. Results should be viewed with caution, as the sample is small for accurate Conclusions.”
Background:
The assessment of the Energy Availability (EA) has been evidenced as the best way to identify if energy intake supplies the body’s energy metabolic demand, after discounting the energy expenditure with exercise. An EA below 30 kcal/kg of lean body mass (LBM) is considered inadequate. Information about EA of male and paralympic athletes are scarce in the literature, especially due to the difficulty in assessing the factors involved in its estimation. Therefore, the objective of this study was to assess the EA of male Paralympic athletes.

Methods:
Retrospective study developed during one of the evaluation weeks of the High Performance Program, organized by the Brazilian Paralympic Committee with limb deficient (LD, n=2) and cerebral palsy (CP, n=3) male sprint athletes. Data collected: anthropometric and body composition measurements [body mass (BM), height (H), and skinfolds]. LBM was estimated using Jackson e Pollock (1978) equation. Photographic records of four consecutive days were used to collect food intake data, and used to estimate energy intake. Concomitantly, energy expenditure with exercise (EEex) was measured using the accelerometer Actical® version 3.10. The EA was estimated as the difference between energy intake (Kcal/day) and the EEex (Kcal/day) divided by LBM. The reliability of intra-subject variables were analyzed using the typical error (TE). We calculated the coefficient of variation (CV%) to express variability and lower and upper confidence limits for expressing the sensitivity, which corresponds to 95% (LC95%) of TE.

Results:
LD and CP athletes trained 5±2.8 and 7±0 hours/day, respectively. Both groups presented total values of EA close to the lower value (LD: 35.1±4.63 and CP: 33.8±3.59 kcal/kgLBM/day). LD athletes had an important difference in the EA between days 3 and 4 (27.6±6.92 to 42.9±0.37 kcal/kgLBM/day), which was due to the decrease of EEex (755±79.74 to 492±132.97 kcal/day) without the adequacy of food intake. LD presented a high variability (CV%: 26.6%) and low reliability (8.90kcal) between the days
analyzed. The observed sensitivity of EA (kcal/kgLBM/day) shows that the average value of EA are within the limit of confidence for both groups.

**Conclusions:**
Despite the limitations to estimate the EA due to the absence of a consensus on accurate methods for assessing EA factors in Paralympic athletes, the results show, even with high variation between days analyzed, that energy intake of these athletes have to be monitored and adjusted to training periodization.”
**POSTER PRESENTATION**

**Ergonomic Analysis of Weight-Throwing Frame in Paralympic Sport**

Sport development

"Gilberto Martins Freire, Luiz Alberto Pilatti, Graciele Massoli Rodrigues"

"UTFPR/USJT, UTFPR, USJT"

"BR, BR, BR"

**Background:** This paper aims to analyse the use of weight-throwing frames in Paralympic sport and their suitability for users, focusing on inconsistencies in frame design which interfere with athletes’ performance.

**Methods:** Following a Work Ergonomic Analysis methodological approach, an analysis was made of some of the interdependencies between ergonomic inadequacies, modus operandi requirements, and their impact on Paralympic athletes’ performance during the Rio de Janeiro Parapan American Games in 2007.

**Results:** Some of the ergonomic shortcomings found in frame indicated that they did not provide adequate sitting postures, reinforcing the fact that improvement in the athletes’ performance depends on a better interaction between athletes and frames.

**Conclusions:** It is concluded that the various dysfunctions that occur with weight-throwing frames during on-chair activities are factors that contribute to or even determine problems related to the health and performance of Paralympic athletes."
Establishing normative data for the isometric and dynamic judogi chin-up

Elite performance

"Braulio Henrique Magnani Branco, Eugênio Diniz, Jonatas Ferreira da Silva Santos, Seihati Ari Shiroma, Emerson Franchini"

"Martial Arts and Combat Sports Research Group, Estácio de Sá University, Martial Arts and Combat Sports Research Group, Martial Arts and Combat Sports Research Group, Martial Arts and Combat Sports Research Group"

"BR, BR, BR, BR, BR"

"Background: The grip dispute (kumi-kata) is an essential element to dominate and control the opponent during the match in grappling combat sports, such as judo and jiu-jitsu. As such, about 50% of the match corresponds to grip dispute in judo matches (Marcon et al., 2010), demanding high strength endurance development. Specific tests were developed to evaluate judo-specific grip endurance (Franchini et al., 2011), but no normative tables are available. Therefore, the objective of this study was to develop normative tables for dynamic and isometric judogi chin-ups for judo athletes.

Methods: 138 experienced Brazilian judo athletes from state to Olympic level volunteered to participated in this study (mean ± SD, age: 25.3 ± 6.1 years; height: 175.8 ± 8.9 cm; body mass: 84.1 ± 21.2 kg). The evaluations were carried out during the competitive period and followed the original recommendations (Franchini et al., 2011). During the isometric test athletes were required to maintain their chin above the bar line for as long as possible, while maintaining their elbows totally flexed. After 15 min rest, the dynamic test was performed. In this test the athletes had to perform maximal dynamic repetitions until failure, extending and flexing the elbows totally. Moreover, the maximal isometric handgrip strength test for both hands was carryed out to in order to correlate values obtained in the judogi chin-up tests. The Kolmogorov-Smirnov test was conducted in order to confirm data normality. The data was distributed in five classification scales, i.e., the percentiles were distributed in ≤10% (very poor), 11 to 25% (poor), 26 to 75% (regular), 76 to 90% (good) and > 90% (excellent). Pearson’s correlation was conducted, with significance level established at 5%.

Results: Correlations were observed between body mass and isometric judogi chin-ups (r = -0.69), dynamic judogi chin-ups (r = -0.62), and sum of right and left maximum isometric strength (r = -0.51). Isometric judogi chin-up was correlated to dynamic judogi chin-up (r = 0.72) and sum of right and left maximum isometric strength (r = 0.61), while the correlation between dynamic judogi chin-up and sum of right and left maximum isometric strength was (r = 0.65). Following the Classification norms for...
dynamic and isometric judogi chin-ups for judo athletes. Isometric judogi chin-ups (s): very poor: ≤ 10; poor: 11-25; regular: 26-55; good: 56-62 and excellent: ≥ 63. Dynamic judogi chin-ups (rep): very poor: ≤ 1; poor: 2-6; regular: 7-16; good: 17-19 and excellent: ≥ 20. **Conclusion**: The table can be used as a reference for isometric and strength grip endurance of judo athletes, with low-cost and simple materials."
POSTER PRESENTATION

Evaluation of Students Motor Performance from São Paulo State Northwest

Sport and quality of life for adolescence and aging

"Flávio Roberto Pelicer, Vinicius de Lima Freitas, Marco Antonio Faria, Carlos Eduardo Lopes Verardi, Kazuo Kawano Nagamine"

"College of Medicine of São José do Rio Preto (FAMERP), College of Medicine of São José do Rio Preto (FAMERP), College of Medicine of São José do Rio Preto (FAMERP), College of Sciences, Bauru Campus, São Paulo State University (UNESP), College of Medicine of São José do Rio Preto (FAMERP)"

"BR, BR, BR, BR, BR"

"Motor performance is influenced by several factors, among them, there are biological, environmental and social ones. Form complete motive development acquisition, children and teenagers have to be into chores that allow dominance of different postures, several types of locomotion and manipulation of varied objects through the Physical Education teacher’s substancial and appropriate guidance. The goal of the present study was to evaluate and classify the physical ability related to the motor performance in kids and teenagers through normative tables by PROESP-BR (Projeto Esporte Brasil). The sample was constituted by 648 kids and teenagers, being 328 masculine sex and 320 feminine sex, aged between 7 and 16 years old. The students of public and private schools (2nd to 9th elementary school grade) from José Bonifácio – SP, Brazil.

For the physical aptitude determination related to motor performance, it was used the motive tests proposed by PROESP-BR – explosive strength of superior members (medicine ball throwing), explosive strength of inferior members (horizontal leap), agility (square test), speed (20 meter run) and cardiorespiratory ability (9 minute run/walk). In all the variables the results were classified by the propose suggested by PROESP-BR (Weak, Fair, Good, Very Good and Excellent). The results show that through the superior member strength evaluation, it is noted that 60, 6% of the evaluated kids and teenagers were classified in Weak and Fair, 36, 3% Very Good and Good, and only 3, 1% were classified in Excellent. For the inferior member strength test, 67, 8% was achieved the rating in Weak and Fair, 18, 8% in Good and Very Good, and only 0, 5% were rated in Excellent. Testing the participants’ speed development the results show that – 79, 3% are rated in Weak and Fair, 20, 4% Good and Very Good, and 0, 3% Excellent. Evaluating the cardiorespiratory capacity, the result was alarming, because, 73, 5% of evaluated kids and teenagers are rated in Weak and Fair, 26, 5% Good and Very Good, and no participant reached the Excellent rating.

pág. 780
The results achieved show that most of the participants were rated Weak and Fair for all the variables evaluated in the present study. This is a worrying result, being an indicator that the global body practices are not being made in a improved manner. Interventions with students should be done to increase participation and accession in sports practice and physical exercises.”
EXECUTION FREQUENCY ASSESSMENT OF FUNDAMENTAL OFFENSIVE TACTICAL PRINCIPLES IN SOCCER’S JUNIOR CATEGORIES

Sport development

"Vanessa Menezes Menegassi, Paulo Henrique Borges, Leandro Rechenchosky, Wilson Rinaldi"
"State University of Maringá, State University of Maringá, State University of Maringá, State University of Maringá"
"BR, BR, BR, BR"

“Background: The Assessment of Tactical Dimension in Collective Sports, Specifically in Soccer, is an Individual and Collective Performance-Monitoring Alternative that is Constantly Updating. Its Realization Has a Great Importance in Talent Selection Process, as Well for Monitoring the Advancement in Sports Specialization. Thus, the Present Study’s Objective Was to Evaluate the Execution Frequency of Offensive Tactical Principles in Soccer’s Junior Categories.

METHODS: The Sample Consisted of 33 Players, Being 12 of the U-13 (12.70±0.56 years) and 21 of the U-17 (16.21±0.59 years). The Execution Frequency of Offensive Tactical Principles Was Evaluated: Penetration (PEN), Offensive Coverage (OFCV), Depth Mobility (MOB), Width and Length (WL) and Offensive Unit (OFUN), Though the Applications of GR3-3GR Test, Validated by Costa et al. (2009). The System of Tactical Assessment in Soccer (FUT-SAT) Was Used. To Compare the Execution Frequency Between the Categories the Mann Whitney U test Was Applied. The Statistical Significance Was Set at 5%.

RESULTS: In the U-13, the Principle Accomplished with Lower Frequency Was Penetration (md=2.00) and the Major, Width and Length (md=11.00). Regarding U-17 Category, the Lowest Score Was in Depth Mobility (md=1.00) and the Major, Width and Length (md=12.00). Comparing the Categories, Results Show that Players from U-17, Performed More Frequently the Offensive Coverage (p=0.00) and Offensive Unit (p=0.03). The Execution of the Others Offensive Principles didn’t Differ Significantly (p>0.05) Between Compared Categories.

CONCLUSION: The Evaluated Young Soccer Players Seek More Frequently to Extend the Team’s Effective Playing Area in Width and Depth (WL) and Less, Progress with the Ball Toward the Goal (PEN) and Perform Breaking Movements in the Last Defensive Line (MOB). The Greater Constancy in Realization of Offensive Support by U-17 Suggests the Perception of the Importance to Ensure the Continuity of Ball Possession by the Team. The Maintenance of Principles Execution Frequency as Mobility and Width and Depth Between Categories Suggests Similar Levels of Tactical Awareness.
During a Match. However, the Implementation Quality of these Principles Can be a Factor that Significantly Evolves During the Training Process, Requiring Therefore a Qualitative Approach to Evaluate this Dimension."
Exercise and caloric restriction didn’t change the proportion of cytochrome c oxidase subunits in aging rats

Sport and quality of life for adolescence and aging

"Li Wen, Shi Zhou, Mingchen Yu, Dingyi Liu, Yu Zhang, Cong Ren, Jian Zhang"
"Tianjin University of Sports, Southern Cross University, Tianjin University of Sports, Tianjin University of Sports, Tianjin University of Sports, Tianjin University of Sports, Tianjin University of Sports"
"CN, AU, CN, CN, CN, CN, CN"

“Background:

Declines in mitochondrial number and function in skeletal muscle are thought to play a primary role in aging process. Cytochrome c oxidase (CcO) is the terminal complex of the mitochondrial respiratory chain and is comprised of 13 subunits encoded by three mitochondrial genes (COX subunits I, II, and III) and 10 nuclear genes (COX subunits IV, Va, Vb, Vla, Vlb, Vlc, Vlla, Vllb, Vllc, and VIII), and is the rate-limiting site of cellular respiration. Cytochrome c oxidase deficiency has been proposed to be a causal factor in the age-related decline in mitochondrial respiratory activity. This study was designed to explore the possible relationship between the changes of CcO composition and aging, and to investigate if exercise and caloric restriction could alter the effects of aging.

Methods:

32 male SD rats, 21 months old, were randomly divided into four groups (n=8 each): (1) Aging Control (AC), (2) Caloric Restriction (CR), (3) Exercise (E), and (4) Exercise and Caloric Restriction (ECR). Another 8 rats of 3 months old were also used a young control group (YC). The E and ECR groups began with moderate intensity treadmill training at 10 m/min for 30 minutes per session in the first week as an adaptation phase. The training time then increased to 45 minutes per session for 12 weeks. The CR and ECR groups were given 60% of the average of three consecutive day’s food intake, every day for the experimental period. At the end of 12 weeks interventions, skeletal muscle samples were obtained. The samples were divided into two parts, with one part was treated for extraction of mitochondria immediately; and the other part was stored at -80 °C before analyses of proteins. The extracted mitochondria were divided into two parts, with one part for analysis of mitochondrial membrane proteins; and the other part was for analysis of mitochondrial proteins. The total protein concentration was determined by Bradford method. Western-blotting was used to determine COX I and COX IV protein contents in tissues and mitochondria. One part of mitochondrial membrane proteins...
was analyzed by NA-PAGE method and the other part was analyzed by SDS-PAGE method. The proportions of CcO subunits were also determined.

**Results:**

(1) The levels of tissue and mitochondrial COX I and COX IV protein were significantly lower in the AC than YC (p > 0.05), and higher in the E, CR and ECR groups than that of the AC (p < 0.05);

(2) The proportions of the 13 CcO subunits did not show significant changes neither in the AC, nor in the E, CR and ECR groups (p > 0.05).

(3) The COX I and COX IV protein contents in the heart and skeletal muscle tissues and in the mitochondria also did not show significant differences between groups.

**Conclusions:**

(1) The tissue and mitochondrial COX I and COX IV protein contents were lower in the aging control groups, while exercise and caloric restriction appeared to have an effect of delaying the aging process in these proteins.

(2) The total protein of CcO subunits and the proportions of COX I and COX IV were not significantly affected by aging and exercise or caloric restriction interventions."
Exercise Training and Omega-3 Fattys-Acids Control GPR120 Expression in Liver of Obese and Insulin Resistant Mice: Potential Antiinflammatory Activities

Physical activity and health

"Guilherme Pedron Formigari, Rafael Calais Gaspar, Camilla Bertuzzo Veiga, Leandro Pereira de Moura, Eduardo Rochete Ropelle, José Rodrigo Pauli, Dennys Esper Cintra"

"University of Campinas, University of Campinas, University of Campinas, University of Campinas, University of Campinas, University of Campinas, University of Campinas"

"BR, BR, BR, BR, BR, BR, BR"

"Background: Obesity is associated with low-grade and chronic inflammatory state that contributes to the metabolic disruption. This condition increases the production of several inflammatory cytokines and impairs the insulin pathway. In the liver, insulin resistance increases glucose production in postprandial situations and decreases the synthesis of glycogen. On the other hand, omega-3 fatty acids can act reducing the inflammation through its receptor, GPR120, which interrupt the inflammatory process from Toll-like and cytokines receptors. However, the mechanisms responsible for regulating GPR120 expression are still not completely elucidated. Additionally, physical exercise is also able to reduce the progression of the inflammatory signaling. In the present study, we investigated the role of acute physical exercise in the gene expression and protein content of GPR120 in the hepatic tissue of lean mice. In addition, we analyzed the protein content of GPR120 in obese mice submitted to a physical exercise training protocol and a flax seed oil treatment, as well as their impact on the insulin signaling pathway and in the propagation of the inflammatory process.

Methods: Swiss mice (4 weeks old) were submitted to an acute physical exercise session. After that, fragments of hepatic tissue were removed at time 0, 8, 16, 24 and 48 hours after the session for analysis of gene expression and protein content of GPR120. On another study, the mice were feed by 8 weeks with standard or high fat diet. Subsequent to the development of obesity, a part of these animals were submitted to an exercise training protocol or a treatment with flax seed oil for more four weeks. At the end of the experimental period, fragments of the hepatic tissue were extracted to measure the activity and concentration of the proteins involved in pathways of omega-3, insulin, inflammation and, glycogen synthesis.

Results: The animals exposed to the acute physical exercise did not show increase in gene expression and protein content of GPR120 compared with the sedentary animals. Nevertheless, mice exposed to the exercise training showed increase in protein expression of GPR120 compared with sedentary
obese group. Moreover, the animals subjected to the exercise training presented increase on insulin sensitivity when they were compared with HF group and decrease levels of some inflammatory proteins (IkB-a, JNK, TNF-a and IL-1B). Furthermore, the flax seed oil treatment was also able to increase protein content of GPR120 and reduce the inflammatory process (JNK and TNF-a).

**Conclusions:** These results indicate that acute physical exercise is not able to modulate the gene expression and protein content of GPR120 in lean mice. However, the exercise training and the flax seed oil treatment seem to be able to increase the protein content of GPR120 in obese animals. Moreover, the trained mice showed reduced the activity of proteins involved in the inflammatory signal. Therefore, the possible role of physical exercise on the modulation of GPR120 can contribute to the development of new strategies against obesity.
Experimental Study of Student Learning Influence by Optimizing Aerobic Course Teaching Environment

WANG Huili
Wuhan Institute of Physical Education
CN

“Background: Through optimizing college aerobic course teaching environment by various methods, this paper researches teaching environment’s influence on aerobic course student learning, which provides practical information for continuously improving college PE teaching environment and improving students' interest in participating in physical exercise.

Methods: Using literature, questionnaire, experiment, and mathematical statistics to investigate optimized teaching environment influence on 80 college aerobics students' learning in Hubei.

Results: 1 The meaning of physical education environment. 2 Comparative analysis of skill learning: it shows significant differences by comparing experimental group action score (80.6±4.6) with contrast group score (75.4±4.2). Meanwhile, the experimental group's self-confidence, artistic expression, as a whole, is better than the contrast group students. 3 Comparative analysis of class teaching environmental factors. 3.1 The classroom atmosphere: controlling by the same teacher, the classroom atmosphere of contrast group tends to be neutral and the classroom atmosphere of experimental group tends to be supportive. Teachers play a dominant role in regulating the classroom atmosphere, and students play a main role in creating the classroom atmosphere. When students take no interested exercise, decreased motivation and depression will make a negative classroom atmosphere. When students' learning motivation enhances and mood upsurges, it will make a positive classroom atmosphere. 3.2 The relationship between teachers and students: Teachers in the contrast group only regard completing the teaching task as the main target, and little contact and communicate with students; Teachers in the experiment group try hard to build up an understanding, cooperating and interacting relationship between teachers and students. The experiment result shows that the interaction between students or teachers and students not only directly impacts the teaching effectiveness, but also imperceptibly influences the enrichment and development of the students' individual. 3.3 the teaching equipment and sports facilities: Students in the experiment group use multimedia optimized combination teaching methods and all kinds of auxiliary equipment to make the movement skills materialization and visualization, and create good conditions in students' perception,
comprehending and memory. This novel teaching mode greatly enhance students’ interest on mastering athletic skills, mobilize students’ learning initiative, and make the whole classroom atmosphere more active and full of youthful spirit.

**Conclusions:** The factors for the teaching and learning environment of calisthenics is like the classroom atmosphere, the relationship between teachers and students, the teaching equipment, sports facilities and etc. And its optimal design has a positive impact on students."
POSTER PRESENTATION

Exploration on Fencing Teaching in Colleges in China: A Comparative Study between Conventional P.E. Teaching Mode and Club Teaching Mode

Sport pedagogy
"Wei Liang, Bing Song"
"University of Electronic Science and Technology of China, Southwest Jiaotong University"
"CN, CN"

"Background:
The conventional teaching method of P.E. in Chinese colleges is classroom teaching mode, whereas the new rise of club teaching mode in the last decade is at the exploration stage. The former targets at sports teaching, referring to the teaching mode where students of the same grade choose different teaching classes based on their interest and take classes at fixed time period and duration, aiming at different sport activities respectively; the latter is a teaching mode combining sports teaching, sports training and sports competition based on the organization of a club of a particular sport event which is guided by a teacher, centered around students and forms an interaction mode at different levels. This paper attempts to carry out a comparative research on the two fencing teaching modes based on the author’s practical experience in fencing teaching.

Methods:
From 2012 to 2015, both conventional P.E. teaching mode and club teaching mode have been adopted in fencing teaching. Qualitative method was used to describe the detailed process of practical teaching, while quantitative analysis was adopted to analyze the data collected through data significance analysis.

Results:
Totally 283 students took fencing classes, with 142 in classes where club teaching mode was adopted, and 141 in classes where conventional P.E. teaching mode was used. Data significance analysis was conducted based on the results the students got in the course completion assessment on their fencing skills and techniques, and thus statistics was obtained. The analysis shows that there is significant difference between the results students got in the two teaching modes, and it is students trained in club teaching mode who got comparatively better results than those trained in conventional teaching mode.

Conclusions:
The research results show that club teaching mode is more effective than conventional P.E. teaching mode. The reasons lie in the following three aspects: 1) at the management level, under club teaching...
mode, both management personnel and coach assistants are elected and chosen from students, teachers play only the role of guides taking charge of the teaching plan, teaching contents and time arrangement, thus students enjoy much greater autonomy and initiative; 2) at the organization level, different from the conventional P.E. teaching mode where students are classified into different classes based on their grades, under club teaching mode, students who are interested in fencing are classified into different groups based on their level of competence in fencing skills, thus different teaching objectives, contents and difficulty are arranged to suit different groups of students, and therefore the relevance of teaching is improved; 3) at the level of exercise load and duration of training, since the weekly training time for club teaching mode is 2 to 3 times that of the conventional teaching mode, it is inevitable that club teaching mode is superior to conventional P.E. mode in terms of students’ mastery of fencing skills and improvement in their sport ability."
POSTER PRESENTATION

Exploring of practice teaching reform under the background of outstanding teachers of physical education

Sport pedagogy

"Xiang-qun Zhang, Jin-Qin FAN"
"ShaoGuan University, Shaoguan University"
"CN, CN"

"Background: Practice is the soul and ultimate of the sports, also the basic requirement of sports teaching. Practice teaching reform is the core to realize “outstanding talents” training plan. From the perspective of “practice teaching”, the sports education professional practice base, practice teaching and practice teaching were analyzed, and the fit of the practice teaching, theory and practice teaching are discussed in this paper, the mechanism of training, practice teaching and sports practice teaching mode and so on to carry on the review, in order to enrich and perfect the sports practice teaching content system, exploring the way to cultivate outstanding PE teachers.

Methods: It adopted documentary study, logical analysis and teaching practice.

Results: Sports education specialized practice teaching characteristics: openness, creativity, experience and autonomy. Outstanding PE teachers' growth is closely related with sports practice teaching. Community of outstanding teacher training should be formed in the middle and primary schools. The universities combined with the enterprise build the new form training, and to study the project for the construction of platform. Perfect professional discipline, discipline teaching method and the coordination of education science and culture in the process of practice teaching.

Conclusions: Practice teaching is the core of the “outstanding talent cultivation plan”, is the key to innovative talent training. Sports practice teaching is the outstanding students special ability at the same time focus on cultivating the ability to solve the problem of sports teaching, is an effective way to cultivate applied talents with innovation and competitiveness."
Expression and activation of intracellular signaling pathways in the hippocampal formation of aged rats submitted to physical exercise

Neuroscience and sport

"Fabrizio dos Santos Cardoso, Erivelton Fernandes França, Fernando Tadeu Serra, Angélica Victorino, Alexandre Aparecido de Almeida, Francisco Romero Cabral, Ricardo Mario Arida, Sérgio Gomes da Silva"

"Universidade de Mogi das Cruzes, Universidade de Mogi das Cruzes, Universidade de Mogi das Cruzes, Universidade Federal de São Paulo (UNIFESP), Universidade Federal de São Paulo (UNIFESP), Hospital Israelita Albert Einstein, Universidade Federal de São Paulo (UNIFESP), Universidade de Mogi das Cruzes"

"BR, BR, BR, BR, BR, BR, BR, BR"

"Background: Aging is often accompanied by cognitive decline, memory impairment and an increased susceptibility to neurodegenerative disorders. Although physiological processes of the aging are not fully understood, these age-related changes have been interpreted from perspective of various cellular and molecular theories. Among these theories, alterations in the intracellular signaling pathways associated to cell growth, proliferation and survival have been highlighted. Based on these observations and on recent evidence showing the beneficial effects of exercise on cognitive function in elderly, we investigated the cell signaling pathways in hippocampal formation of aged rats submitted to treadmill exercise over 10 days. To do so, we evaluated the hippocampal activation of intracellular signaling pathways linked to cell growth, proliferation and survival, such as protein kinase B (Akt), mammalian target of rapamycin (mTOR), p70 ribosomal protein S6 kinase (p70S6K), extracellular signal-regulated protein kinase (ERK), cAMP response element-binding protein (CREB), and p38 mitogen-activated protein kinase (p38). Additionally, we explored the cognitive performance (inhibitory avoidance) of aged rats.

Methods: Eighteen month-old male Wistar rats (n=36) were divided into two groups: exercise (n=20) and control (n=16). Aged rats from the exercise group were submitted to aerobic physical exercise in a treadmill (15 m/min over 30 min per day) during 10 consecutive days. After last section exercise, aged rats from all groups were randomly selected to analyze the hippocampal activation and expression of Akt, mTOR, p70S6K, ERK, CREB and p38, and the cognitive performance by mean of inhibitory avoidance task (aversive memory).
**Results:** It was found that the physical exercise reduces p38 activation in the hippocampal formation of aged rats, when compared to the control group. The hippocampal activation and expression of Akt, mTOR, p70S6K, ERK and CREB were not statistically different between the groups. It was also observed that aged rats from exercise group exhibited better cognitive performance in inhibitory avoidance task (aversive memory) than did aged rats from control group.

**Conclusions:** Our results indicate that physical exercise reduces intracellular signaling pathways linked to inflammation and cell death (p38) and improves learning and memory of aged rats.
Expression and Activation of Intracellular Signaling Proteins in Cerebral Cortex and Hippocampal Formation of Aged Rats Submitted to Aerobic or Resistance Exercise.

Neuroscience and sport

“Jessica Salles Henrique, Erivelton Fernandes França, Fabrizio dos Santos Cardoso, Fernando Tadeu Serra, Angélica Begatti Victorino, Alexandre Aparecido de Almeida, Andrea Dominguez Carvalho, Ricardo Mario Arida, Sérgio Gomes da Silva”

“Universidade Federal de São Paulo (UNIFESP), Universidade de Mogi das Cruzes (UMC), Universidade de Mogi das Cruzes (UMC), Universidade de Mogi das Cruzes (UMC), Universidade Federal de São Paulo (UNIFESP), Universidade Federal de São Paulo (UNIFESP), Universidade Federal de São Paulo (UNIFESP), Universidade de Mogi das Cruzes (UMC) / Hospital Israelita Albert Einstein (HIAE)”

"BR, BR, BR, BR, BR, BR, BR, BR, BR"

"Background: Cognitive decline, memory impairment and high susceptibility to neurodegenerative diseases are usually observed in aging. It has been suggested that alterations in intracellular signaling pathways related to proliferation/survival and cell death may be associated to these age-related effects. Thus, pharmacological and non-pharmacological interventions targeting aging-altered intracellular signaling pathways have been indicated for therapeutic purposes. Physical exercise may be a potential intervention. In this way, we performed an experimental study to evaluate cortical and hippocampal expression and activation of intracellular proteins linked to cell proliferation, survival and death (ERK, Akt, p70S6k, CREB, JNK, NF-κB, p38, e STAT-5) in aged rats submitted to two types of exercise (aerobic or resistance training).

Methods: Male Wistar rats (n=18; age: 20 months) were distributed in three groups: aerobic training (AER), resistance training (RES) and control (CTL) (n=6 in each group). Aged rats from AER group performed exercise on a treadmill and those from RES were submitted to exercise on a vertical ladder. Both groups were exercised for 8 weeks, 5 times/week, with intensity from 50 to 75% of maximum velocity or load supported. Twenty-four hours after the last training session, the cerebral cortex and hippocampal formation from AER, RES and CTL groups were extracted to analyze the levels of signaling proteins by Luminex MAGPIX system.

Results: The aged rats from AER showed a significant increase in cortical expression of total JNK (p=0.028; p=0.024), ERK (p=0.036; p=0.012), Akt (p=0.090; p=0.009), and p70S6K (p=0.005; p=0.004)
in relation to aged rats from RES and CTL groups. No significant difference in expression and activation of signaling proteins was found in hippocampal formation of studied groups.

Conclusions: Aerobic training in aging results in changes in brain expression of signaling proteins linked to cell proliferation and survival (ERK, Akt and p70S6k) and also death (JNK), mainly in cerebral cortex."
Factors on Brand Awareness of Chinese and Foreign Sporting Goods

Sport sociology
Hongwei Wen
Shanghai University of Finance & Economics
CN

“Background:
With China’s accession to the WTO, more and more foreign sporting goods enterprises are swarming into China, vying for big market. In recent years, major players such as Nike and Adidas have firmly secured their presence in first-tier Chinese cities, and have also penetrated into the second- and third-tier cities. On the other hand, Chinese local sports brands including Lining and Anta are gathering strength and competing with big foreign brands. The author takes Chinese college students as the research object and studies the factors of the brand awareness that influences consumers’ purchase intention for Chinese and foreign sports brands.

Methods:
Prior to the formal survey, a survey among 12 experts was conducted in the form of questionnaire and found valid and reliable for the research. After refining some questions, an improved questionnaire was developed. Then the questionnaire was distributed among 210 college students with a response rate of 91%. The obtained data were then processed by SPSS.

Results:
The investigation shows that on the brand’s objective factors, firstly, the perception of major foreign sports brands is better than that of Chinese brands in product quality, product categories, design and after-sales service. Secondly, there are some similarities between Chinese brand slogan, logo, brand culture and the foreign. Thirdly, in brand communication, such as advertising and PR, foreign brands possess an apparent advantage to build brand image and enhance brand awareness over Chinese brand. On the consumer’s subjective factors, it has been found that the more you need a product, the more you will care about the brand of the product. Chinese college students’ purchasing power of sporting goods is relatively low due to their limited financial capacity, but beyond doubt they will be main consumers in the future. In addition, Consumers who own abundant brand experiences have a more comprehensive and deeper awareness of brands than those who don’t. 66.7% students approve of consumer experience of foreign brands, and 85.7% students will continue to buy foreign sporting goods. Lastly, the feature of consumer is an important factor, 54.8% college students think the
international brands are better than Chinese brands in pursuing characteristics, individuality and fashion, while those features are what the college students pursue.

**Conclusions:**

To date, many studies have proven that brand awareness is the most fundamental asset. High brand awareness can help to enhance understanding of the brand among target consumers and make it become a candidate brand when the consumer wants to purchase certain products. This study is intended to highlight brand’s objective factors and consumer’s subjective factors. It is more comprehensive to investigate and analyze the brand awareness of the Chinese and foreign sports brands."
Federal Funding Available for Elite Sports in Brazil

Governance and policy

"Alan de Carvalho Dias Ferreira, Alberto Reinaldo Reppold Filho"
"Universidade Federal do Rio Grande do Sul, Universidade Federal do Rio Grande do Sul"
"BR, BR"

“Background: The financial promotion to the elite sport in Brazil, held historically through free taxes and imposed on own sports entities, has been added in recent years to a series of government actions, especially at the federal level, from awarding grants for athletes and the Law of Sports Incentive. The objective of this study is to identify the sources of federal funding available for sports that are part of the Olympic or Paralympic program, their fates and their application forms.

Methods: For this descriptive research was conducted at the National Bureau of Elite Sports as a department of Ministry of Sports income between 2012 and 2014, using the technical procedures of documentary research based on the analysis of primary sources such as legislation; the official documents; and computerized systems of the Ministry of Sports and the Federal Government. The data collected were organized to identify: the sources of available federal resources; entities for which resources can be allocated, according to the nature of the recipient entity; and their different forms of application, according to type of investment.

Results: The results indicate that the Elite Sport in Brazil has eight sources of federal funding, they are: the Bolsa-Atleta Program (Law 10, 891 / 2004); the covenants, the transfer of contracts and decentralizations governed by Decree No. 6170, 2007; Law Sports Incentive (Law 11, 438 / 2006) Agnelo Piva Law (Law 10, 264 / 2001); Brazilian Medals Plan 2016 (Law 12, 395 / 2011); and the patronage of State Enterprises. These resources can be allocated to private non-profit organizations such as committees, federations, leagues and sports clubs; directly to athletes; as well as transferred to educational institutions and other federal, state and municipal entities. Finally, can be applied in Human Resources; training and competition; sporting goods; sports facilities; identification and development of talent; research and training; health materials; administrative costs; administrative materials; furniture; and charges.

Conclusions: It is inferred, therefore, that such information may contribute to the evaluation and formulation of government policies and actions, since the eve of the Summer Olympic and Paralympics Games, there is, in Brazilian federal government systematized data on financing the national sport. In addition, it is concluded that the federal government offers several sources of public funding for Sport
High Performance, which does not occur in developed countries, where the main sources of income are the sale of media rights, sponsorship, licensing and ticket sales for competitions.”
“Background: Sesc - Social Service of Commerce is a private institution, nationwide established in 1946 on the initiative of trade and service entrepreneurs. Its purpose is to promote a social welfare, improvement in quality of life and cultural development of workers in the trade of goods, services and tourism. Physical activities, sports, and recreation are among the activities that help to make up the action field of the entity. In the state of São Paulo, its 36 operational units scattered throughout the cities, develop internal and external activities, many of them in partnership with the city hall. One of the most relevant institutional programs in the field of sports and physical activities is the “SESC VERÃO” (Summer SESC), which takes place in January and February of every year. This year Brazil will host the Olympic Games. For this reason, each operational unit received the task to develop activities related to one predetermined Olympic and Paralympic sport, and one presentation sport. Thus, participants would take contact with sports culture and have the opportunity to practice a poorly known sport. Thus, this case report aimed to present the experience of the Summer Sesc 2016 in Sesc Pompeia.

Case presentation: Sesc Pompeia, an operational unit located to the west of the city of São Paulo, developed the theme fencing and wheelchair fencing as Olympic and Paralympic sports, and skating as presentation sport. Every sport action developed in Sesc covers three dimensions: knowledge, practice and entertainment sport. Thus, on Summer Sesc, for knowledge a contemplative exhibition about fencing was organized and talks with Brazilian most important Olympic and Paralympic athletes were offered. For practice, courses and open classes were proposed. For entertainment sport Sesc hosted the Brazilian Fencing Tournament and some demonstration disputes. The fencing exhibition was based on an infographic about the origin of fencing and its evolution, the rules and the influence of the sword in the world. Complementing the contemplative exhibition it was offered a practice area where specialized instructors developed activities to the general public. This sport practice area worked every day during the entire two-month event. This strategy allowed the participant coming into contact with the fencing sportive culture and the sport practice in the same space. Therefore, one could put into practice what was learned in theory. The result was approximately 19,000 people practicing fencing and approximately 36,000 people visiting the exhibition. Furthermore, two modular courses were
offered during the Sumer Sesc, with the entire necessary infrastructure (space, clothing, rubber sword for the beginners and specialized instructors).

**Conclusions:** This initiative enabled the opportunity to learn the fencing basic movements for free. This project contributed to the dissemination of the fencing, a poorly known sport modality, especially in the city of São Paulo, which does not have spaces for the practice for free.”
POSTER PRESENTATION

Field Hockey in Brazil: from the Emergence to the Debut in 2016 Olympic Games

Sport history
"Cássia Lopes Teodoro, Eduardo Klein Carmona, Janice Zarpellon Mazo"
"Universidade Federal do Rio Grande do Sul, Universidade Federal do Rio Grande do Sul, Universidade Federal do Rio Grande do Sul"
"BR, BR, BR"

“Background:
There are evidences of the practical of stick and ball games in different parts of the world, in distinct civilizations and periods, making it impossible to certify when and where the sport emerged. Manuscripts of 1175 say that hockey was already practiced in England in this period. The first rules of the sport were made official in 1852 in the United Kingdom. The International Hockey Federation (FIH) was founded in 1924. The first participation of hockey in the Olympic Games was in 1908 and since 1928 the sport has been present in all the Olympic Games. The field hockey has a long trajectory, and has been widely practiced and known in several countries, besides being present at the Olympic Games for almost 90 years, in Brazil, the sport is still little practiced. Many Brazilians do not know the modality and for the first time the country will have a team in the Olympic Games in 2016. Therefore, this study aims to describe the field hockey route in Brazil since its emergence until the men's team classification for the 2016 Olympic Games.

Methods:
For which the research was carried out in books, articles and theses. Furthermore the information was collected in printed sources researched in official hockey’s web sites.

Results:
The records about field hockey in Brazil indicate that the sport began to be practiced in Brazil in the 19th century with the arrival of British immigrants to the country. The current Athletic Club São Paulo founded by the British in 1888 is considered the club that introduced the hockey games in Brazil. Until the 1990s, the development of hockey in the country was slow, most of the teams were formed by foreigners who lived in Rio de Janeiro or in Sao Paulo. In the early 90s, the sport returned to light thanks to the efforts of some enthusiasts. The first edition of the Brazilian Championship Hockey for men was in 1998, in the same year Brazil participated in the first official international competition, the South American, held in Santiago, Chile. The Brazilian Association of Hockey on Grass and Indoor (ABH) was officially registered in 2001 and affiliated with the Brazil Olympic Committee in 2002. By 2004, the
ABH became the Brazilian Confederation Hockey on Grass and Indoor (CBHG). The first two hockey fields of the country were built in 2007 to host the Pan American Games in Deodoro, Rio de Janeiro, when Brazil debuted in the competition. The Brazil won the first medal in an international competition on South American Field Hockey in 2013. In the 2015 Pan American Games the men's team ranked fourth, winning a place at the 2016 Olympics. Nowadays, the hockey is practiced in the states of Rio de Janeiro, São Paulo, Santa Catarina, Parana and Rio Grande do Sul.

**Conclusions:** The Brazilian's team participation in the Olympic Games is important for the sport to have more visibility in the country and to raise public awareness for the modality, allowing its growth and practice in other Brazilian' states."
POSTER PRESENTATION

Five Winning Factors of Chinese Men’s Artistic Gymnastics

Elite performance
"Wei xubo, Chen hong, Hu lei"
"Wuhan Sports University, Wuhan Sports University, Wuhan Sports University"
"CN, CN, CN"

"1. Background:
Chinese men’s artistic gymnastics has good performance in the great competitions of world. Looking back on the history, one fundamental successful experience comes from properly applying Five Winning Factors. It refers to strength, difficult, stability, aesthetics and new. The coaches and athletes obtain great achievements in Apply it.

2. Methods:
Documentary, Observations, Interview.

3. Results:
3.1. Winning Factor: Strength
Strength refers especially to capability of human beings to overcome resistance from the earth's core gravitation. Strength also is a muscles force that tends to oppose or retard motion of gymnast’s weight. Specially arrange: the strength training is specially arranged for 2-3 times a week, generally including upper limb, waist and abdomen and leg in the strength practice.
Load strength exercises: the athletes shall bear 15KL to climb ropes for 2 times and then conduct rings training.

3.2. Winning Factor: Difficult
Difficult is “D” score refers to the value of elements and connection bonus. The higher the value of difficulty are, the more the winning opportunity should be.
In London OG 2012, Chinese team dominants 3.2 in D score more than Japan team, which lay a solid foundation for the final victory.

3.3. Winning Factor: Stability
Stability refers to the stability of dismount and accuracy of action in the artistic gymnastics. The accuracy of action refers to whether the mistake of “bending, flexion, division, movement, scratch, touch, stop and falling”.
To Improve E score: Chinese focuses on 8 eliminating mistakes of “bending, division, flexion movement, scratch, touch, stop and falling”. Proposes the slogan: “two apart legs are equal to loss of
one difficulty of Group F”, “gold medal depends on stable dismount”. Seek high success rate to reach 100%. Released “Prize for Stable Dismount”.

3.4 Winning Factor: Aesthetics
“Aesthetics” refers to high technical quality and nice art performance in the artistic gymnastics. In the arrangement of complete actions of young men, the good figure, large amplitude, coordination, beauty shall be fully carried forward.

3.5 Winning Factor: New
“New” refers to the uniqueness of new action, new connection, new technology and arrangement. Innovation is embodied under the combined action of several aspects, such as the unity of talent and hard training of athletes, training plan and method of coaches, advanced protective facility, good fatigue recovery measure.
In order to encourage innovation, the judge will give higher score for the athlete taking new actions. The winning factor “new” shall be emphasized in Chinese artistic gymnastics training.

4. Conclusions:
The success core of Chinese men’s gymnastics team is to grasp the Five Winning Factors. Various countries in the world are preparing for the gymnastics competition of 2016 Rio Olympic Games, all the players and the teams shall try to grasp it in the preparation process. The theory and practice of Five Winning Factors grasped by Chinese men’s gymnastics also have a certain guidance value for the teaching and training of men’s gymnastics of various countries in the world.”
POSTER PRESENTATION

From Local Games to International Sport Events: A Case Study on Miluo’s Dragon Boat Races

Sport sociology
Xianglin Luo
Hunan Normal University
CN

“Background:
Miluo’s Dragon boat races are being re-shaped from folk sports into an international water event, moving from what was traditionally a cultural based event to sport tourism, so it is a very good research object to explore sport transformation from the local to the global.

Methods:
A case study design was used to perform an actor network analysis of the innovation systems in which mode and motive for dragon boating are choosed and developed.

Results:
1. Review on the process of dragon boat races in Miluo, there is divided into three stages from local games to sports, then to international events.
2. Three-level actor network for dragon boating: 2.1 The macro-level actors include Dragon Boating Association, the General Administration of Sport, and government official, their goal is to promote dragon boating to globalization. 2.2 The microlevel actors include community dragon boat club, the player and audiences, they focus on local culture, entrust daily life meaning as its core. 2.3 Meso-level mediators are local government and commercial corporations, they emphacize the events from the cultural domain into the political and economic domains.
3. The assessment and criticism to modern dragon boating. 3.1 The effects of modern dragon boat race in Miluo, made the folk dragon boating break through geographical boundaries, solve the operation funds in the context of market economy, and enhance Miluo culture and urban brand. 3.2 Confusion of dragon boat race in Miluo, there shows a variety of inevitable contest between traditional and modern, grass-roots and the elite. So, it is difficult to adapt to the rapid development of the society, balance the multiple interests, and maintain regional characteristic.

According to field survey, the value of dragon boating can be divided into “intrinsic value” and “external value”. Intrinsic value is recognized by local people as insider and used in their actual life. External value is evaluated by the outsider’s scholars, social activists and businessmen. Two kinds of value
realization rely on collaboration each other, especially the realization of intrinsic value need to be emphasized.

**Conclusions:**

This study shows that mediator sites located between macro- and micro-level networks in the innovation system for dragon boating play a central role in the assurance of mode. At these sites, global and local are cooperatively developed and shared with both policy makers in the macro-level network and players from local communities. The macro-level actors emphasize the imperialistic ambitions of nations, corporations, organizations, and to impose themselves on various geographic areas; micro-level actors emphasize folk rituals and cultural traits for constructing the field of meanings and symbols associated with community life; Meso-level mediators emphasize the interpenetration of the global and the local. The governance of the actor network for dragon boating therefore poses challenges, it is very important to reconcile the conflict linking globalization and regionalization, homogenization and heterogenization, modern development and the historical legacy of dragon boating."
**POSTER PRESENTATION**

**Funcional Exercise Capacity Assessment in Patients with Adolescent Idiopathic Scoliosis in late postoperative**

Sport and quality of life for adolescence and aging

"Geferson da Silva Araújo, Marcos de Toledo Filho, Bruna Marques de Almeida, Evandro Fornias Sperandio, Alberto Ofenhejm Gotfryd, Milena Carlos Vidotto, Victor Zuniga Dourado"

"Federal University of São Paulo, Federal University of São Paulo, Federal University of São Paulo, Federal University of São Paulo, Santa Casa de São Paulo e Hospital Israelita Albert Einstein, Federal University of São Paulo, Federal University of São Paulo"

"BR, BR, BR, BR, BR, BR, BR"

**Background:** Individuals with adolescent idiopathic scoliosis (AIS) have reduced functional capacity of exercise during the Incremental Shuttle Walk Test (ISWT), however, the effect of surgery on this test is not known yet. Therefore, the aim of this study was to evaluate the travelled distance on the Incremental Shuttle Walk Test (ISWD) and observe the physiological responses during ISWT in patients with adolescent idiopathic scoliosis in the late postoperative period (LPO). Concomitantly, evaluate respiratory muscle strength, lung function and correlate the variables with Cobb angles.

**Methods:** Twenty-two adolescents with EIA (GE) and twenty-one healthy controls (CG), were submitted to evaluation of maximal inspiratory and expiratory pressures (MIP and MEP), forced vital capacity (FVC) and forced expiratory volume in first second (FEV1). Two ISWT were performed and analyzed only the value of the second travelled distance in ISWT. During the second test, the participants used a gas analyzer and were obtained: oxygen consumption at peak exercise (VO2), carbon dioxide production (VCO2), tidal volume (VT), respiratory rate (RR), heart rate (HR) and their relationships.

**Results:** It found significantly lower values for variables in EG: VO2 (22 ± 5 vs. 27 ± 4 ml / kg / min) ISWD (± 94 567 ± 86m vs.604), FVC (2.70 ± 0.47 vs. 0, 52L ± 3.33) and FEV1 (2.41 ± 0.46 vs. 2.84 ± 0.52 L). There was no differences in respiratory pressures. We have obtained significant correlations between ISWD, VO2 (r = 0.70) and VO2 / kg (r = 0.80), and correlations between VO2 and OUES (Oxygen Uptake Efficiency Slope) with the breathing pattern (r = 0.51 r = 0.65, respectively), which was significantly lower in GE. Moderate correlations were observed between VO2 and OUES (r = 0.67), also observed between main thoracic curve with VO2 (r = -0.41) and VO2 / kg (r = -0.61).

**Conclusions:** Patients with adolescent idiopathic scoliosis in late postoperative period show significant reduction in functional exercise capacity associated with reduced lung function, residual curvature and physical deconditioning."
POSTER PRESENTATION

Functional movement screening of applied research in Chinese youth team

Sport development

"Tongyang Gao, Ying Yu, Yunfeng Kong, Haozhe Jia, Ye Chen"

"Wuhan Sports University, Wuhan Sports University, Wuhan Sports University, Wuhan Sports University, Wuhan Sports University"

"CN, CN, CN, CN, CN"

**Background:** Functional movement screening can detect the status of the adolescent athletes’ flexibility and balance. Canoeing on speed, strength, endurance and stability requirement is very high. Through the FMS can find if it has the hidden danger of injuries. To prepare for Tokyo Olympic Games better and give provide data and theoretical support.

**Methods:** Experimental method, expert interview method.

**Results:** As well known, if the screening score is lower than 14 points in the world, the athletes will not join the training. There are 12 athletes’ score are lower than 14 points, it is 14% of the total. However, there are 86% of the players scored more than 14 points. Deep Squat test: The average are 2.19 points. Hurdle Step test: Left leg and right leg scored an average are 2.1 points. In-Line Lunge test: 2.43 marks left leg, right leg on average 2.39 points. Shoulder Mobility test: 2.47 marks left shoulder, right shoulder on average 2.5 points. There is 17 shoulder injury, accounting for 20% of the total. Active Straight Leg Raise test: 2.83 marks left leg, right leg on average 2.88 points. Trunk Stability - Push Up test: An average of 2.02 points. The waist injury of 18, accounting for 21% of the total. Rotary Stability - Quadruped test: 2.06 marks left leg, right leg on average 2.08 points. There are five athletes waist injury, 6% of the total.

**Conclusions:** Athletes in the Shoulder Mobility and In-Line Lunge test of asymmetry are most obvious, therefore, the coaches should pay attention to the Shoulder and hip flexibility training. Male canoeing athletes are in Active Straight legs Raise in the project clearly about the emergence of the imbalance of lower limbs flexibility, therefore, rowing athletes should strengthen the balanced development of the lower limbs flexibility. Rotary Stability - Quadruped reflects the athletes’ Core Strength of lack and imbalance. The main parts of athletes’ injury are shoulder and waist. In addition, the athletes’ body rotation stability and control needs to be strengthened."
POSTER PRESENTATION

GENERAL GYMNASISTICS FOR OLD: a possibility of sporting practice in the aging

Sport and quality of life for adolescence and aging

CARLA ANDRÉIA PEREIRA SILVA

SESC-SP

BR

“Background: The Program Sesc of Sports has been proposed it how will make possible the education through the sport and for the sport through a pleasurable stimulus for the conquest of the physical autonomy, the improvement of the quality of life and the apprenticeship of new skills and physical expressions. The program is divided by age groups: Child sport from 3 to 6 years and from 6 to 10 years; Young sport from 11 to 12 years and from 13 to 15 years; Adult Sport from 16 to 59 years; and Sport for Old above 60 years.

Among the courses offered in Sesc Belenzinho it is the Course of General Gymnastics for Old what is free, it happens two times in a week, with duration of the meetings of one hour and thirty minutes and the group is composed by 30 integrants, being a 90 % of women and 10 % of men. The course has as I aim to develop different demonstrations of the physical culture of movement (gymnastics, sport, dance, struggle, play), through experimentations and physical activities.

Methods: Because of being treated as a report of experience, the Methodology used in this study is based on the registers of the meetings and presentations carried out by the group. The classrooms look for the process of ressignification of the sport in the leisure with the intention of making easy the practice, to be adapted to the necessities, means and objectives of the wrapped ones.

Results: In this work, from the experience of the meetings with the group of General Gymnastics for Old of Sesc Belenzinho, it will be done a reflection around as the general gymnastics can be a possibility of sporting practice during the aging of critical, autonomous and creative form, and as this happened in the process of the classrooms, tests and presentations. The content of the course is ruled by the concept of the General Gymnastics that allows the participation of all the persons, independently of type, social class or technical conditions. Consolidating the work in group appears the choreographic process what is composed by preparation, composition and tests, and by end, the presentation. The preparation and choreographic composition are composed by all the old ones of the group, through the creativity, previous experiences and of the different skills levels motors. The tests are basic to create sense of responsibility, besides the critical and reflexive participation in the group. The choreography
is presented in several festivals in the city of Sao Paulo (capital and interior), and that is very important, since it reinforces the independence and the autonomy of the old ones.

**Conclusions:** Through the practice of the General Gymnastics, we can detach some of his benefits like: social participation, cultural updating, aims at autonomy and physical independence, at exchange of knowledges and experiences, improvement in the interpersonal relations, stimulus to the creativity, I stimulate the regular practice of physical activities, finally, aging with more life quality, making the most light and significant longevity."
Gerontoativação Activity Improves Depressive Symptoms in Older Women Met in a Basic Health Unit in the Municipality of Santos-SP

Physical activity and health

"Karen Kiss Henke, Cremilde Martins Tavares, Ricardo Luís Fernandes Guerra"

"Federal University of de São Paulo (UNIFESP/BS), Santos, SP, Brazil, City Hall of Santos, Federal University of de São Paulo (UNIFESP/BS), Santos, SP, Brazil"

"BR, BR, BR"

“Background: The growing number of elderly people in Brazil is today a fact present. Among the psychiatric disorders in the elderly depression is the most common. However, actions relating to social activities which can facilitate and promote the formation of groups of elderly, stimulating an associative life and healthy with the achievement of recreational activities, physical and cultural, seem to be able to not only contribute to the maintenance of the functional capacity but also improve the framework of depression in this population. Aim: This study had as objective to identify the level of depression in elderly women participants and non-participants of gerontoativação, answered on the basic unit of Health (BUH) of Bom Retiro in the municipality of Santos-SP.

Methods: Participates of activity of the elderly 24 (average age of 74, 33 ± 5, 82 years) divided into 2 groups: Gerontoativação (GG=12) performing 1 hour of activities using techniques from Senior dance to the sounds of music of various styles, where the elderly are sitting in chairs placed in circle performing movements of head, hands, arms, trunk, hip, foot, legs and use accessories like plastic balls, wooden bats, pieces of foam, plastic bottles styrofoam flakes or colors tissues and Control (GC= 12) without activity, both with medical general practitioner in BUH of Bom Retiro. At the beginning and at the end of a period of 30 months have been evaluated body mass measurements (MC), height (Est), body mass index (BMI), blood glucose (Gli), blood pressure Sistólica (SBP) and diastolic (DBP), Hamilton Depression Scale (HAM-D) and number of medications used (MU). Data were statistically analyzed by comparing the initial and final values by student t test for stationary data. These are presented as mean ± standard deviation. The significance level was set at α = 0, 05

Results: The results showed that there were no significant changes in variables after the follow-up period in both groups, except for HAM-D, which decreased (8.52 ± 2.31 to 2.67 ± 2.02 points) significantly (p ≤ 0.0001) in the GG, and DBP has increased (80.00 ± 7.39 to 85.83 ± 9.00) significantly (P≤0, 03) in GC. The data will HAM-D refer to a change in the classification and in the beginning there
was depression considered Take in both groups and at the end, only the GG began to show normal condition.

**Conclusions:** The results of this study allow us to suggest that the intervention carried out by gerontoativação, was effective in reducing depressive condition of this population after a period of long-term."
Poster Presentation

Ground Reaction Forces, Joint Moment and Power Mechanism in Taekwondo Kicks

Technology in sports

"Afonsa Janaina da Silva, Jerusa P.R. Lara, Heber Teixeira-Pinto, Ricardo M. L. Barros"

"University of Campinas, University of Campinas, University of Campinas, University of Campinas"

"BR, BR, BR, BR"

"Taekwondo (TKD) is an Olympic combat sport characterized by a diverse array of kick techniques, which provides 48 opportunities to dispute medals. Only black belt holders could take part in world and Olympic championship and for win the competition, it is necessary precisely kick the opponent. The knowledge of movement patterns and mechanical variables could help to improve the competitive practice and training in order to hold the black belt and win a medal. Thus the purpose of this study was to analyze the kinematics variables of TKD kicks considering the factors: correlation of TKD belt system and ground reaction forces, effect of kick technique on selected joint moments and power. 23 athletes (age 22.3 ±4.5 years, stature 1.70 ±0.11 m, body mass 65.5 ±15.2 kg, fourteen male and nine female), all affiliated to the World Taekwondo Federation, volunteered to participate in the study. DVideo kinematic analysis system was used to acquire three-dimensional coordinates of 21 retro-reflective markers placed on subject lower limbs. The movements were recorded by five cameras (Basler, 100Hz) arranged around the subject. Two force platforms (Kistler, 500Hz) fixed in the floor were used for the acquisition of lower limbs ground reaction forces (GRF). A body representation model compatible with the representation of segments in a chain was used for lower limbs representation. The Visual 3D software was used to developed the biomechanical model and obtain variables. The following variables were analyzed: a) kicking leg malleolus linear velocity, b) execution time, c) GRF, d) hip and knee joint moment and e) joint power. Data were analyzed in relation to the following factors: 1) skill level (belt system), 2) kick initial position (static or hopping) and 4) kick techniques (Bandal and Dolyo). Non-parametric statistical tests were used to compare the data according to studied factors. The main results were: TKD belt system showed moderate correlation with Bandal and Dolyo kick variables - GRF (r=0.43 to 0.55) and Dolyo kick maximal linear velocity (r=0.43). Moreover the hopping initial position influenced positively the GRF of both legs. For the analyse of joint moment and power the movement was divided in three phases: impulse, knee flexion and impact. The kick techniques effect the joint moment and joint moment and power generation mechanisms. In knee flexion phase Bandal kick showed higher values of maximum adductor moment on kicking leg hip (W=2, p=0.02, SP=0.88) than..."
Dolyo, although Dolyo kick presented with higher values of knee flexor moment (W=0, p=0.01, SP=0.92). In terms of joint power, the kicks present difference in the supporting (W=0, p=0.01, SP=0.96) and kicking leg (W=0, p=0.01, SP=0.96) knee power in the sagittal plane, with higher power generation for Bandal chagui in impact phase. The findings from this study provided a new insight into the lower limbs mechanism in TKD kicks execution. This information must be taken into account when rationalizing strength training, skill level tests or selecting kicks technique for competition."
POSTER PRESENTATION

Gymnastics and People with Disability: A Brazilian Gymnastics Federations Review

Sport development

"Lígia Zagorac Bahu, Elisabeth de Mattos, Michele Viviene Carbinatto"

"University of Sao Paulo - School of Physical Education and Sport, University of Sao Paulo - School of Physical Education and Sport, University of Sao Paulo - School of Physical Education and Sport"

"BR, BR, BR"

“Background: Sports Federations are non-profits associations that promote, regulate and manage practice of one or more sports. Their aim is to extend the practice to different people and to organize national events and the national participation in international events. In Brazil, the gymnastics organized as sports – artistic, rhythmic, acrobatic, trampoline, gymnastics for all and aerobic – are duty of Brazilian Gymnastics Federation (CBG) and local (states) federations. The aim of this study was to verify on CBG and local federations official documents if there is any concern in promote gymnastics practice to people with disability. In addition, verify if there is reference of the disabled people participation in international events.

Methods: Using a documental research Methodology, we analyzed statutes, rules, news and social media from CBG and the 22 local federations, looking for information about gymnastics practice by people with disability.

Results: We found only one allusion of gymnastics practice by people with disability, in gymnastics for all rules, which mention that the performance can be done by gymnasts from different ages and abilities. In the other gymnastics sports there was no reference about this issue. It seems that there are no projects addressed to people with disability in the associations researched.

Conclusions: Despite the existence of international federations – such as British Gymnastics and South Africa Gymnastics; movements – such as Special Olympics; and events – as World Gymnaestrada that support people with disability participation, the Brazilian institutions that regulate gymnastics do not provide information or any support about this issue. Even in gymnastics for all, that allow participation for people with different abilities, the mention of people with disability is insufficient and shy. It seems that there is no encouraging from CBG and local federations for this kind of inclusion. Although the growth of gymnastics as a parasport in the last years, its practice continue to be very restrict in Brazil. Lastly, we recommend that information about the importance and gymnastics benefits for disabled people should be released by CBG to the local federations in order to change this reality."
Habits of Listening to Music in Introverted and Extraverted Swimmers

Sport psychology
"Laura Tosini de Andrade Borges, Cassio Meira Junior"
"University of São Paulo, University of São Paulo"
"BR, BR"

**Background:** The individual characteristics of one person can be indicated by the personality traits and it can be related with the difference in the bio-physiological functioning of the central nervous system. Extroverts have a low cortical activation level and they need to increase their activation in order to feel comfortable, whereas introverts already have high levels of cortical activation and need to reduce it. Furthermore, some studies already showed that this activation is influenced by external factors and the music may be able to do it. Thus, this study aimed to relate the influence of music with the personality of swimming athletes in pre-competition period

**Methods:** In order to check the swimmer’s personality, the Eysenck Personality Questionnaire (EPQ) and a music questionnaire were applied to 23 young and adult swimmers of both sex, in Sao Paulo, Brazil.

**Results:** According to the results of EPQ, the athletes were divided in two groups: introverts (mean score 9, 21) and extroverts (15, 66). The group of introverts (60, 87%) had a mean age of 18, 64 years and standard deviation of 3, 10, while the extroverts, had an average of 16, 22 years and standard deviation of 1, 30. In total, 78, 26% of the participants reported they listen to music on the day of competition. The most cited musical styles were rock (26.09%) and electronics (26.09%). There are significant differences in the extrovert group, in the fact of listening to music on the day of competition [ $X^2 (1) = 5.44$ ; $p= 0.019$ ].

**Conclusions:** The group of extroverts prefers to listen music before swim, although not all introverts embraced it. In general, in the day the swimmers will compete, they listen to music, specially rock and electronic due to the high frequency of these musical genres.”
POSTER PRESENTATION

Happy Gymnastics: A New Sport Benefiting hundreds of millions Chinese Children

Sport development
"Wei xubo, Chen hong, Chen yongqing, Deng qing"
"Wuhan Sports University, Wuhan Sports University, Wuhan Sports University, Wuhan Sports University"
"CN, CN, CN, CN"

“Background:
Artistic Gymnastics is a kind of sport suitable for people of all ages. Chinese artistic gymnastics team is among the highest level in the world, but gymnastics is not widely popularized in China, especially among children. Only a few children in China take gymnastic exercises, which leads to a lower level of their health and basic living ability. To change this situation, Chinese Gymnastics Association pursues a new sport ----- Happy Gymnastics.

Methods:
1. Documentary: Using Documentary to collect information from books, magazines and the internet
2. Interview: Talk and discuss with Chinese gymnastics players and their coaches.

Results:
1. What is happy gymnastics?
Happy gymnastics is a new sport based on artistic gymnastics, targeted at children and focus on the interest, participation rate, happiness and health of them. Actually it is a kind of gymnastics of children with pleasant, happy, joyful, merry, brighten, and there is big difference from traditional Chinese gymnastics before. Considering the favourite for the word of “happy” of all Chinese people, we could call it Happy gymnastics.

2. The aim of happy gymnastics:
To abandon the old idea of practicing gymnastics for champion and set the new one of practising for participation, exercise, happiness and joy, ability and health.

3. The content of gymnastics:
The happiness gymnastics levels 1 to 10 carried out by Chinese Gymnastic Association, as well as children’s favorite games, run and jump, free-hand exercise, dance and children’s gymnastic equipment events.

4. Difficulties:
Children and their parents are lack of knowledge about happy gymnastics, and the number of participants is not so large. There are not enough actions and measures from schools and kindergartens. Cities are lack of fields while countryside are short of teachers and equipment.

5. The measures to carry out: Happy gymnastics requires the lead of government-affiliated amateur gymnastics teams, promotion of private clubs, active participation of kindergartens, primary schools and secondary schools, as well as fund and field support of government and good teachers or coaches cultivated by colleges and universities.

**Conclusions:**
There are more than 100 million children in China, so happy gymnastics has a huge market and potential. It will effectively increase the number of people doing gymnastics exercise, improve physical quality of Chinese children, promote children’s health and benefit millions of children for their whole life. The Happy Gymnastics of China could also practice in other countries and regions in world. Happy Gymnastics of China is an new but valuable experiment, and it will benefit for hundreds of millions Chinese Children and in the world also."
POSTER PRESENTATION

Healthy lifestyle in Sao Paulo

Physical activity and health

"Tatiane Kosimenko Ferrari, Maria Cecília Goi Porto Alves, Marilisa Berti de Azevedo Barros, Moisés Goldbaum, Regina Mara Fisberg, Chester Luiz Galvão Cesar"

"University of Sao Paulo / School of Public Health, State Health Secretariat of Sao Paulo, University of Campinas / School of Medical Sciences, University of Sao Paulo / School of Medicine, University of Sao Paulo / School of Public Health, University of Sao Paulo / School of Public Health"

"BR, BR, BR, BR, BR, BR"

"Background: reversible risk factors related to lifestyle account for much of all deaths from cardiovascular disease in the world. Cardiovascular disease measurement and monitoring are essential for planning strategies and actions to control unhealthy lifestyle, prevent disease and promote health. The objective of this study was to analyze the healthy and unhealthy lifestyle of adolescents, adults and the elderly population in São Paulo city, using demographic and socioeconomic variables.

Methods: This was a cross-sectional study, population-based, conducted in 2008, which used data from the Health Survey of São Paulo (ISA Capital - 2008). The study population was obtained by complex probability sampling, by clusters, in two stages: census tracts and household. Lifestyle was defined by the valuation of five domains: physical activity, smoking, dietary intake, alcohol abuse and alcohol dependence, according to the respective recommendations. The subjects were classified as having a healthy or unhealthy lifestyle. Those classified as having unhealthy lifestyle were also categorized according to the number and type of domains not met. Prevalence estimates were calculated, compared by chi-square test and 95% confidence intervals.

Results: The prevalence of healthy lifestyle was 36.9% among the elderly, 15.4% among adults and 9.8% among adolescents. Among the elderly and adults, females had a higher prevalence of healthy lifestyle. In elderly, the prevalence of healthy lifestyle was higher among those with fewer years of schooling and among blacks. In adults, the prevalence was higher among those with more years of self-study and head of household. Among individuals with unhealthy lifestyle, 51.5% of elderly, 32.2% of adults, and 57.9% of adolescents had not met one domain, and who had not met the recommendation for an adequate diet.

Conclusions: The prevalence of healthy lifestyle was higher among elderly, followed by adults and adolescents. In all age groups, food intake was the main domain responsible for the unhealthy lifestyle
in this city. It shows the importance of intervention strategies to promote healthy lifestyle and, especially, a proper diet.”
POSTER PRESENTATION

Heart Rate Variability During Double Trap’s Elite Athlete Performance: a Case Study

Neuroscience and sport

"Daniel Traina Gama, Paulo Ricardo Higassiaraguti Rocha, Mario Sergio Vaz da Silva"

"Federal University of Grande Dourados (UFGD), University of São Paulo (USP), Federal University of Grande Dourados (UFGD)"

"BR, BR, BR"

"Background:
Double trap’s athletes must shoot several times to two plates simultaneously released and flying in high speed to contrary directions. Double trap’s performance is highly dependent of athlete’s control in many domains, such as motor, physical and psychological. Domains control is related to Autonomous Nervous System (ANS) modulation and Heart Rate Variability (HRV) analyses are used to measure ANS sympathetic and parasympathetic modulation. The aim of this study is to show the relation of a Double trap’s Elite Athlete performance with ANS modulation.

Methods:
Heart Rate data series (interval R-R) were collected during two days of Double trap simulation proof from an Elite Athlete during preparation for London 2012 - Olympic Games. HRV analyses were run according to performance behavior: (a) before error, (b) during error, (c) after error combined with hits, (d) hits without error (minimal six doubles before and after hits sequence). HRV analyses variables were identified for ANS modulation assessment: Spectral, Low Frequencies normalized units (LF nu), High Frequencies absolute units (HF abs) and LF/HF; Symbolic, 0 Variation (0V) and 2 Different Variations (2DV); and conditional entropy, Normalized Complexed Index (NCI). Being that LF nu and 0V are related to sympathetic modulation; HF abs and 2DV to parasympathetic; LF/HF to sympathovagal balance; and NCI to adaptive ability. One-way ANOVA was conduct to verify the effect of each HRV variable on performance’s behaviors.

Results:
Data Analyses showed that ANS modulation significantly changed across the athlete’s performance behaviors. Parasympathetic modulation (HF abs) was higher after error combined with hits and during hits without error (means = 125.1 and 122.1 cm2) compared with before error and during error (means = 68.8 and 73.7 cm2), p < 0.01, partial η2 = 0.45, and (2DV) showed no differences; Sympathetic modulation (LF nu) was higher during error (mean = 75.1%) compared with hits without error (mean = 66.3%), p < 0.05, partial η2 = 0.32, and (0V) was higher before error (mean = 43.6%) compared with
hits without error (mean = 30.8%), p < 0.05, partial η² = 0.31; Sympathovagal balance was higher during hits without error (mean = 2.33) compared with during error (mean = 4.01), p < 0.05, partial η² = 0.31; and Adaptive ability (NCI) was higher after error combined with hits (mean = 0.68) compared with before error (mean = 0.55), p < 0.05, partial η² = 0.30.

Conclusions:
Shooting hits were related with parasympathetic modulation and sympathovagal balance, while the errors were related with the prevalence of sympathetic modulation. Adaptive ability is related with parasympathetic modulation and with major importance for domains control during sports performance. The results of the present study indicate that the athlete`s domains control was dependent of parasympathetic modulation."
POSTER PRESENTATION

Historical Study on Chinese-English Translation of Wushu
Sport history
Zhang Yingfan
Chengdu Sports University
CN

“Background: Wushu, an excellent cultural heritage of China, has developed into a world Game for a longtime, and became an exhibition events in 2008 Olympic Games. Languages, as the bridge to connect people all over the world, are important vehicles in the global communication. Properly study the history of Chinese-English Wushu translation is an indispensable ingredient for Wushu internationalization.

Methods: By literature review and case study, the paper analyzes characteristics of three historical stages of Wushu translation, then points out questions and strategies during the course of translation.

Results: 1. Historical overview: Wushu translation has a long history, but early works are mainly centered in Asia for traffic limitation. Chinese-English translation of Wushu gradually spread out from the arrival of western missionaries in 18th century.

Germination: from late Qing Dynasty to 1962
In the reign of Emperor Qianlong, missionary Marie Amiot was the first recorded people to introduce Wushu to western countries. It marked the beginning of English Wushu Translation. 1936 Berlin Olympic Games was the first time that Chinese Wushu Players joined in the Olympic Family and Wushu translators engraved. In this time, translation of Wushu merely gave priority to oral translation. Except few textual material, there was no specialized written translation, or normative English-translated Wushu Works.

Growth: From 1963 to 1978
Since the turning-up of “Chinese Gung Fu—The Philosophical Art of Self-Defense”, the first existing recorded English masterpiece privately printed by Bruce Lee in 1963 in USA, English translation of Wushu has sprung up all over the world. Massive overseas immigrants took active part in the translation, and made great contributions to Wushu internationalization.

Developing: From 1979 till now
The booming of economy promoted popularization and development of Wushu translation. In this period, both oral and written translation work did the rocket jump, and their qualities also reached an unprecedented level.
2. Questions and Strategies

Inconsistency of term translation: History development and cultural diversity are two reasons to the phenomena. Standard translation system should be set up on the basis of advanced linguistic translation theory.

Disequilibrium of translation content: many translators prefer technique of certain Wushu school, but various content including the theoretical study and practical study can also be chosen as translation source.

Deficiency of advanced translators: a good Wushu translator should equip with skills of Wushu and Languages. It is hard to find a potential candidate among limited number of translators. It is necessity to for current translators enhancing their Wushu knowledge or Linguistic ability.

Conclusions: Starting from nothing, English Wushu translation becoming more and more mature. But still some questions existed in the process of translation. Only by eliminating inconsistency, disequilibrium and deficiency can Wushu be truly internationalized."
Hi-tech, Education and Practice - Key Factors for Career Growth and Social Inclusion in the Diversity of the Modern Sport Environment

Technology in sports

"Prof Reny Damjanova, Prof. Reny Damjanova, Prof. Reny Damjanova"

"National Sports Academy, National Sports Academy, National Sport Academy"

"BG, BG, BG"

"Background:

This article focuses on the nature and changes occurring in contemporary living and working environment in sports and physical education. It aims at summarizing the experience from active competitive and training practice and research of sport and university education. Its purpose is to outline the main factors determining the changes in the working environment of the activities related to sports, such as training, competition, learning, teaching and research and technology, with a focus on: 1) Comparison of the characteristics of the tandem athlete – coach and student - university professor; 2) Disclosure of the existing relationships, and 3) Developing the design of an extensive multidisciplinary research project related to objective standardized assessment of knowledge and professional competence of students from the National Sports Academy, coaches in 4 sports (football, sport dancing, aerobics and golf) and national and international categories of referees in football, sport dancing and aerobics (n=2 626).

Methods:

1. Methods for retrospective comparative analysis and feasibility study
1.1 Logical analysis (comparative, historical and meta-analysis) and synthesis
1.2 Analysis of legal regulations and Internet sources
2. Methods for information on key thematic and experimental directions.
2.1 Study of methodological literature related to the control of educational achievements
2.2 Development of taxonomies for creating didactic tests on new subjects
2.3 Establishment of banks of test items and tasks with open answers
2.4 Expert assessment of banks test items and tasks
2.5 Pedagogical testing to assess performance measurement and optimization; Practical control of academic achievement in subjects taught in the National Sport Academy
2.6 Modeled monitoring
3. Statistical Methods:
3.1 Non-parametric methods
3.2 Parametric analysis
4. Calculation of confidence intervals
5. Hypothesis testing
6. Methods of similarity and graphical visualization of data
7. Methods of analysis, summary and modelling - heuristic based on logical methods and mathematical modelling

Results:
The data analysis shows that the results of sports training, competition, education and scientific research are strongly influenced by their specific 'boundaries' and context. The active exchange of knowledge from one research area to another, an educational discipline to another and from one sport to another changes their context and significantly increases their effectiveness. Research findings suggest that the modern sport strongly related to the notion of the learning space, in which individuals and teams work, learn and develop their skills.

Conclusions:
The interdisciplinary nature of sport as a social phenomenon is one of the powerful factors for the expansion of scientific and educational space. In this way, modern science, education, training and competition cover a growing variety of social groups and provide new areas for their career growth and social inclusion in a high-tech and network environment."
Hunting and Chinese Monority Traditional Sports

Sport history

Sharula

"No.36 middle school of Inner Mongolia, China"

CN

“Background: Hunting is an important part of the nomadic culture. It is the main factor to give birth of national traditional sports and pushes the sports development. It is produced by human evolution in the production, life and development of the long process of herd game: mutual competition between the human and the nature change unpredictably and continuous competition; humans competition of physical strength and intelligence in the natural environment and other biological launched; it is human’s challenge and surpass their physical fitness, skills, potential extreme sports, is among man, nature, hunting prey through this behavior to achieve the dynamic balance and harmony, the laws of nature and of survival of the fittest in natural selection, survival of the fittest in sports competition.

Methods: literature study, expert interviews, field survey method.

Results: According to study, this paper thinks that: shoot the willow, day of worship, dance and other activities are caused by hunting and ritual related national traditional sports. Nomads generally believe in Shamanism, which is taken the natural worship as the main doctrines of the national religion. They often want to obtain the forces of nature are supported by some specific rituals, and in the process to reach a consensus with the nature, so as to gain more prey. So the early types of sacrificial ceremony of nomadic people, many were caused by the behavior of hunting, the long-term development of gradually evolved into the traditional ethnic sports. Hunting has associated with the folk culture which has caused the traditional sports, such as: the Shangsi section is derived from the culture of hunting. National traditional sports is a comprehensive study of a simultaneously across multiple specialized, multidisciplinary.

Conclusions: only do a good job in the national traditional sports basic theory research, to handle well the relationship between the inheritance and development of traditional ethnic sports, in order to provide a strong basis for the scientific development of modern traditional national sports, and provide reliable reference for the modernization of national traditional physical culture development mode, which makes China’s traditional sports in the modern in the process of blossom and charming, full of boundless vitality."
POSTER PRESENTATION

Identification and Sport Talent Development Policies in Brazil

Governance and policy

"Luciana Perez Bojikian, Maria Tereza Silveira Böhme"

"Paulista University, University of São Paulo"

"BR, BR"

"Background: Despite the importance of this issue, in Brazil there is no systemized information obtained through scientific research on sports in general and high yield. Therefore, based on SPLISS international model (De Bosscher et al, 2010), a national survey was applied leveraging a diagnosis of Critical Success Factors (CSF) of the nine pillars of the SPLISS model. In this study, the results obtained are with respect to the pillar 4 - Identification and Development of sport talent. The first indicator in pillar 4 refers to the Talent Identification, and the four others refer to the Talent Development.

Methods: We interviewed state and municipal managers of the five Brazilian regions, with respect to the governmental structures of Sport and Education (role of the state and the municipality). The study included the states that had the highest number of top athletes and their capitals. Scores were assigned ranging from 0.20 to 1.00 according to the presence of CFS. International standards related to the research were carefully observed.

Results: At the state level were included five indicators of Pillar 4 and only 13 of the 22 CFS, because answers were not obtained to 9 CFS. SP was the state with the best result (0.52), followed by SC and PE (0.50), RS (0.46), PR, DF and MG (0.40), RJ (0.38) and BA (0.33). The average score for Pillar 4 was 0.43. For the municipalities surveyed, in 22 CFS only 5 FCS were considered in the calculation of the scores. The municipalities that met the stipulated criteria were: São Paulo, Rio de Janeiro, Porto Alegre, Salvador and Manaus. For lack of answers to questions made, it was not possible to calculate the scores for municipalities: Recife, Florianopolis, Curitiba and Belo Horizonte. In the final statement of scores, São Paulo showed the best result, with a score of 0.56, followed by Manaus (0.24) and Porto Alegre, Salvador and Rio de Janeiro (0.20).

Conclusions: The initiatives to identify and develop talent in the cities are very few or non-existent and below average (0.29). The city of São Paulo showed better scores than others due the fact that it has the structure of the Olympic Training Center and Research (COTP), which is the equipment of the Department of Sports, Leisure and Recreation (SEME) geared to high performance sport. In the other municipal equipment is practiced sport participation. Pillar 4 proved undeveloped in the states and municipalities.
municipalities surveyed. Among the difficulties in creating and implementing national and state policies regarding the identification and development of sporting talent, is the large country’s territory and the enormous economic and cultural diversity within the cities themselves. In the few existing programs, priority investment falls within high-performance athletes, a fully sighted vision of competitive return.”

Elite performance


“State University of Roraima – UERR, Federal University of São Carlos – UFSCar, Federal University of São Carlos – UFSCar, Federal University of São Carlos – UFSCar, Federal University of São Carlos – UFSCar, Federal University of São Carlos – UFSCar, Federal University of São Carlos – UFSCar, Federal University of São Carlos”

"BR, BR, BR, BR, BR, BR, BR, BR"

Background: The sport Rafting comes down on the descent of rivers in inflatable boats, where members of the vessel paddle under the command of an instructor responsible for the group's guidance during the route. Practiced by teams of 4 or 6 athletes of both sexes and with initial age of 16 years old. Considered as a high intensity of activity but can also be characterized as long lasting, which in these characteristics can be realized in four modes: Sprint, Head to Head (H2H), Slalom and Downriver lasting between 20 to 60 minutes depending on the rapids and access to the river. Rafting has a stress intensity appeared to all practitioners, however it may be that the physical profile of athletes interfere demand imposed upon the practitioners differently. The sports performance activities have been associated with several physical characteristics such as body composition, motor valences and maximum oxygen consumption (VO2MÁX.). This study aims to identify profile of the world four-times champion team Rafting in relation to body composition tests, aerobic power and motor tests, in order to create a pattern of physical evaluation for athletes, besides allowing the choice of the best activities respecting the biological individuality, generating adequate training in accordance with the potential found.

Methods: The study included seven male athletes with 20.7 ± 3.7 years of age who are part of the team. The staff was held a week before the World Championships in Indonesia 2015. The bioelectrical impedance tests were performed (InBody 720®), spirometry with rowing ergometer (Concept II - VT, USA) with MedGraphics gas analyzer (VO2000 ™) and motor tests (abdominal strength, ground support, vertical jump, standing long jump and Shutter Run), descriptive statistics was used to demonstrate the results.
Results: We observed an average of the following variables: body weight 72.6 ± 6.3 kg, 176.6 ± 7.7 cm height, BMI 23.3 ± 1.3 kg/m2, fat percentage 6 ± 1.9 %, body fat 4.4 ± 1.4 kg, lean body mass 68.3 ± 6.3 kg, bone mass 14.6 ± 1.3 kg, residual mass 15.2 ± 1.3 kg, muscle mass 38.5 ± 4.0 kg, maximum oxygen consumption 65.4 ± 2.4 ml/kg/ min, 60-s sit up test to measure abdominal muscle endurance 56.4 ± 11.7 rep/min, arm flexion test 58 ± 13.3 rep/min, vertical jump test 48.7 ± 10.2 cm, standing long jump test 215.7 ± 27.1 cm, test Shutter Run 11.6 ± 1 seconds.

Conclusions: We conclude that the results show the profile of the world four-times champion team Rafting and demonstrates a vestment the base teams."
Impact of Cardiorespiratory Fitness on the Hipertriglyceridemic Waist Phenotype and its Components in Adolescents with Weight Excess

Physical activity and health

"Adriano Ruy Matsuo, Ronano Pereira Oliveira, Caroline Ferraz Simões, Natalia Carlone Baldino Garcia, Nelson Nardo Junior"

"State University of Maringá, State University of Maringá, State University of Maringá, State University of Maringá, State University of Maringá"

"BR, BR, BR, BR, BR"

Background: Weight excess is a major contributor to poor risk profiles among youth. Whilst obesity and overweight are associated with increased cardiometabolic risk in adolescents, moderate to high levels of cardiorespiratory fitness are also associated with a reduction in clustering of cardiometabolic risk factors. The simultaneous presence of high triglycerides levels (TG) and increased waist circumference (WC) is called hypertriglyceridemic waist (HW) phenotype, an important diagnostic tool for cardiovascular risk. Adolescents with weight excess have a greater chance to present this phenotype. The aim of this study was to analyze the impact of VO²max in HW phenotype and its components in adolescents with weight excess.

Methods: This is a cross-sectional study in which 140 adolescents (14 and 18 years of age), beginners in a multidisciplinary intervention were assessed. They were divided by sex: male (n=57) and female (n=83). Both groups underwent an assessment of body mass index (BMI), WC, and TG. The presence of HW phenotype was assessed according to the criteria established by Esmaillzadeh et al. (2006) for adolescents concurrently having serum triglyceride concentrations ≥110 mg/dL and a WC equal to or greater than the 90th percentile for their age and sex (FERNANDEZ et al., 2004). It was held descriptive statistics (mean, standard deviation and frequency distribution) and inferential (Mann Whitney U test) to observe the results. Significance was set at P<0.05.

Results: The profile analysis of the participants showed that, there was no statistical difference for age and BMI between the sexes, but male adolescents had significantly higher values of WC and TG compared to their counterparts. Regarding the impact of VO²max on the HW phenotype and its variables, the findings indicated that there is a significant difference between the means of VO²max of males adolescent with and without altered CC (p≤0.001), as well as the presence or absence of the HW phenotype (p≤0.001). In these adolescents, VO²max mean was higher among those with WC values (54.4%) within the normal range (37, 6 ± 5, 3ml/kg/ min vs. 32, 0 ± 4, 0ml/kg/min) and were not
diagnosed (78, 9%) as having the HW phenotype (36, 2 ± 5, 4ml/kg/min vs. 30, 8 ± 3, 2ml/kg/min).

There were no statistical differences between the VO\textsuperscript{2}max mean of female adolescents for all variables (WC p=0, 270; TG p=0, 938; HW phenotype p=0, 428).

**Conclusions:** The findings indicate that the cardiorespiratory fitness may influence the HW phenotype and its components in males, but not in female adolescents. This suggests that a high cardiorespiratory fitness may give a security to the cardiometabolic risk alterations in male adolescents. Therefore, obesity treatment interventions should develop cardiorespiratory fitness, besides healthy habits of physical activity and nutrition."
Impact of Chinese “Eight virtues” culture to improve athletes of sportsmanship

Sport ethics and integrity
wenhao yuan
Chengdu Sport University
CN

“Background: In recent years, the problems of sports world are continued. There have doping, stadium violence, Black Sentry Post, gambling, fraud. These issues caused impact for the sport, also contributed to the generation of a number of other problems. If not resolved these problems, it would not only cause a lasting impact of the sports development, but will harm the development of society. This article based on the “Eight virtues” culture, proposed the method to allow athletes to learn the “Eight virtues” culture to enhance the moral quality of athletes, to solve moral problems that exist in competitive sports.

Methods: The research method of this dissertation mainly include literature analysis, case study method, through separately analyzed the “Eight virtues” culture and applied to athletes training and competition to enhance the moral quality of athletes, to solve the problems in competitive sports.

Results: Depending on the function of each moral and combine the moral construction of athletes, the “Eight virtues” can be roughly divided into four levels: 1, Righteousness and Loyalty. For athletes, it is a moral soul and core, as a professional athlete must have professional spirit, to team the, the club and the country for serve, them have been faithful, in order to honor the team’s hard work, to play the best condition. 2, Honesty and trustfulness. As an athlete ought to emphasis on integrity and moral, “seek truth and advocate practice”, don’t violate the principle of honesty for fame and interests, “Match-fixing” and “False age” these problems can be solved since then. 3, Courteousness and uprightness. Athletes have to learn moral style of “the interpersonal civilization”. Treated competing opponents respect in the first place, respect the opponent is respect yourself, so you can avoid the happening of “stadium violence”, to create a good atmosphere for the game. 4, Filial Piety and Sense of Shame. Filial Piety is a perennial love, Sense of Shame is the bottom line of the person’s behavior. Athletes should be love, for example, NBA star join Charitable Activities, take fans watch the games with cancer. Fans as fundamental for a team, so it can contact the team’s relationship with the audience. Stick to the moral bottom line, them won’t do “doping” and “gambling” such things to destroy the spirit of sports.

Conclusions: Chinese traditional cultural morality the “Eight virtues” are excellent spiritual and cultural wealth of the Chinese nation. It has not only a positive impact for Chinese social progress, but also shines in the world of sports. This article based on the Chinese traditional culture the “Eight virtues” in-
depth study, and the full integration of the spirit and the spirit of sport, to find out the problems existing in the modern competitive sports, respectively, the “Eight virtues” culture for solving various problems in competitive sports, make guidance for the athletes. Rio DE janeiro Olympic Games is about to open, the frequent emergence of sports is a bad influence factors. We should show our excellent traditional culture, and make it play a good role in guiding and regulating the competitive sports moral aspects.”
**Impact of Spinal Curvature and Exercise Capacity in Girls With Adolescent Idiopathic Scoliosis**

Sport and quality of life for adolescence and aging

"Bruna Marques de Almeida, Geferson da Silva Araújo, Evandro Fornias Sperandio, Alberto Ofenhejm Gottfryd, Victor Zuniga Dourado, Milena Carlos Vidotto"

"Federal University of São Paulo, Federal University of São Paulo, Federal University of São Paulo, Santa Casa de São Paulo e Hospital Israelita Albert Einstein, Federal University of São Paulo, Federal University of São Paulo"

"BR, BR, BR, BR, BR, BR"

**Background:** Studies indicate that different degrees of curvature in adolescent idiopathic scoliosis (AIS) can influence the change of mechanical ventilation during exercise and decreased exercise capacity. However, data are lacking to quantify the impact of different degrees during cardiopulmonary exercise testing (CPET). The Incremental Shuttle Walk Test (ISWT) is a CPET widely used in the literature to evaluate children and adolescents. This study aimed to evaluate the distance and physiological responses during ISWT in patients with EIA. Also, they were measured the respiratory muscle strength, pulmonary function and its correlation with the physiological responses during ISWT.

**Methods:** This was a cross-sectional study, which were included 46 adolescents with EIA. These were divided into two groups, adolescents angle calculated by the Cobb method, more than 45 ° (EIA > 45 °) less than 45 ° (EIA <45 °). The control group consisted of 20 healthy adolescents. All participants were subjected to ISWT using a gas analyzer, which quantified the physiological responses such as oxygen consumption (VO2), VO2 corrected for body mass (VO2 / kg), the efficiency of oxygen capitation (OUES), tidal volume (VT), minute ventilation (VE) and ventilatory pattern (ΔVT / ΔlnVE). It was also performed pulmonary function test and obtained the value of forced vital capacity (FVC) and forced expiratory volume in 1 second (FEV1).

**Results:** Patients with AIS > 45 ° showed lower values when compared to EIA Group <45 ° and controlling for the following variables: travelled distance (p <0.001), VO2 / kg (p <0.001), VT (p = 0.001), VE (p = 0.001), OUES intercept (p = 0.043), CVF (p = 0.001) and FEV1 (p = 0.005). In patients with EIA were found moderate correlations between FVC (r = - 0.506), VT (r = - 0.476) with the angle of thoracic main Cobb; the distance was correlated with VE (r = 0.609) and VO2 / kg (r = 0, 541); as well as the ΔVC / lnVE correlated with VO2 (r = 0.411) and OUES (r = 0.562).

**Conclusions:** The Incremental Shuttle Walk Test was a test able to identify lower exercise capacity in patients with EIA. Given that, adolescents with angulation > 45 ° have worse values for the physiological
responses during ISWT and walk shorter distances. Furthermore, the higher the spinal curvature, the worse the exercise capacity and lung function. Therefore, we conclude that the magnitude of spinal curvature exerts influence on the variables studied."
Improving Global Force in Patients With Parkinson's Disease Through Physical Exercise

Physical activity and health

"David Johnny Silva Aragão, João Paulo Carneiro Marques, Ana Patricia Guimarães Rodrigues"

"Universidade Estadual Vale do Acaraú, Universidade Estadual Vale do Acaraú, Universidade Estadual Vale do Acaraú"

"BR, BR, BR"

Background: Parkinson's disease (PD) is a neurodegenerative disease that causes motor damage such as tremors, muscle rigidity, bradykinesia and postural instability. With the progression of symptoms and complications of the disease, patients may have their functionality and mobility affected which leads to isolation or lack of participation in social life, resulting in poor quality of life. The decrease of the muscle strength in the upper and lower limbs can adversely affect the performance of the patients in performing daily activities, such as walking speed, abilities to climb stairs, dress and eat. Thus, it was chosen for this study the test of assessment of the overall strength, which evaluates the full force of the evaluated patients. The aim of this study is to assess the overall strength levels of individuals with PD.

Methods: This is a descriptive exploratory study, in which the method was cut lengthwise with a quantitative approach. Patients were served weekly (2 sessions) over a period of 1 year and evaluated every 3 months. The evaluation of the comprehensive strength is the choice of some exercises that the evaluated patient usually performs in a weight room. Then, the evaluator determines that the exercises are carried out within a range of 8 to 12 RM (Repetition Maximum). The results were analyzed by using the statistical software SPSS version 20. We used the t test in pairs for statistical analysis. This research was approved by the Ethics Committee of UVA, number: 51679115.3.0000.5053.

Results: It is noticeable the increase in overall strength through performed exercises in which the chosen ones were: 1 - bench press; 2 - barbell curls; 3 - Leg 45; 4 - Plantar flexion, and the selection criterion of these exercises were the largest range of muscle groups in both members. Therefore, for the patient 1 there were significant increases of 38% (± 2) in the exercise of barbell curls; 27% (± 1.5) in the bench press exercise; 40% (± 2) in the leg press exercise and 25% (± 1.8) in the exercise of plantar flexion. The results of the patient 2 proved highly significant 30% (± 2) in the exercise of barbell curls; 25% (± 2) in the bench press exercise; 34% (± 1) in the leg press exercise and 20% (± 2) in the exercise of plantar flexion. The level of significance was (P < 0.05).

Conclusions: Thus it is clear that the assessment of muscle strength can be a major factor in assessing the functional status of the individual and the test showed good applicability and served as...
a parameter for exercise prescription. Moreover, the evolution of the participants showed that exercise interferes directly in increasing tone and muscle strength, contributing to a better perform activities of daily life, as well as reduction of tremors, muscle stiffness, increased gait amplitude and decreased bradykinesia, promoting a better quality of life for this population."
POSTER PRESENTATION

Inclusion of Disabled People in Sports and Physical Activities at SESC Pompeia

Sport eligibility and inclusion

"Bartira Pereira Palma, Fernando Andrade Oliveira"

"Social Service of Commerce - SESC-SP, Social Service of Commerce - SESC-SP"

"BR, BR"

"Background: SESC - Social Service of Commerce is a private institution, nationwide. Its purpose is to promote a social welfare, improvement in quality of life and cultural development of workers in the trade of goods, services and tourism. Physical activities, sports, and recreation are among the activities that help to make up the action field of the entity. At SESC Pompeia, an operational unit located to the west of the city of São Paulo, approximately 5.000 people participate in different forms of physical exercise, including sports. Of these people, 52 are disabled and are enrolled in swimming, physical conditioning, volleyball and other classes. As in other places destined for the practice of sports and physical activities, it is important that everyone can practice together, once it is not feasible to have a specific class. Furthermore, this way inclusion may fulfill its role, since respectful coexistence, considering the differences, is essential in every social situation, such as going to the bank, to the grocery store, or practicing sports. Thus, this case report aimed to present the experience of the implementation of a procedure to effectively include disabled people in sports and physical activities in SESC Pompeia.

Case presentation: The procedure consisted of the following steps: upon arriving to SESC Pompeia, at the customer assistance center, the person receives information about the service format. Then, one writes a letter about the intended course and the disability characteristics, which is delivered to specialists in the sports department, who will contact the class teacher to verify the possibility of attending on the desired class and arrange the best date for this person arrival. After this, a test class is scheduled to verify if the class meets the person’s need, and if there is the need of a tutor to assist on the chosen practice, since we do not offer that service. The tutor may be a specialist or not. He may or may not participate in class, depending on the level of care that the disabled person needs and, he is often relative. On the test class day the disabled person answers an anamnesis with the most relevant information about the disability and functional level. This is filed in order to facilitate the access of any teacher who becomes responsible for this class. In addition to this procedure, in order to increase the quality of the service, SESC promotes discussion and reflection about the theme among the teachers by organizing training programs and events, such as the International Seminar of Inclusion in Sports
and Physical Activities, that took place from August 26th to 28th, at SESC Pompeia. The aim of this seminar was to discuss inclusion in sports and physical activities classes that are not specific to disabled people, and to propose professional tools that can make the work possible.

**Conclusions:** It is believed that through these strategies it was possible to plan the actions and the service became more qualified."
Inclusive Synchronized Swimming

Sport eligibility and inclusion

Meico Fugita

BR

“Background: Synchronized Swimming (SS) has become an Olympic sport in 1984 featuring solo, duet and lately duet and team competitions. Due to the requirement of synchronization between the athletes and between them and the music, their bodies and skills are usually as much alike as possible. With all the plasticity, it is still difficult to obtain the homogeneity, which leads to the question: how to achieve such feat with people who have, for example, reduced mobility? We have seen solos performed by athletes with reduced mobility, visual impairment or intellectual disabilities and autism. Although rare, there are also mixed duets comprising athletes with and without intellectual disabilities, one blind and the other with vision impairment. There is still little participation of athletes with disabilities (AWD) in SS, not only because of its focus on synchronization and requirements in difficulty and complexity, but mainly because there are no methods for teaching these skills to AWD yet. Thus the necessity of finding ways to make it accessible, pleasurable and possible for everyone.

Case presentation: Members of the hydrotherapy class and of the Paralympic Swimming team of an association for support of children with disabilities have been taking part of a project of initiation in SS for AWD in which the ways of performing skills have been optimized according to their abilities and possibilities. This project constitutes the present study. A Free Routine Combination, or Combo, was used to put the learned skills together in a sequence. This is not part of the Olympic Games. The routine is composed of solos, duets and ensembles that alternate. The synchronization between the athletes and between them and the music is not ruled out and such combination allows greater dynamic with different interactions between the athletes. This was an option for this team, which consists of an athlete with amputation, Cerebral Palsy, Spina Bifida and 3 synchronized swimmers without disabilities. Basic skills such as floating, twists and somersaults were taught and executed successfully, but each has achieved a performance threshold level in nine months, and there was no possibility of synchronization among the 10 athletes.

Conclusions: The Combo rules are more flexible so it was possible to develop a routine in which 4 wheelchair users perform similar actions, while the amputee athlete synchronizes with the Cerebral Palsy athlete. Those who can interact more efficiently make the links between the parties. The project
has been successful both for raising their self-esteem and for motivating them to participate in this sport. Wearing the required ornaments and makeup and also being aware that in the water, without the implements they usually need, they can do things that would be unimaginable out of it, raise the athletes’ self-esteem. A Combo with more flexible rules, allowing the synchronization of different groups of athletes and those with music is important because it does not go against the nature of SS which is the synchronization between the athletes and of those with the music."
**POSTER PRESENTATION**

**Influence of an Aquathlon training program on the motor coordination of children**

Sport and quality of life for adolescence and aging

"Bruna Freitas dos Santos, José Vitor Messias, Fabio Oliveira, Lucilene Pires Ortega, Marcia Torres Luz, Fabrécio Madureira, Rodrigo Pereira da Silva"

"UNIVERSIDADE METROPOLITANA DE SANTOS/Physical education college of Santos, UNIVERSIDADE METROPOLITANA DE SANTOS/Physical education college of Santos, UNIVERSIDADE METROPOLITANA DE SANTOS/Physical education college of Santos, UNIVERSIDADE METROPOLITANA DE SANTOS/Physical education college of Santos, UNIVERSIDADE METROPOLITANA DE SANTOS/Physical education college of Santos, UNIVERSIDADE METROPOLITANA DE SANTOS/Physical education college of Santos, UNIVERSIDADE METROPOLITANA DE SANTOS/Physical education college of Santos, UNIVERSIDADE METROPOLITANA DE SANTOS/Physical education college of Santos""BR, BR, BR, BR, BR, BR, BR"

"Background:

Introduction: Aquathlon is a sport involving swimming and running that is rising on the coast of the state of São Paulo in Brazil, both in number of events and participants in many different age groups. Researches about the sport aiming at performance of athletes can be found on literature, however, there is scarcity on researches investigating the influence of Aquathlon on the general and specific motor skills of children. Objective: To analyze the magnitude of the influence of an Aquathlon training program on the general and specific motor skills of children.

**Methods:**

The study included 21 children, mean age of 11.8 years, all belonging to the public schools of the city of Santos in São Paulo. The volunteers were divided into two groups - Experimental (GE - N11), Control (GC - N10). GE participated in an Aquathlon training program with duration of 12 weeks, frequency of 3 times per week and 90 minutes per session, 40 minutes of swimming, 10 minutes of transition and 40 minutes of running, while the GC was not involved with the practice of formal sports. For the evaluations, it was used the individual proficiency measured by a list for the front crawl and race; and KTK test for the general motor coordination.

**Statistics:** After confirming the non-normality of the data, it was decided to use the Wilcoxon test, with significance level for \(\alpha\leq0.05\).

**Results:**
The data are as mean and standard deviation for both groups (EG and CG) in the pre and post, regarding the proficiency list of front crawl, the race proficiency list and general motor coordination test in the respective order: [GE (97.2 ± 37.1 and 54.8 ± 22.2 *) p = 0.003 / GC (96.2 ± 28.7 and 87.4 ± 25.1*) p = 0.009]; [GE (58.73 ± 8.35 and 59.09 ± 6.14 p = 0.018) / (GC 60.8 ± 6.48 and 56.6 ± 6.47) p = 0.047]; [GE (320.5 ± 49.6 and 342.5 ± 36.0 p = 0.798) / (GC 320.4 ± 26.1 and 341.8 ± 38.8) p = 0.171].

Conclusions:
- Among the evaluated variables, it is possible to observe that the Aquathlon training induced positive results regarding the qualitative improvement of coordination of swimming, being 8% for GC and 50% improvement for GE, as well as the variables involving the general coordination, where GE achieved an improvement of 6% and 5% GC, however, it was identified no difference between the groups. For the specific coordination of the race, it did not show any significant changes within and between groups.
Influence of eccentric exercise on myogenesis process in an experimental model of Duchenne muscular dystrophy

Sport medicine and injury prevention

"Mariana Cruz Lazzarin, Hananiah Tardivo Quintava, Vivianne Izabelle de Araújo Baptista, Flavia de Oliveira"

"Federal University of Sao Paulo, UNIFESP– Campus Baixada Santista, Federal University of Sao Paulo, UNIFESP– Campus Baixada Santista, Federal University of Sao Paulo, UNIFESP– Campus Baixada Santista, Federal University of Sao Paulo, UNIFESP– Campus Baixada Santista"

"BR, BR, BR, BR"

"Background: Duchenne muscular dystrophy (DMD) is caused by mutation of dystrophin, the main component of the Dystrophin-glycoprotein complex. Absence of dystrophin entails damage to skeletal muscle during contractions and lesions requires repetitive cycles of muscle fiber degeneration and regeneration to repair the damage. In DMD, after muscle injury, quiescent satellite cells is activated by inflammatory cells that up-regulates members of myogenic regulatory factors expression (MyoD and myogenin), in order to regulate myogenesis process. MyoD stimulates differentiation of satellite cells into myogenic cells, and activate myogenin, which is characterized by promote the differentiation and development of myofibrils and myotubes. Therefore, myogenin is an important modulator of cell cycle exit during differentiation, while MyoD is involved in the determination of myogenic cells. In mdx mice, eccentric exercise promotes sarcolema rupture, causes muscular weakness, muscle degeneration, and increased the inflammatory profile of skeletal muscle. The aim of this study was to analyze the effects of eccentric training in myogenic regulatory factors (MyoD and myogenin) of skeletal muscle in mdx mice.

Methods: C57BL/10 and C57BL/10-Dmdmdx male mice with eight weeks old were distributed into four groups (n=5): Sedentary Control (SC), Trained Control (TC), Sedentary Mdx (S-Mdx) and Trained Mdx (T-Mdx). Procedures were approved by the Experimental Animal Use Committee of UNIFESP (CEUA 8165240614). Trained groups were submitted to seven weeks of aerobic exercise, five times a week at a high intensity speed for 60 minutes with treadmill downward of -15°. After euthanasia, gastrocnemius muscles were taken and the specimens were evaluated by MyoD and myogenin immunohistochemistry. Immunoreactive nuclei percentage were determined using photomicrographs obtained with the aid of computerized imaging system (Axio Visio-Zeiss) attached to a binocular light
microscope (Axio Observer D1, Zeiss). Statistical analysis of data was performed using two-way ANOVA.

**Results:** MyoD and Myogenin were detected in muscle fiber nuclei. S-Mdx and T-Mdx immunoexpression of MyoD showed lower percentage of immunoreactive nuclei when compared with SC and TC. MyoD evaluation was not influenced by physical training. Concerning myogenin immunoexpression, Mdx animals (S-Mdx and T-Mdx) had lower percentage of immunoreactive nuclei to myogenin when compared with C group, as viewed in MyoD analysis. However, the protocol training was able to increase the percentage of myogenin immunoreactive nuclei in trained groups when compared with respective controls: ST>SC and T-Mdx >S-Mdx.

**Conclusions:** The exercise training protocol did not influenced MyoD but increased myogenin immunoexpression in gastrocnemius muscle of mdx mice."
Influence of Physical Detraining over Mesenteric Adipose Tissue in Rats.

Physical activity and health

"BOLTES-REIS, G., ANDREOTTI, S., LIMA, FB., SERTIÉ, RAL."

"University of São Paulo, University of São Paulo, University of São Paulo, University of São Paulo"

"BR, BR, BR, BR"

“Background: Adipose depots have different responses when subjected to certain situations. Sertie et al. shown in periepididymal white adipose tissue that physical detraining reversed adaptations acquired through continuous training sessions increasing rate of weight gain.

Methods: Used Wistar rats of 6 weeks under standard conditions of temperature, 12/12h cycle, food and water ad libitum. The treadmill training was an intensity of 50-60% of the maximum capacity. A group trained daily 60min, 5X per week for 12 weeks (T); another trained for 8wk (D) and then detraining for 4wk and a sedentary group (S). The metabolic assay of oxidation and lipogenesis was realized from glucose marked with 14C and the radiation was measured by beta counter. The activity of citrate synthase (CS) was determined by the method described by Alp et al. Statistical analysis was performed by T student test and ANOVA.

Results: The body weight of rats S (392g +/-26) and T (348g +/-26) in the 8th wk and at end of the protocol showed significant differences. The water consumption exhibit no differences. The food intake in the first 8 weeks was significantly different between S (26g +/-2) and T (24g +/-2). The depot of mesenteric fat presented no difference between the groups S (2, 4g +/-0, 9), T (2, 2g +/-0, 7) and D (2, 1g +/-0, 5). Isolated adipocytes showed an increase in cell diameter of D (64µm +/-16) compared to T (52µm +/-5). Glucose oxidation showed increase at basal condition in D when compared with S, and on maximum stimulation T and D exhibited increased in regarding S. The basal lipogenesis not presented difference between none of the groups. However, when maximally stimulated with insulin T reveal increment in regarding S. The trails of CS showed no statistical differences.

Conclusions: Physical training developed in the first 8 weeks of the protocol showed the ability to reduce the increase at the body weight by T compared to S. The group D was able to reverse the consequences of physical training. The diameter of adipocytes showed a cellular hypertrophy by group D, despite the depot weight not shown differences, possibly due to cell turnover (balance apoptosis and adipogenesis). There was an increase of oxidative process in T that could be explained by the increase in energy expenditure inherent of the exercise and the energy necessary to achievement of the lipogenesis. On D the detraining time was unable to reverse the oxidative increase caused by the
training, when the cell maximally stimulated by insulin. However, the response to detraining is visible in lipogenesis, leading to suggest that the weight increase found must occur days after the start of detraining."
POSTER PRESENTATION

Influence of psychological ergogenic aid on strength training performance

Neuroscience and sport

"Gilmar Esteves, Yuri Motoyama, Cauê La Scala Teixeira, Jean Silvestre, Domingos Pandeló Junior, Paulo Azevedo"

"Federal University of Sao Paulo, Federal University of Sao Paulo, Federal University of Sao Paulo, Federal University of Sao Paulo, Federal University of Sao Paulo" 

"BR, BR, BR, BR, BR"

Background:
The use of motivation as a psychological ergogenic aid is commonly used as strategy in physical training in order to improve performance. Some previous studies have shown positive effects on physical performance, especially in endurance activities. However, few studies have investigated the effects of motivational methods in strength exercises acute performance. Thus, the aim of this study was to investigate the effects of verbal encouragement and visual incentive on strength training performance.

Methods:

Eight healthy men experienced in resistance training in minimum six months participated this study (32.1±6.9 years). Subjects performed five tests of barbell elbow flexion exercise with an interval of 48 hours between tests. The tests followed the sequence: 1) one repetition maximum test (1RM); 2) 1RM confirmation; 3) control (no motivation); the tests 4 and 5 was performed in cross-over mode and randomized (counter-balanced), being test with verbal encouragement (VE) or visual incentive (VI) (mechanical assistance simulation). In tests 3, 4 and 5, the subjects performed three maximal series with 80% of 1RM with 90 seconds rest interval. It was registered the exercise performance by the number of repetitions performed and rating of perceived exertion (RPE) through the OMNI-RES Scale.

A descriptive analysis of average and standard deviation data was carried out. Shapiro-Wilk test was used to check normality of data. To check possible differences among the treatments of performance and RPE the repeated measures ANOVA was used. The level of significance accepted was P≤0.05. To calculate Effect Size (ES) was used the Hedge’s g approach and data was shown with their respective 95% Confidence Interval (CI). To classify the ES we used a qualitative scale developed by Cohen and to estimate of the probability of the superior outcome of one treatment over another we used the common language ES statistic.

Results:
The performance were not different among tests (control: 4.8±1.8; VE: 5.0±2.3; VI: 4.7±1.7) and ES [control x VE=0.09 (CI=1.10 to -0.92); control x VI=-0.05 (CI=0.80 to -0.91); VE x VI=-0.14 (CI=0.85 to -1.13)]. Similarly, the RPE did not show difference among intervention (control: 7.8±0.8; VE: 8.0±0.5; VI: 8.3±0.6) and ES [control x VE=0.28 (CI=0.61 to -0.04); control x VI=0.67 (CI=1.02 to 0.32); VE x VI=0.51 (CI=0.78 to 0.24)]. For RPE, control treatment compared to VI showed a medium ES and 69% of probability of the subject presents a perceived exertion raise using the VI; VE compared to VI showed a medium ES and 63.8% of probability of the subject presents a perceived exertion raise using the VI.

**Conclusions:**
The VE and VI were not able to improve performance in strength training when compared to exercise without the use of motivation forms. Moreover, the VI could negatively modulate the perceived exertion."
Influence of Tai Chi Chuan Training on the Ballet Movements

Neuroscience and sport
"Hai-Bin Yu, Jing Li, Yung-Shen Tsai, Yue-Yun Xu"
"1.Quanzhou Normal University; 2.University of Taipei, Quanzhou Normal University, University of Taipei, Quanzhou Normal University"
"CN, CN, TW, CN"

Background: Research has confirmed that tai chi training facilitates improving stability and balance abilities as well as muscle strength and flexibility improvements. However, whether the jumps, spin, and sense of balance required in ballet dancing can be reinforced through core stabilization capability, which can be strengthened through Tai Chi Chuan (TCC) training, is unclear. On basis of the aforementioned assertions, this study aims to investigate whether TCC lessons can facilitate improving the performance of ballet dancers.

Methods: The study participants were high school dance class sophomores who had no previous experience of TCC. The participants were divided into a training group and a control group with 8 people in each for a total of 16 participating students. The participants’ body weight was measured after the warmup to standardize the data. The jumps and the posture balance were measured with an AMTI force platform (bp-600900, Watertown, MA, USA), and the sampling frequency was 1000 HZ. In addition, a motion analysis system software was used to synchronously collect and calculate the participants’ pre- and post-training data. A high-speed infrared-camera 3D optical motion capture and analysis system (Raptor-E Digital RealTime System, Motion Analysis Corporation, Santa Rosa, CA, USA) was used, the nine infrared cameras of which were configured to exhibit a frequency of 200 HZ.

Results: Influence of TCC training on Sauté Jump Performance
The study showed that after 8 weeks of TCC training, magnitudes of improvement in the training group regarding the maximum lower extremity push-off power and air hang time were 4.63% ± 2.86% and 5.18% ± 2.65%, respectively, which differed significantly from those of the control group.

Influence of TCC Training on Passé Posture Balance Performance
For dancers who need to stand on a stage and pursue the most perfect performance, balance ability is an extremely crucial physical ability. This study showed that after TCC training, the magnitude of improvement in the front-back COG shift distance, sideways COG shift distance, and COG shift speed
of the training group during passé posture balance were -11.70% ± 10.18%, -14.53% ± 10.30% and -8.67% ± 10.96%, respectively, which were significantly higher than those of the control group.

Influence of TCC Training on Pirouette en Dehors Performance

The results showed that the pretest–posttest difference in the working leg hip joint external rotation angle of the training group (6.38% ± 4.79%) was significantly higher than that of the control group (-1.47% ± 2.62%; P = 0.001). This might be attributable to how TCC emphasizes COG shifting.

Conclusions: The results of this study demonstrate that TCC movement training facilitate performing certain ballet movements. The results of this study can serve as a reference for ballet training as well as for physical fitness training."
Influence of the Cardiorespiratory Fitness Over the Risk Factors for Metabolic Syndrome in Freshmen Adolescents in a Multidisciplinary Program of Obesity Treatment

Physical activity and health

"Natália Carlone Baldino Garcia, Ronano Pereira Oliveira, Juliana Bertolini Fadanelli, João Carlos Locateli, Adriano Ruy Matsuo, Nelson Nardo Junior"

"State University of Maringa, State University of Maringa, State University of Maringa, State University of Maringa, State University of Maringa, State University of Maringa"

"BR, BR, BR, BR, BR, BR"

**Background:** The obesity is a chronic disease, considered a public health problem worldwide for develop many other disorders. The Metabolic Syndrome (MS) is related to the weight excess, central adiposity, and resistance to insulin action. It is a complex problem constituted by the abdominal obesity linked to at least two of these following risk factors: high blood pressure, low level of HDL cholesterol, high triglycerides concentration, and the diagnosis of insulin resistance. Is known the weight loss can reduce significantly the prevalence of MS, enhancing the individual’s quality of life, which shows the huge importance of an obesity treatment. The study’s goal was to verify the influence of the cardiorespiratory fitness (VO2max) over the risk factors for MS in freshmen adolescents in a Multidisciplinary Program of Obesity Treatment (MPOT).

**Methods:** The study has a descriptive design with a cross-sectional cohort. The sample is composed of 140 adolescents, aged from 14 to 18 years old, freshmen in a MPOT between 2014 and 2015, in which were analyzed the BMI, VO2max and the risk factors for MS (waist circumference, systolic blood pressure, diastolic blood pressure, glycemia, HDL cholesterol, and triglycerides). Was used the cut off points from The International Diabetes Federation consensus definition of the metabolic syndrome in children and adolescents for the MS risk factors classification. Was performed descriptive statistics (mean and standard deviation) and inferential (Test T Student and Mann Whitney U Test) to data observation.

**Results:** Was found meaningful difference between male and female sex for the waist circumference (WC), systolic blood pressure (SBP), glycemia, HDL cholesterol, triglycerides, and the risk factors for MS. Except the HDL cholesterol, the male sex adolescents presented higher values in all the other study’s variables if compared to the female sex adolescents. Was observed that the VO2max was higher in the male sex adolescents, without any alteration of the risk factors for the MS in 12 of the 14
analysis, although the study has found meaningful differences only for WC, SBP, and MS of these adolescents.

**Conclusion**: The results allowed the comprehension that the cardiorespiratory fitness has a higher influence over the risk factors for MS of male adolescents with weight excess; however, is observed in both sexes the trend to a higher risk factors alteration for MS in individuals with a lower VO2max. This can suggest the need of a enhancement of the VO2max in the obesity treatment programs and in adolescents with weight excess in general as a way to reduce the risk of MS development."
Injuries and their impact on tennis practice

Sport medicine and injury prevention

“Eduardo Brugnara Giordani, Hellen Veloso Rocha Marinho, Giovanna Mendes Amaral, Bruno de Souza Moreira, Joana Homestam, Sergio Teixeira da Fonseca, Paulo Roberto de Carvalho Santos, Eduardo Faria, Elizabete de Oliveira Barbosa, Wanielly Suzane Ferreira”

“Estadual University of Montes Claros, Estadual University of Montes Claros, UNIBH, Federal University of Minas Gerais, Federal University of Minas Gerais, Federal University of Minas Gerais, Brazilian Tennis Confederation, Brazilian Tennis Confederation, Estadual University of Montes Claros, Estadual University of Montes Claros”

"BR, BR, BR, BR, BR, BR, BR, BR, BR, BR"

Background: Tennis is considered one of the most popular sports worldwide. The games in this sport have no predetermined time and can be played for hours, which requires excellence of the competitive athlete in their movements for successful performance. The demands imposed both in training and in games with high load repetitions and failures in the kinetic chain or technique used can influence the occurrence of injuries. Among the movements involved in the sport, the service is characterized by a movement above the head that requires high-speed performance. Groundstrokes require greater amount of repetitions and may predispose to overuse injuries. In addition, rapid movements and sudden changes of direction on the court may contribute to traumatic injuries. The occurrence of injuries can compromise performance and generate removal from sport in different degrees. Therefore, the aim of this study was to determine the frequency of injuries in tennis players, the body regions and structures compromised by such injuries and the severity of the injuries.

Methods: Seventeen male athletes, average age of 24 years (± 3.7), competing at challenger level, were interviewed. The specific forms used contained questions on demographic data, injuries during the career path, severity of the injuries, concerning the time loss from sports practice (7 days = mild; 8-28 days = moderate; above 29 days = severe), symptomatic site, the affected sportive movements.

Results: The athletes reported a total of 55 lesions, and the lower limbs were the most affected (49%), followed by upper limbs (36%), trunk (13%) and cervical spine (2%). By analyzing more specifically the affected structures, muscle injuries in the lower limbs were the most common (14.5%) and the most common joint injuries were wrist and ankle (both representing 11% of total). Fifty-eight percent of the injuries reported by these athletes were severe. Among these injuries, the greatest number was composed of the wrist joint injuries (31%), followed by the ankle joint injuries (17%). Despite the injuries
in the knee joint were not the most frequent, they were severe in 100% of cases. Minor injuries were mostly shoulder injuries followed by muscle injuries in the lower limbs. The service was the most affected movement by injuries (29%), being that the injuries in shoulder and lumbar spine were the main responsible. The second most affected sportive movement was the forehand (15%), followed by the movements associated with running or displacements in court (10%).

**Conclusions:** Most injuries caused severe removal from sports practice, which reinforces the need for further work focused on the description of the mechanisms and prevention of injuries in this sport. Muscle injuries in the lower limbs were the most frequent and led to a removal for a shorter period of time. The most common joint injuries were in the wrist and ankle. The service is usually the most affected movement and should receive special attention during rehabilitation and return of the athletes to the sport, especially in the presence of shoulder injuries and low back pain."
INJURIES MAPPING AND FINANCIAL COST OF INJURY TREATMENT AND INJURY PREVENTION

Sport medicine and injury prevention

"André Kenzo Saito, Mauricio Rodrigues Zenaide, Mauricio Wanderlei Moral Sgarbi, Diego Ramos Ribeiro, Camila Baldini Mourão, Eduardo Signorini Bicas Franco, Henderson Palma, Maria Stella Peccin"

"Fundação Pró-Esporte de Santos, Knee Specialist Orthopedic Surgeon, Santa Casa de Santos, Physical Therapy, Physical Therapy, Federal University of São Paulo, Federal University of São Paulo, Federal University of São Paulo"

"BR, BR, BR, BR, BR, BR, BR, BR"

"Background:
Injuries can be defined as any pain or musculoskeletal condition resulting from practice and/or competition that compromise in some way (intensity, frequency) routine/performance during training/competitions. In addition to the performance loss during the competition, the athlete is additional financial expense for the treatment to return even in the same season. The objective of this study is map injuries and assess the financial costs related to treatment and injury prevention programs to athletes of different sports of Fundação Pró-Esporte de Santos (Pro-Sport Santos Foundation) (FUPES) which are athletes who compete representing the city of Santos in national and international competitions.

Methods:
Between July 2013 and December 2015 the injured athletes were seen weekly in interprofessional sports traumatology’s office, composed of orthopedic surgeons of the Santa Casa de Santos, physical therapists enrolled in the master’s program and undergraduate members of research project Centro Interprofissional de Pesquisa e estudo no Esporte (Interprofessional Center for Research and study on Sport) (CIPE) of the Universidade Federal de São Paulo – Campus Baixada Santista (Federal University of São Paulo – Campus Santos) (UNIFESP). They were offered medical appointments, injury treatments as well as injury prevention program to all athletes. All services are offered free of charge.

Results:
Sixty-five athletes were treated at the clinic, totalizing 105 calls (first appointment and return), and recorded 91 injuries, 50 magnetic resonance imaging, X-rays and a nine electromyography. The most frequent injuries were ankle sprains, patellar tendinopathy, anterior cruciate ligament injury, groin pain
and disorders of the rotator cuff. The sports with the highest incidence of injury were handball, basketball and volleyball. There were performed 783 physical therapy room visits and 209 injury prevention training (47 athletes). Despite the higher number of visits for treatment of injuries there was increasing on demand and injury prevention training, and the amount of treatment of injuries between 2013 and 2015 has decreased, suggesting awareness of the importance of injury prevention by athletes and coaching staff.

**Conclusions:**

Handball, basketball and volleyball were sports with highest incidence of injury, corroborating literature. The partnership between FUPES, Orthopedics and Traumatology Department of Santa Casa de Santos, research projects and Universidade Federal de São Paulo Master’s program resulted in financial savings of approximately R$120.000, 00 (US$27.000, 00), scientific production and therapeutic support to athletes."
POSTER PRESENTATION

Injury data collection and psychological features from triathletes.

Sport medicine and injury prevention
"Henderson Palma, Ricardo da Costa Padovani, Maria Stella Peccin"
"Federal University of São Paulo, Federal University of São Paulo, Federal University of São Paulo"
"BR, BR, BR"

“Background: Triathlon involves three different types of endurance - swimming, cycling and running - within a single event. Due to the nature and physical, physiological and psychological demands involved in this sport, triathletes are susceptible to many factors that may cause injury. This study aimed to identify the profile and the modality that produces more injuries in triathletes. Additionally, it sought to raise the impact of psychological variables associated with triathlon.

Methods: The sample consisted of 172 triathletes between professionals and amateurs who disputed at the national and international levels. For data collection the sport practice research triathletes questionnaire was used. The project was approved by the Ethics Committee from Federal University of São Paulo (971/11).

Results: The presence of lesions in the last three years was reported by 85.5% of the sample. Regarding the type of injury, 41.5% reported over-training, and 26.2% injuries with traumatic nature and 32.3% other causes. The speed training phase (34.8%), base (30.3%) and strength (22.7%) were the most frequent at the time of injury. The main cognitive strategies pointed to improve performance were setting goals in training (91.3%), mental training (94.3%). The most stressful aspects identified were: training (48.6%), over-charging (25.7%), relationship with sponsor (15.7%), family pressure (12.9%) and relationship with the team (7.1%). When the expected performance were not reached the most common emotional reactions were: frustration (34.3%), anger (18.6%), sadness (21.4) and anxiety (8.6%).

Conclusions: Most of the injuries were suffered in the running, related to over-training. In terms of psychological characteristics in the study sample, the motivation is a key factor in the process of overcoming fatigue and getting good results."
“Background:” Sports injuries have highlighted in studies involving football. It has long been the football assistant referee would be susceptible to the same types of injuries players. However, recent studies have shown that injuries affect the assistant referees are in situations and different local than the players. Therefore, the aim of this study was to analyze the situations and places where the assistant referees to the south and south-east regions suffer injuries.

Methods: The assistant referees were all evaluated during the preseason in their respective federation. To collect the data we used a semi-structured questionnaire, applied through interviews by an experienced researcher. The questionnaire used was proposed by Paes et al. (2011). The questions were standardized in order to accurately characterize the activities related to refereeing only account for sports injuries. So just were considered the sports injuries occurred in three situations previously defined: during a football match, during physical training or during the physical tests applied by the federations or the Brazilian Football Confederation (CBF), for the assistant referee’s physical evaluation. The injuries occurred outside that these three situations were discarded. The study population consisted of 74 male assistant referees accredited by the Paulista Football Federation (FPF) and Gaucho Football Federation (FGF). The sample consisted of 32 assistant referees by FPF, mean age 34 ± 4.8 years, height 1.75 ± 0.08 m and weight of 73 ± 8.6 kg. Already the 42 Gauchos assistant referees evaluated showed a mean age of 30 ± 7.1 years, height 1.77 ± 0.06 m and weight of 77 ± 9.3 kg.

Results: From the entire sample, 37 assistant referees report suffered some type of sports injury in one of the situations described above. Of these, 16 occurred with FPF and 21 with FGF assistant referees. Of the 53 injuries identified, 68% (n = 36) occurred during training, 15% (n = 8) during the physical test and 17% (n = 9) during the game. The types of injuries were 56% (n = 30) strain, 32% (n = 17) sprains, 6% (n = 3) dislocation, 4% (n = 2) fracture and 2% (n = 1) contusion.

Conclusions: For these data, it can be concluded that football assistant referees some are injured when they are refereeing a football match, and more frequent occurrence of physical injuries during physical training. Therefore, the associations should be responsible for the provision of training...
programs for assistant referees, with specialized professionals, this could help minimize the appearance of injuries over the years, as the assistant referees can act in this sport until 45 years of so that thus they would be less exposed to injury occurrence in the three situations investigated."
Inspiration and influence on sports news from interactive virtual community sports fans group

Sport sociology
Du Qian
Chengdu sports university
CN
“Background:
Today's media sports and professional sports is developing rapidly, so sports events centered fans groups appeared. Throughout the study, experts and scholars on the virtual community sports fans group, are mainly on the interaction between virtual community sports fans groups, the role of opinion leaders, the degree of trust among sports fans, the fan's belonging to the virtual community, these are all internal research of fans groups. Even the extension study from the internal to the external of virtual community sports fans groups, is also limited to the unidirectional impact of sports news on fans. I believe that the impact of interaction between fans groups and sports news is bidirectional. So the author questions: What is the inspiration and implications on sports news and practitioners from interaction between virtual community sports fans groups?

Virtual community fans groups gathered all sports fans together, including sports news editors, writers and so on who involved in sports news reports. The author hopes to study the harvest of sports news practitioners in the virtual community sports fans and how they display the internal interaction of virtual community sports fans.

Methods:
Observation method, interview method, text analysis

Results:
The author entering a lot of large capacity and high attention virtual community sports fans found that the internal interaction of virtual community sports fans had important inspiration and influence in the process of sports news report three stages. First of all, in the source stage, the reporter is limited at the scene of the sports competition. Audience which go to the scene probably get faster and more comprehensive information than sports journalists. In addition, professional sports fans may be more in-depth understanding in a local than local media practitioners and may provide unexpected information in the interaction of virtual community sports fans. Second, in the virtual community sports fans, it would generate intense interaction when the source opened. in the virtual community, sports fans may have questions. According to the questions of these sports fans, the news practitioner can
make the report to meet the needs of sports fans. Again, after news reports, sports news journalists can make a summary of the content and the way of the report by the discussion of the sports fans in the virtual community, which is beneficial to the future work.

**Conclusions:**

Through the analysis of the above phenomenon, the author thinks that virtual community sports fans among the influence of the interaction between sports news reporting is a two-way street. Internal interaction of virtual community sports fans can be revealed in daily news reports which have journalists participated in. In source, before news reports and after news reports three stages, virtual community sports fans interaction has important inspiration and influence. Improving the living conditions of the virtual community sports fans and interaction effect can help to improve the quality of sports news report."
Insulin Resistance may Reduce FGF-21 and Adiponectin/leptin Ratio Favoring the Inflammatory State in Obese Adolescents: Long-term Effects of Exercise Training and Multicomponent Therapy

Physical activity and health

“Raquel Munhoz da Silveira Campos, Deborah Cristina Landi Masquio, Flávia Campos Corgosinho, Ana Claudia Pelissari Kravchychyn, Sofia Emanuelle de Castro Ferreira Vicente, Lian Tock, Sergio Tufik, Marco Túlio de Mello, Ana Raimunda Dâmaso”

“Federal University of São Paulo (UNIFESP); Federal University of São Carlos (UFSCar), Federal University of São Paulo (UNIFESP), Federal University of São Paulo (UNIFESP), Federal University of São Paulo (UNIFESP), Federal University of São Paulo (UNIFESP), Weight Science, Federal University of São Paulo (UNIFESP), Federal University of Minas Gerais (UFMG), Federal University of São Paulo (UNIFESP)”

"BR, BR, BR, BR, BR, BR, BR, BR, BR"

“Background:
Insulin resistance is a commonly metabolic complication present in obese population. Recently studies proposed that the synergistic effect of fibroblast growth factor-21 (FGF-21) and insulin might be due to the improvement of insulin sensitivity mediated by this new discovered hormone. The purpose of this study were to investigate the effects of a long weight loss therapy in to differents groups (with and without Insulin Resistance) of obese adolescents on metabolic profile, biomarkers of inflammation and FGF-21 concentration.

Methods:
It was involved 17 post-puberty obese adolescents, aged 15-19 years with body mass index (BMI) greater than >95th percentile of the CDC reference growth charts. Measurements of glucose metabolism, inflammatory biomarkers, body composition and FGF-21 were performed. The adolescents were randomized in two different groups (Insulin Resistance = 8 and non-Insulin Resistance = 9) that were submitted to an exercise training associated with clinical, nutritional and psychological counseling during one year. To statistical analysis it was adopted significant value of $\alpha \leq 5\%$. The effects of therapy was verified by ANOVA two way, post hoc Tukey to parametric data and Wilcoxon test was applied to non-parametric data. Correlations analyses were performed.

Results:
It was showed reduction in body mass in both groups. Only non-Insulin Resistance group was demonstrated improvement of body mass index, body fat mass, body lean mass, waist circumference; and adiponectin/leptin ratio. In the Insulin Resistance group reduces in FGF-21 concentration and adiponectin/leptin ratio were observed. Positive correlation between FGF-21 with body lean mass; and negative correlation between FGF-21/body fat mass ratio with waist circumference were showed. The insulin resistance prevalence reduces from 94% to 38.8% in the study sample.

Conclusions:
According with our results it is possible to note that insulin resistance state is associated with a reduction in FGF-21 concentration in obese adolescents during weight loss process, favoring the vicious cycle between obesity and inflammation. However, exercise associated with clinical approach can improve both metabolic and inflammatory state.

Funding: FAPESP (2013/041364; 2013/19046-0; 2013/08522-6; 2015/14309-9), CNPq (573587/2008-6; 300654/2013-8; 150177/2014-3) and CAPES."
POSTER PRESENTATION

International Society of Sports Sciences in the Arab World Elite Sport Ranking: Evaluating All the National Olympic Committees Performances in International Sport Competitions

Elite performance

Nadim Nassif
Notre-Dame University - Louaize
LB

“Background:
Although according to the Olympic Charter, The International Olympic Committee shall not draw up any global ranking per country, the Olympic medal table has always been used by media, scholars and politicians to compare success in elite sport. Despite its popularity, the Olympic medal ranking has some limitations that prevent it from being a precise measurement for countries performances in international sport. First, the superiority of a gold medal over any number of silver or bronze will create situations where a country having only one exceptional athlete capable of winning a gold medal placed in front of another one endowed with several athletes who were placed 2nd and 3rd. Also, the awarding of one medal per event will allow a low-revenue and low participation sport like sailing, played in 115 countries, to offer 10 gold medals and a sport like basketball, despite being played in 215 countries, having high financial revenues thus attracting a much larger pool of talented athletes, to offer just two gold medals. In addition, only 84 National Olympic Committees won medals in the 2012 Summer and 2014 Winter Olympics combined. Therefore, there are 120 that were not ranked in the last Olympic cycle, which represents almost 60% of all those who participated.

The objective of this work is to present a new international sport ranking Methodology that will determine, on an annual basis, which are the countries that are the most efficient in the establishing of elite sport policies. The goal is also to provide a measurement tool of countries performances for the different national sport authorities, media and scholars in the field of sport science.

Methods:
For the 2014 ranking, the International Society of Sports Sciences in the Arab World collected the results obtained in 2014 by 203 National Olympic Committees in the 35 sports that are part of the Summer and Winter Olympic programs. This ranking of countries is based on a system that attributes
points for the results obtained in each sport which are, then, multiplied by coefficients that vary according to universality and popularity awarded to each of these sports. The final score for each country is subsequently obtained by adding the points in each of the 35 sports.

For the year 2015, results of 205 National Olympic Committees (Kosovo and South Sudan were added) in 52 sports, 35 Olympic and 17 non-Olympic sports were gathered. The non-Olympic sports were chosen on the sole condition that their popularity and universality will be higher than at least one of the Olympic sport.

**Results:**

The International Society of Sports Sciences in the Arab World Elite Sport ranking awarded a position for all the countries that have National Olympic Committees.

**Conclusions:**

By opposition to the Olympic medal table, the International Society of Sports Sciences in the Arab World Elite Sport ranking allowed all the countries of the international sport movement to be present. It also rewarded those among them that have consistent results, present a larger number of athletes succeeding in several disciplines and in sports where there is a higher level of competition."
POSTER PRESENTATION

Investigating the validity of the REALITY web-based physical activity measurement tool for children

Physical activity and health
"Diane Jackson, David McMinn, Sandra Murison, Camila Stella Dias"
"University of Aberdeen, University of Aberdeen, University of Aberdeen, University of Aberdeen and Universidade de Taubaté"
"GB, GB, GB, BR"

"Introduction: Measuring physical activity in children is a challenge as they behave with very peculiar patterns of movement, and also struggle to remember previous activity patterns over long periods of time. Also, the objective physical activity measurement tools available are expensive and not always suitable for research where resources are restricted. Knowing that PA is an important cardio-protective behaviour, and considering the current epidemic of obesity, there is a need to develop a practical, cheap, and child-appropriate tool for the measurement of PA. For this reason, the REALITY (Rowett Energy intake and Lifestyle Internet Tool for You) was developed. This is an online diary that measures PA data from children. The purpose of the present study was to establish validity evidence for the REALITY web tool.

Methods: In this project, 35 children completed the REALITY diary every day for seven days. Also, as a validation parameter, an objective measure was used for comparison: the Actigraph accelerometer. The Actigraph is a uniaxial accelerometer, which was worn during waking hours during the 7 consecutive measurement days.

The accelerometer data were compared with the REALITY results in 3 aspects of movement: time spent in sedentary behaviour, moderate PA, and vigorous PA. Accelerometer data were processed using two sets of cut points (Freedson and Puyua). A physical activity MET Compendium was used to give levels of Energy Expenditure for each of the PA performed by the children that were recorded in the REALITY tool. For the statistical analysis repeated measures ANOVA and Bland Altman plots were performed.

Results: There were no differences between REALITY estimates of physical activity and Freedson Actigraph estimates of activity. There were significant differences between REALITY estimated PA and Puyua estimates of activity. Bland Altman plots indicated good agreement between REALITY PA and Freedson Actigraph activity.
Conclusion: The REALITY tool provides accurate estimates of weekly PA levels among children and may be used with confidence in settings where access to objective measures is restricted."
Investigation of Nutritional KAP and Its effect on Serum Ferritin level among Elite Female Small Ball Athletes

Sport nutrition

"Yuan Zhang, Yan-yan Kang, Hong-juan Liao, Li-xian Wang"


"CN, CN, CN, CN"

"Background: Investigation of nutrition knowledge, attitude and practice (KAP) and its related influencing factors were carried out by questionnaire survey among elite female small ball athletes of Guangdong Province. The athletes serum ferritin was also observed to explore the influence of KAP and different sports events on it.

Methods: 54 female small ball athletes, including 20 handball, 20 hockey and 14 softball, were involved in this study by completing a self-designed daily diet questionnaire based on KAP education mode and their serum ferritin indicators were analyzed meantime. SPSS17.0 statistical software was used in results analysis.

Results: (1) The average scores of nutrition knowledge, attitude and practice were 43.6±11.7 (failure rate 90.7%), 78.4±10.2 (good rate 59.3%) and 63.10±10.17 (pass rate 37.0%) respectively. (2) Statistic results were as follows: The one-way ANOVA results showed that A score (p < 0.001) had great difference between different small ball teams, so did KAP (p < 0.05). The correlation analysis results showed that A-P had a significantly positive correlation (P < 0.001) and that KAP were greatly correlated with educated degree (P < 0.01) and sports events (P < 0.05), while had no obviously correlation with age, training period and exercise level (P > 0.05). The multiple stepwise regression analysis results showed that sports events (p<0.05) and educated degree (p<0.05) respectively was the key influence factor of nutrition attitude and practice, and they both were key factors of KAP. (3) The iron metabolism indicator results showed that serum ferritin had significant difference between different small ball athletes (p < 0.05) and positively correlated with K (p < 0.05).

Conclusions: (1) The lack of nutrition knowledge and the unbalance of nutrition behavior were common in elite female athletes, while they had a positive attitude. It is necessary to carry out a series of effective nutrition education programs to improve their sports nutrition knowledge and to provide support to form their concept of rational nutrition. (2) Sport event is the key factor influencing on overall performance of athletes dietary nutrition knowledge, attitude and practice, which suggested that sports team must pay
more attention to athletes’ dietary management, especially to their meal times arrangement and their breakfast and snacks behavior. Coaches and researchers should give more correct advice and guidance on snacks. (3) The incidence of iron deficiency are consistent with KAP survey results, which hints that it may be an effective measure to prevent iron deficiency anemia by strengthening athletes’ dietary nutrition education."
POSTER PRESENTATION

Investigation on Graduates’ Satisfaction to Quality of Teaching in Physical Cultures. A Case Study of CUPES

Sport pedagogy

"Yupeng Cui, Tian Gao, Bingquan Luo"


"CN, CN, CN"

“Background”: In order to find out what problems there were in undergraduate students’ teaching, and what factors that may affect the quality of teaching in Physical Cultures in China, to provide a basis of taking niche targeting measures to improve the quality of teaching, the 2015 session undergraduate course graduates of the Capital University of Physical Education and Sports (CUPES) were investigated by questionnaire survey.

Methods: Two hundreds and seventy graduates of 2015 session, 149 males, 121 females, were the subjects, who were randomly selected from 9 majors of undergraduate course graduates, with 30 students from each. Questionnaire was designed by ourselves, composed of 25 questions, which included satisfaction toward such 5 aspects as teachers’ teaching work (6 questions), hardware resources of sports venues, labs, library and classrooms (4 questions), teaching quality managements and measures concerned (7 questions), practice teaching, training and competition managements, preparing for starting an undertaking of graduates and their situation in obtaining employment (6 questions), and their original idea about the major and the evaluation of their endeavor during the 4 years in university (2 questions). Expert validity test was taken about the questionnaire, and valid contents evaluation was given by all 5 experts. 270 copies of questionnaires were extended to graduates among 9 majors, 270 copies were retrieved, recovery per cent was 100. 270 copies of questionnaire were valid, effective percentage was 100. Counting and percentage was undertaken about the data.

Results: Those who were satisfied and very satisfied with the teaching ability, mental state, active communication with students about their feedbacks of the teachers counted 77.04%-85.55%, those who were unsatisfied and very unsatisfied counted 4.07%-5.18%. Those who were satisfied and very satisfied with a harmonious relationship between teachers and students counted 84.82%. Those who were unsatisfied and very unsatisfied with the number and categories of sports venues and facilities in the students from 4 majors of physical education, training and coaching, martial arts and performance
counted 13.33%-16.67%. Those who were satisfied and very satisfied with their motor skills in the students of 3 majors of physical education, training and coaching and performance counted 53.33%-80%, there were 3.33%-20% of students who were unsatisfied and very unsatisfied. Those who were satisfied and very satisfied with the organization and management of after-class training counted 60%, unsatisfied and very unsatisfied counted 10%.

Conclusions: Most graduates approved the teaching ability and level of the teachers of our university, and there was a harmonious relationship between them. Prominent problems that might affect the quality of teaching in our university includes: 1. the number and categories of sports venues and facilities can not meet requirements, 2. there was deficiency in the organization and management of after-class training, 3. unsatisfactory in improving of motor skills."
Is infrared thermography a useful tool to determine changes in skin surface temperature in a sport-specific setting?

Technology in sports

"Michael Fröhlich, Oliver Ludwig, Hanno Felder"

"University of Kaiserslautern, Saarland University, Olympic Training Centre"

"DE, DE, DE"

"Background: Infrared thermography (IRT) is a non-invasive, non-contact tool for skin surface temperature (SST) measurement. IRT can be routinely used to quantify physiological changes and their functions in humans in a resting state and during movement (Hildebrandt, Zeilberger, Ring, & Raschner, 2012). In medical research IRT is a valuable diagnosis tool. In sports medicine and sport science, however, IRT has rarely been applied, which explains the need for scientific research in this area. Since the warm-up phase before athletic activity is said to lead to an increase of body temperature and metabolic rate, the following is to examine the extent to which IRT can be used to diagnose the SST changes in the chest region after a 10-minute warm-up, and to estimate the effects of ergometer training on general vs. local muscular warming.

Methods: 20 male sports students (23.0 ± 1.6 years; 75.8 ± 9.0 kg; 181.0 ± 6.8 cm) participated in this study. After a standardized preparation phase, the SST of the lower and upper extremities and of the trunk was determined in a resting state. This was followed by a 10-minute warm-up phase on a standard bike ergometer set to 1.5 W/kg body weight and a cadence of 60-80 rpm. After the warm-up, the SST was determined again for the 1st to the 10th minute of the post-strain phase. Room temperature and humidity were controlled and kept constant for the individual persons.

Results: The 10-minute warm-up resulted in significant change in the SST over the time of measurement (P<0.05). Furthermore, a significant difference of the SST among the different areas of the body was found (P<0.05). The interaction between the time and the area of measurement was also significant (P<0.05). The drop in SST from resting state to the first measurement after the 10-minute warm-up phase was 1.16°C and 3.7% in the trunk musculature. The temperature of the arm musculature dropped by 0.59°C (1.9%), while the temperature of the leg musculature decreased by 1.12°C (3.6%). Ten minutes after the warm-up, the SST of legs and arms was back at the initial state before the strain, but the trunk SST was still 0.74°C (2.3%) lower.

Conclusions: After a general 10-minute warm-up on the bike ergometer, a specific drop in the SST of the directly strained leg musculature and the indirectly strained trunk and arm musculature occurs.
results serve as a proof for the fact that IRT is able to quantitatively and qualitatively determine the primarily used muscle group by analyzing the SST changes occurring during athletic activities. IRT thus represents a procedure to show muscle groups used in sports by means of visual imaging capabilities that can be applied in sports didactics, as well.

References:
Isokinetic Lengthening Contractions Affects Muscular Performance and Delayed Onset Muscle Soreness: Implications for Rehabilitation

Sport medicine and injury prevention

"Maria Alejandra Camacho Villa, Diana Carolina Reina Torres, Esperanza Herrera Villabona, Diana Carolina Delgado Diaz"

"Universidad Industrial de Santander, Universidad Industrial de Santander, Universidad Industrial de Santander, Universidad Industrial de Santander"

"CO, CO, CO, CO"

"Background: Lengthening contractions (LC) are commonly prescribed for Physical Rehabilitation (PR) to strengthen muscles, alleviate pain, and for prevention of musculoskeletal injuries; however, unaccustomed LC induces Delayed Onset Muscle Soreness (DOMS). The study of functional impact of DOMS has been limited to describe the decline on maximal isometric contraction, but Muscular Work (MW) and Time to Peak Torque (TPT) has not been examined yet. The purpose of this study was to describe the changes induced by a session of LC on isometric and isokinetic peak torque (IPT and KPT, respectively), MW, TPT and DOMS under two conditions (Maximal Dynamic Contraction (MDC) and from standing to sitting position) in healthy and physical active young men.

Methods: 16 men performed 200 LC of the quadriceps at 120/s (20 sets, 10 reps). DOMS was assessed with Visual Analog Scale (VAS) under the two conditions. IPT, KPT, MW and TPT, measured during a isometric and isokinetic contraction (60/s). Muscle damage was confirmed by Creatine Kinase activity (CK). Muscular Performance (MP) and DOMS were assessed at baseline (BL), 48h and 96h post-exercise. Comparisons between assessment moments were analyzed by ANCOVA. DOMS and CK activity had to be transformed to normalize its distribution. Data is shown as mean±SEM. The Universidad Industrial de Santander Ethics Committee approved the study.

Results: Relative to BL measurements, IPT decreased by 1.35±0.1-fold at 48h and 1.18±0.1-fold at 96h, (BL:183.4±10.34Nm; 48h:144.6±11.14Nm; 96h:174±16Nm, p=0.03); similarly, KPT decreased by 1.56±0.2-fold and 1.33±0.14-fold, at 48h and 96h, respectively (BL:194.3±12.23Nm; 48h:138.3±12.17Nm; 96h:168.1±15.8Nm, p=0.005). MW decreased by 1.49±0.1-fold at 48h and 1.28±0.1-fold at 96h (BL: 229.1±13.41J; 48h:167.1±12.7J; 96h:199.7±17.54J, p=0.005). No change was detected on neither isometric nor isokinetic TTP at any time-point. Relative to BL, DOMS intensity during a MDC increased by 14.4±10.8-fold at 48h, and 13.7±10.2-fold at 96h (BL:19.3±3.7mm; 48h:44.6±6.5mm; 96h:27.6±5.51mm, p=0.002); DOMS during the functional activity, increased by
25.3±13.1-fold at 48h and 9.5±3.4-fold at 96h (BL:6.6±1.9mm to 35.7±7.4mm at 48h, and to 18.6±5.3mm at 96h, p<0.01). CK activity level increased by 2.0±0.2-fold at 48h, and 3.1±0.7-fold at 96h (BL:244.3±57.5U/L to 429.1±97.3U/L at 48h and to 640.9±161.2U/L at 96h, p=0.04).

Conclusions: Our results show that LC induce significant decline on muscular performance 48h post-exercise, which are maintained at 96h post. The decline in muscular performance is not only on IPT, but also on the MW which has greater implications on muscle function. These MP alterations are accompanied by DOMS, which might also have a direct impact on muscle force production. This results should be considered on the design of PR programs and for studies that examine muscle damage and repair."
POSTER PRESENTATION

Isokinetic strength, flexion/extension ratio and functional ratio for Shanghai adult badminton player

Sport medicine and injury prevention

"Nan Li, Zhizong Tan"

"Shanghai Research institute of sport science, Shanghai Research institute of sport science"

"CN, CN"

"Background: Knee injury commonly happened in badminton players. Their knee strength character is unknown. The aim of this study was to determine and compare the isokinetic strength, flexion/extension ratio and functional ratio for Shanghai adult badminton players. It provides theoretical basis for knee strength evaluation and injury prevention.

Methods: Seven male and eight female badminton players involved in this study. Isokinetic strength was tested for both knees, their flexion/extension ratio and functional ratio was compared between male and female. Both male and female plays completed isokinetic strength for both knees at the speed of concentric 60°/s, 300°/s, and eccentric 60°/s. Relative maximal torque (maximal torque/weight), knee flexion/extension ratio (the ratio of concentric maximal torque of flexion and concentric maximal torque of extension), functional ratio (also named as dynamic control ratio, the ratio of eccentric knee flexor and knee extensor) were compared.

Results: Male players have higher value for hamstring and quadriceps at concentric 60°/s, and quadriceps for 300°/s than female players (1.86±0.21 vs. 1.66±0.16, 3.52±0.37 vs. 3.11±0.40, 2.32±0.24 vs. 1.89±0.09, P<0.01). The extensor is significant stronger than flexor. The knee flexion/extension ratio at the speed of 60°/s is 53.1% for male, and 54.1% for female players. The knee flexion/extension ratio at the speed of 300°/s is 66.3% for male, and 74.0% for female players. The functional ratio of the knee is 56.8% for the male players, and 58.8% for female players.

Conclusion: 1. Male players have higher value for hamstring and quadriceps at concentric 60°/s, and quadriceps at 300°/s than female; 2. There are no significant differences between male and female players for both flexion/extension ratio and functional ratio; 3. The flexion/extension ratio of both male and female is relative low. It shows, comparing with quadriceps, the hamstring is relative low. It could be related with injury, but it still need further research."
Kinematic Evaluation of Lower Limbs during Sprint Riding of Elite Female Cyclists

Jiangliang He
Shanghai Research Institute of Sports Science
CN

**Background:** Speed capability is the most important capabilities for cyclists, which include explosiveness and speed endurance. Sprint riding is a common method used in short-distance cyclists speed capability training. Lower limb kinematic parameters and their changes reflect the character of different cyclists. This study is to investigate the lower limbs kinematics characteristics of female elite cyclists during sprint riding.

**Methods:** Four elite female track cycling athletes (2 of them were Olympic players) underwent a 45s sprint riding by LOOK 496 track bicycle on a roller. The data of this riding collected by three-dimensional motion capture system and SRM system. The three-dimensional motion capture system consisted of 9 cameras (OCUS 400, Qualisys company). Sampling frequency was 120Hz. Subjects were required to keep the whole horse, and do their best to complete each foot pedal. This study selected bike cadence, pedal speed and lower limbs joint range of motion (ROM) as evaluation index. The test results were divided into start stage middle stage and end stage.

**Results:** Through the whole cadence curve, athlete Zhong’s curve duration above 140rpm was 30.5s, athlete Gu’s curve duration above 140rpm was 30s, and athlete Yao’s curve duration above 140rpm also was 30s. In pedal speed, athlete Zhong was the only one who could reach 2.8m/s in two stages (start stage 2.85m/s and middle stage 2.88m/s). In the end stage, ankle ROM of athlete Zhong, Gu and Yao was much smaller than start stage, and hip ROM was larger than start stage. Particularly in the two athletes Gu and Yao, ankle ROM decline exceeded 10° (Gu was 23.789°, Yao was 16.931°).

**Conclusions:** Bike cadence, pedal speed and lower limbs ROM could evaluate the technique of riding. In the end stage, athletes’ ankle ROM decreased, but high level athlete has a smaller decline which indicated that the decline of ankle ROM is one of the factors affecting the speed of the women bicycle athletes.
Learning Effects of Model-based Instruction on Chinese High School Students in Malaysia

Sport pedagogy

"neo hseng zyung, Keh Nyit Chin"

"National Taiwan Normal University, National Taiwan Normal University"

"MY, TW"

“Background: Model-Based Instruction (MBI) is a relatively well-received concept in physical education. This study adopted the sport education model (SEM) and Teaching Game for Understanding (TGfU) model. The purpose of this study was to investigate the learning effects of MBI in basketball class and examine the student’s perception on performing during MBI sessions through practical participation. Methods: There were 44 eight-grade students (34 males and 10 females, average age of 14) participated in 10 MBI sessions, with each session lasted for 40 minutes. Data were collected using cognitive test, skill test, Game Performance Assessment Instrument (GPAI), semi-structured interview and learning materials. The data were analyzed by descriptive statistics and constant comparison method. Results: (a) Significant improvement on cognitive test and GPAI was found; (b) Students did not show any progress on performing the skill test; (c) Interview data indicated that students gained a better understanding on using the correct tactics, techniques and rules in basketball games. With all these learning components; students have changed their perceptions of learning using MBI sessions. Conclusions: The study findings helped PE teacher to develop and implement a better physical education class for students. MBI have also showed positive learning outcomes for students. It is suggested that further study should be done on examining in more detail on progressive development of the tasks given to student during MBI sessions.”
Leptin and Orexin Are Modulated by Resistance Training and Nandrolone Decanoate Administration in Rats

Neuroscience and sport

"Renan Pozzi, Leandro Fernandes, Vânia D’Almeida"

"Universidade Federal de São Paulo, Universidade Federal de São Paulo, Universidade Federal de São Paulo"

"BR, BR, BR"

"Background: The resistance training (REx) and chronic supraphysiological use of anabolic androgenic steroids (AAS) change neuroendocrine responses but the mechanisms involved are unclear. Our aim was to evaluate the effects of nandrolone decanoate (DECA) associated to REx on central and peripheral hormones and neuropeptides related to the energetic balance."

"Methods: The training protocol consisted of high intensity progressive resistance training in ladder for five days per week and the experimental protocol was performed for 8 week. A total of 40 Wistar rats were distributed in 4 groups: C group: exposed to vehicle 3x/wk; T group, REx 5x/wk and vehicle 3x/wk; D group, exposed to DECA (s.a. 5mg/kg) 3x/wk; TD group, submitted to REx 5x/wk and DECA (s.a. 5mg/kg) 3x/wk.

"Results: Efficiency training was confirmed by cross sectional area analysis of the gastrocnemius muscle, which was higher in T and TD groups than C and D groups. There was a reduction of body weight in TD compared to C group and a reduction of total fat of T and TD groups compared to C group. We observed an increase of prepro-orexin mRNA expression in trained groups compared to C group and the absence of changes in NPY, AGRP, POMC, CART, ghrelin receptor, leptin receptor, orexin-A receptor, AR and ER-α mRNA hypothalamic expression. There was an increase of leptin expression in fat tissue in trained groups compared to C group. We also observed a reduction of leptin levels in D, T and TD groups compared to C group and increase of plasma orexin-A levels in D group compared to C and T groups.

"Conclusions: We found that resistance exercise plays a central and peripheral role on energy balance while, DECA changed only peripheral components.

This project was supported by: FAPESP (Fundação de Amparo à Pesquisa do Estado de São Paulo), CAPES (Coordenação de Aperfeiçoamento de Pessoal de Nível Superior), CNPq (Conselho Nacional de Desenvolvimento Científico e Tecnológico) and AFIP (Associação Fundo de Incentivo à Pesquisa). VD’A is recipient of a fellowship from CNPq."
POSTER PRESENTATION


Rehabilitation

"Monique Oliveira Baptista Cajueiro, Paulo Carrara, Luis Mochizuki"

"University of São Paulo - School of Arts, Sciences and Humanities, University of São Paulo - School of Physical Education and Sport, University of São Paulo - School of Arts, Sciences and Humanities"

"BR, BR, BR"

"Background: Injury or compression in the long thoracic nerve is very common in sports and can result serious scathe to the athlete. The long thoracic nerve is purely motor and innervates m. serratus anterior. When m. serratus anterior is paralyzed, shoulder complex may become unstable increasing the injury risk to the shoulder joint and the structures involved. The objective of this review was to analyze the scientific evidence associated to anatomy, symptoms, incidence and treatment of injury or compression long thoracic nerve in the sport.

Methods: Medline Pubmed and Virtual Health Library BIREME were consulted using search with the words: long thoracic nerve and sport, long thoracic nerve and athletes, neurovascular injuries in athletes, neurovascular injuries in sports. Articles were included till December 2015. In Pubmed were meetings 36 results related to research and Bireme 6 results and all duplicate, but only 24 articles were selected for review. Inclusion criteria: studies in humans, athletes, original and review articles about anatomy, symptoms or treatment of long thoracic nerve injury. Exclusion criteria: research in animals, sedentary individuals, articles with high risk of bias (methodological quality below 50%), articles about the validity, reliability or standardization of techniques and specific pathologies (Cancer).

Results: Most of paralysis of m. serratus anterior was caused by traumatic events (26%) sport and work-related (35%). Repetitive trauma is a common cause of long thoracic nerve injuries in tennis and archery athletes (25%) and also in other sports as basketball, football, golf, artistic gymnastics and wrestling. Athletes may notice a decrease in performance during sports activity such as speed and strength. Physical examination may find winged scapula, changes in scapular-thoracic rhythm and serratus anterior muscle atrophy in more severe cases. Furthermore, patients with total paralysis of m. serratus anterior are unable to elevate the affected limb above 110 degrees. The damage to the long thoracic nerve, generally has a good prognosis, and conservative treatment should be introduced initially. The surgical indications are done when symptoms persist for over 1-2 years, in spite of conservative treatment. Usually, surgical procedures do not allow the athlete to return to their normal sports activities, but fortunately surgical treatment is rarely necessary.
Conclusions: Injury of the long thoracic causes paralysis of m. serratus anterior, increasing the risk of major damage to joints and structures involved in the shoulder complex.”
Low cost equipment proposal for elite swimmers strength training

Technology in sports

"Fabricio C C Silva, Roberto Z. Freire, Leandro dos S. Coelho, Augusto C. Barbosa, Rui Menslin"

"Pontifical Catholic University of Parana (PUCPR), Pontifical Catholic University of Parana (PUCPR), Federal University of Parana (UFPR), State University of Campinas (UNICAMP), Pontifical Catholic University of Parana (PUCPR)"

"BR, BR, BR, BR, BR"

Background:
Elite athletes are always facing competition and pushing the human boundaries to the limit, experienced coaches can notice and correct technical mistakes during practice, but once the human perception reaches its limit, the technology can contribute for increasing the athlete’s performance.

Based on recent studies that have shown a strong correlation between strength training and swimming velocity and the devices available for training on the water (as elastics, parachutes and fins), it can be noticed the lack technological resources for this purpose.

In Brazil due to the lack of investments in sports the access to existing technologies for both biomechanical and high performance training analysis are very restricted, being accessible only to a few research centers. By considering that there are technological devices capable of measuring, graphing and displaying, in real time, biomechanical parameters, but those are high cost devices, the purpose of this study is to design and to build a low-cost equipment empowering the resistive training in the water with instantaneous velocity and tethered force measurements.

Methods:
The objective is to develop a practical solution for strength training in swimming and supporting coaches and experts in biomechanics to better evaluate the athletes’ performance. Consequently, this is an applied research and may result in improvements to traditional training processes adopted nowadays. Based on experimental approaches and on the feedback of athletes, the main purpose is to quantify biomechanical parameters, which means translating the data obtained by using the proposed equipment to relevant information for specialists.

Results:
A multidisciplinary team that includes trainers, biomechanical specialist and engineers were involved in this project. The equipment was designed using functional modules for braking, force measurement,
velocity measurement, attachment and user interface. A microcontroller was used to integrate all these modules.

The braking module has a controllable drag force that opposes the swimmer's movement, enabling to impose zero speed for tethered force measurement. The force measurement module works at tethered swimming, and allows measurements of propulsive force by using one load cell with an instrumentation amplifier. The velocity measurement module, uses an enclosed incremental encoder to calculates the tangential velocity.

The equipment is positioned outside the pool and has a non-elastic line that runs through the modules until the athlete. The system user interfaces performs real time data acquisition and control the load for the resistive training.

**Conclusion:**

Tests have been already performed with the measure velocity module showing the precision of the equipment. The next steps for the development are the integration of the force measurement and braking module to the prototype and the calibration and practical trials.

After the Conclusion of the prototype, evaluations will be done with athletes to determine the most appropriate training protocol for improving strength, speed and to evaluate the progress of a resist trained swimmer.”
Lower Extremity Dynamic Balance and Functional Performance in Handball Players following Lateral Ankle Sprain

Rehabilitation

"Simone Lima de Souza, Marbsam Natanael Lopes Eufrázio, Kamila Maria de Oliveira Sales, Jamille Soares Moreira Alves, Edfranck de Sousa Oliveira Vanderlei, Carlos Hermano da Justa Pinheiro"

"FANOR/DeVry, FANOR/DeVry, FANOR/DeVry, FANOR/DeVry, FANOR/DeVry, FANOR/DeVry"

"BR, BR, BR, BR, BR, BR"

**Background:** Ankle sprain is one of the most prevalent kind of sport injuries at worldwide. It is caused by stretching ankle ligaments inducing the disruption of collagen fibres during a forced inversion associated or not to plantarflexion of ankle joint. Following this kind of injury, chronic ankle problems are common including joint pain, muscle weakness and giving way episodes. The purpose of the present study was to investigate dynamic balance and strength in involved and uninvolved lower extremities of handball players after clinical recovery of lateral ankle sprain.

**Methods:** This was a cross-sectional study in male handball players (n=5) with 18 to 25 years-old. Lower limb functional performance was evaluated through single and triple-crossover hop tests for distance. For the analysis of dynamic balance, the star excursion balance test (SEBT) was carried out and the results were expressed as ratio to respective lower limb length. For both hop tests and SEBT a mean of three bouts was calculated to express the results. The history of recurrent ankle sprain and prevalence of giving way episodes were evaluated by a specific former and the prevalence of chronic ankle instability was identified through application of Cumberland Ankle Instability Tool (CAIT). The results were expressed as mean±standard deviation and statistically analyzed by Student’s t test using Graphpad prism software. The ethical issues were considered according to Resolution 466/12 by the National Health Care Council.

**Results:** The time from injury ranges from 3 weeks to 3 years, three of the subjects reported a history of recurrent ankle sprains, the CAIT score of the sample was 21.6±4.2 (range from 18 to 29) and all subjects had giving way episodes. There was no difference between uninvolved and involved lower extremities in single and triple-crossover hop tests. A significant reduction (p<0.05) in scores of SEBT was only observed for anterior (decreased by 5%), anterolateral (decreased by 5%), anteromedial (decreased by 5%), medial (decreased by 7%) and posterior (decreased by 6%) reached distances of involved compared to uninvolved lower limb.
Conclusions: The results presented herein demonstrated that after an ankle sprain, handball players could present decreased dynamic balance in involved ankle even in absence of alterations in single and triple-crossover hop tests suggesting a chronic joint instability. These results indicate that new studies with more subjects are mandatory to confirm this, clarify its involved mechanisms and that balance exercises should be emphasized in the rehabilitation process of this kind of injury."
Lower Quarter Y-Balance Test (LQYBT) Assessment in Goalball Female Brazilian National Team

Sport medicine and injury prevention

"Fábio Luís Feitosa Fonseca, Luiza Ferreira Moreira, João Paulo Marques Nogueira, Júlia Ribeiro Lemos, Ana Beatriz de Almeida Freitas"


"BR, BR, BR, BR, BR"

"Background: Due to enhancing of competitive level of paralympic athletes, musculoskeletal injuries incidence has increased, as well as the Physical Therapy activities in the last Paralympic Summer Games. Goalball is a paralympic modality, in which athletes have visual impairments and consequently changes in neuromuscular control. These characteristics can lead to inadequate pattern of movement and must expose athletes to higher risk of sports injuries. In London 2012, goalball was the sixth paralympic modality that had the greatest quantitative of injuries: 77% of acute injuries, 10% were chronic injuries and 13% of overuse injuries. The presence of injuries can lead to withdrawals at training and competitions, which results in prejudices of individual or collective performance, as well as financial losses. This study aimed to check the prevalence of injuries, in addition to evaluate the lower limbs functional performance of goalball athletes from Brazilian National Team.

Methods: A cross-sectional study was conducted, and individual functional assessments were performed with 11 athletes of Goalball Female Brazilian National Team at pre-season period. For data collection, a validated questionnaire was used to estimate the prevalence of injuries in the last 12 months, and it was also performed the functional evaluation of lower limbs through LQYBT test. This test evaluated neuromuscular control to achieve the three largest distances (anterior, posterolateral and posteromedial) with one lower limb, while the other leg attempted to stabilize the movement. This way, the distances were measured. For data normalization, the composite score was calculate based on the sum of averages of the results, divided by the triple of the lower limb length and multiplied by 100. Data were plotted and analyzed by comparison with normative data already standardized.

Results: The average age of the participants was 26.3 (SD=6.9; min=16 and max=39) years and all athletes have performed high performance training in the last six years. Regarding the prevalence of injuries, results showed that 8 (72%) athletes reported some injury in the last 12 months. When
investigating further, we found that 3 (27%) athletes had chondral knee injuries, 2 (18%) athletes reported ankle injuries, and 2 athletes reported injuries in the lumbar spine. When performing LQYBT analysis, 27.3% (3 athletes) had results below the normative values for their activity, age and gender. However, all of the evaluated (11 athletes) had an increased risk of injury because presented measurement differences between the lower limbs (difference greater than 4cm).

**Conclusions:** Although there aren't normative data for paralympic athletes, these preliminary results show that athletes with some type of visual impairment have prejudices in neuromuscular performance when they perform the functional test LQYBT, when it is compared with parameters of normality for people with no disabilities. Thus, these athletes can be more exposed to lower limbs’ injuries. Individualized preventive programs might be important to reduce these injuries risks and it can support the best sports performance."
Martial Arts And Resilience: The Relation!

Sport psychology

"Sarah Teixeira Gomes, Hélio Mamoru Yoshida, Paula Teixeira Fernandes"

"State University of Campinas - UNICAMP, State University of Campinas - UNICAMP, State University of Campinas - UNICAMP"

"BR, BR, BR"

“Background: The Sport Psychology is one of the training methods pillars, and its knowledge is important for sport performance and individual and emotional development. Resilience is an aspect understudied in martial arts, however, it is very important and can be defined as the ability to overcome adversities. So, the purpose of this study was to evaluate the women’s resilience in martial arts, comparing practitioners and non-practitioners.

Methods: A sample of 50 women was divided in martial arts’ practitioners of (MAP = 25 women) and non-practitioners (NMAP = 25), and paired by age. All the participants answered an identification questions, with sociodemographic information and sports practice. Resilience level was measured by Wagnild & Young (1993) Resilience Scale, translated and validated to Portuguese language, with the score varying to 0 to 175 (0 is no resilience and 175 the maximum resilience’ score). Statistical analysis was performed by using Test t Student.

Results: The women of both group had a mean age of 25 years old (SD=5.28, 19-39). MAP Group: time practice = 4.16 years and 20% were teachers of martial arts. NMAP Group: just 20% practiced some sport. Resilience Scale: MAP’ score (150.5) was higher comparing with the NMAP’ score (129.32), with p<0.001.

Conclusions: With these results, we can observe that martial arts in women have a positive impact on resilience. So, the women who practice this physical activity can deal with some success with any life adversities, reinforcing their resilience."
Maternal exercise during pregnancy increases BDNF levels and cell numbers in the hippocampal formation of adult rat offspring

Neuroscience and sport

“Sérgio Gomes da Silva, Alexandre Aparecido de Almeida, Jansen Fernandes, Glauber Menezes Lopim, Francisco Romero Cabral, Débora Amado Scerni, Ana Virgínia de Oliveira-Pinto, Roberto Lent, Ricardo Mario Arida”

“Hospital Israelita Albert Einstein, Universidade Federal de São Paulo (UNIFESP), Universidade Federal de São Paulo (UNIFESP), Universidade Federal de São Paulo (UNIFESP), Hospital Israelita Albert Einstein, Universidade Federal de São Paulo (UNIFESP), Universidade Federal do Rio de Janeiro (UFRJ), Universidade Federal do Rio de Janeiro (UFRJ), Universidade Federal de São Paulo (UNIFESP)”

“BR, BR, BR, BR, BR, BR, BR, BR, BR, BR”

“Background: Clinical evidence has shown that physical exercise during pregnancy may alter brain development and improve cognitive function of offspring. However, the mechanisms through which maternal exercise might promote such effects are not well understood. The present study examined levels of brain-derived neurotrophic factor (BDNF) and absolute cell numbers in the hippocampal formation and cerebral cortex of rat pups born from mothers exercised during pregnancy. Additionally, we evaluated the cognitive abilities of adult offspring in different behavioral paradigms (exploratory activity and habituation in open field tests, spatial memory in a water maze test, and aversive memory in a step-down inhibitory avoidance task).

Methods: Pregnant rats at gestational day 1 (G1) were randomly assigned into two groups: exercise (n = 17) and control (n = 15). Rats from the exercise group were submitted to aerobic physical exercise in a treadmill (12 m/min over 30 min per day) from 1st to 20th day of pregnancy. The pregnant rats of the control group were transferred to the experimental room and kept on treadmill stopped. After birth, pups from exercise and control groups were housed with their mother in individual cages until weaning at postnatal day 21 (P21). At P60, male offspring from all groups were randomly selected to analyze the BDNF levels by mean of ELISA, the total number of cells by isotropic fractionator method, and the behavioral parameters by open field apparatus (exploratory activity and habituation), water maze (spatial memory) and inhibitory avoidance task (aversive memory).

Results: Results showed that maternal exercise during pregnancy increased BDNF levels and absolute numbers of neuronal and non-neuronal cells in the hippocampal formation of offspring. No
differences in BDNF levels or cell numbers were detected in the cerebral cortex. It was also observed that offspring from exercised mothers exhibited better cognitive performance in nonassociative (habituation) and associative (spatial learning) mnemonic tasks than did offspring from sedentary mothers.

**Conclusions:** Our findings indicate that maternal exercise during pregnancy enhances offspring cognitive function (habituation behavior and spatial learning) and increases BDNF levels and cell numbers in the hippocampal formation of offspring."
Maximal Isometric Strength Development does not Evidence Less Skeletal Muscle Fatigability in Health Adults Man

Sport development

“Rafael Ambrósio Battazza, Frank Shiguemitsu Suzuki, Marcelo Martins Kalytczak, Marcos Rodolfo Ramos Paunksnis, Rodrigo Augusto Ferreira Palomares, Anderson Caetano Paulo, Fabiano Politti, Aylton José Figueira Junior, Danilo Sales Bocalini”

“São Judas Tadeu University, São Judas Tadeu University, Nove de Julho University, Nove de Julho University, Nove de Julho University, Nove de Julho University, São Judas Tadeu University, São Judas Tadeu University”

“BR, BR, BR, BR, BR, BR, BR, BR, BR”

Background: fatigue during voluntary muscular contractions is a complex and multifactorial phenomenon associated with both central changes and adaptations in the neuromuscular system. The rate of force development has been considered an important parameter for measuring neuromuscular performance, however, there are lack of information about the fatigability according maximal strength development in healthy subjects. The aim of this study was analyze the changes in maximal and submaximal peak torque according to maximal isometric force developed.

Methods: twenty healthy male subjects (≥ 18 years) physically independent were submitted to maximal voluntary isometric contraction (MVIC) at isokinetic dynamometer evaluation. Based on MVIC values, the sample was distributed in three tertiles: high strength development (1º tertile), medium strength development (2º tertile) and little strength development (3º tertile). All subjects were submitted to fatigue protocol (10 sets, 10 repetitions, speed of 70°s-1, 40” rest between sets at 70% of MVIC) involved extension (concentric action) of right knee. The following parameters were evaluated before, during and after protocol: maximal peak torque (PTmax), maximal rate of isometric force development (RFDmax) and its slopes at isometric and dynamic condition evaluation.

Results: significantly differences were found in maximal isometric peak torque around groups, however, the drop of 3º tertile (before: 374 ± 23, after: 216 ± 70) of force was higher than 2º (before: 321 ± 11, after: 249 ± 48) and 1º (before: 257 ± 18, after: 175 ± 52). Percentual change of isometric peak torque of 3º tertile (-51 ± 7) was higher than 1º (-36 ± 14) and 2º (-21 ± 12) that differ between them. The isometric load of 3º tertile (262 ± 16) was highest than 2º (225 ± 8) and 1º (180 ± 12). Significantly differences was found in slope (Nm/repetition) of dynamic parameters around groups (3º:
-14 ± 0.7, 2º: -7 ± 0.5, 1º: -9 ± 0.5) and no differences were found between percentual change of concentric peak torque around groups (1º: -47.40 ± 7.57, 2º: -40.38 ± 5.35, 3º: -33.17 ± 4.00).

**Conclusions:** our data indicates that the higher and little strength development does not show higher endurance capacity of skeletal muscle during fatigue protocol in healthy man.”
POSTER PRESENTATION

Meaning of Judo Paralympics

Sport psychology

"CARDOSO, MAGNANI, BRANDÃO"

"Universidade São Judas Tadeu, Universidade São Judas Tadeu, Universidade São Judas Tadeu"

"BR, BR, BR"

"Abstract: The meaning attributed to judo by paralympic athlete is linked to competitive performance and the recognition of the practice in its social context. The aim of this study is to provide elements for reflection and understanding of the meaning of being an athlete of judo Paralympics. The method was based on the life story of an athlete visually impaired judo, winning five medals, four gold and one bronze in Paralympic Games, based on studies submitted by RUBIO (2001). Data were collected through an interview that was asked the athlete to tell his life story and noted the importance that the participant gives to the events and experiences that are striking in their sports career and existence. The results show different meanings by considering the individual characteristics of the subject, the particularities of its sporting background and the experiences in this regard, through the narrative account is emerging in the speech a process of acceptance of disability as well as the experiences over the sports path through the understanding of sports initiation process and all that make up the career of a high performance athlete. Given the above, the meaning attributed to sport appears uniquely in athlete-sport relationship that guides the condition of place to live, be, feel and mean sports practice, because the individual in question binds the meaning of the practice to the feelings that evokes to resort to memory, the important moments and events experienced. Thus, the physical and social space are culturally structured by subject, by experiencing these spaces emotions that remain alive in the collective memory and acquire a meaning that transcends the subject with respect to identification with the fans, the appreciation of moral and ethics, represent the nation, the unceasing struggle for victory, belong to a major club win titles is to get a much desired job because it provides recognition and approval, these important feelings that influence the construction of meaning of sports."
**POSTER PRESENTATION**

**Mechanism of Eccentric Exercise-Induced Damage of Microtubule in Skeletal Muscle of Rats**

Sport medicine and injury prevention

"Junzhi Sun, Xiaoqin Zhao, Ruiyuan Wang"

"Chengdu Sport University, Taiyuan University of Technology, Beijing Sport University"

"CN, CN, CN"

**Background:** Microtubules play a role in maintaining cell shape and movement, organelle positioning and distribution. Our previous studies identified that MAP4 and Op18 involved in the regulation of eccentric exercise-induced damage of microtubule in skeletal muscle cells. But mechanisms of variation in MAP4 and Op18 were not clear. To observe the effect of eccentric exercise on microtubules and related proteins in skeletal muscle of rats. To explore the molecular mechanism of eccentric exercise on microtubules damage in skeletal muscle.

**Methods:** One hundred and twenty-six male SD rats were divided into five groups: control group (C), placebo group (D, intraperitoneal injection of 30% DMSO saline solution), blocking group (S, intraperitoneal injection of SB203580, 15mg/kg), exercise group (E, running on a treadmill with 16° decline at 16m/min for 90min), blocking and exercise group (SE, intraperitoneal injection of SB203580 at 30min before exercise, 15mg/kg). After the termination of experiments, each group was divided into 0h, 12h, 24h, 48h and 72h group. The soleus was detected in the corresponding time points. The protein expressions of α-tubulin, MAP4, Op18, p-Op18, p38, p-p38 were measured by western blot. Co-Immunoprecipitation was used to detect the interaction of MAP4 and p38/MAPK.

**Results:** In blocking an exercise group, the protein expression of MAP4 decreased ($P \lt 0.05$), Op18 expression increased, especially its phosphorylation increased ($P \lt 0.05$). There were interactions between MAP4 and p38/MAPK by Co-Immunoprecipitation, especially strengthened after exercise.

**Conclusions:** The molecular mechanism of eccentric exercise on microtubules damage in skeletal muscle is that eccentric exercise activated p38 kinase, resulting in increasing MAP4 and decreasing Op18, and both of them coordinately regulated causing the damage of microtubule."
POSTER PRESENTATION

Media and the female conquest of social recognition through sports

Sport sociology

"Marina Gomes, Vera Regina Toledo Camargo"

"Unicamp, Unicamp"

"BR, BR"

"It is undeniable the power of the media in reaffirming positions, and this is explicitly noticed in sports. To the women athletes exalted in the news, it is almost always appointed the role of muses. Their achievements have no prominence; instead, galleries with provocative poses, clothing details, accessories, hair and nails are emphatically featured. What matters is to show their beauty, more than their talent. It matters less their achievements in the field or court, qualities, efforts, successes. What you see in the media are beautiful bodies parading instead of bodies capable of impressive feats. They draw attention to the uniform - preferably getting smaller and smaller, as the bikini imposition for beach volleyball female players a few years ago. The relaxation of clothing was announced only in 2012 by the FIVB (International Volleyball Federation) due to religious requirements in some countries. We intend to address the media views and treatment on women's sports, as well as present the heroic efforts of some women who collaborated in bringing Brazilian sports to a new phase which most of the people are unaware. It is crucial to retrace some of these histories, bring interesting moments that show women's resilience and overcoming of adversities through sports, the barriers imposed by an unjust society, and the pursuit of their social space and equality with men. We still struggle with the difficulties imposed by a society that treats women in sports unequally, and these twisted values and behaviours are constantly reframed by the media. Thus, it is imperative that Sports Public Policies revise many points related to equality, to promote the inclusion and growth of women's sports."
POSTER PRESENTATION

Menstrual Cycle Influence in Aerobic Performance and Variable Hemodynamic Athletes of Female Soccer

Elite performance

"Iago Nunes Aguillar 001.077.312-66, Isadora dos Prazeres Vieira"

"Unisanta, Unisanta"

"BR, BR"

“Background: There is no Consensus in the Literature about the Role of the Phases of the Menstrual Cycle on the Aerobic Physical Performance and Hemodynamic Variables yet. Thus, we Tested the Hypothesis that Menstruation Interferes in the Physical Capacity of Female Soccer Players.

Methods: The Sample Consisted of 18 Athletes that were Evaluated in Two Stages (During the same Menstrual Cycle): During the Menstrual Period (DPM) and Outside the Menstrual Period (FPM). Anthropometric Analyzes were Performed. The Measurements of Oxygen Consumption Maximum, Heart Rate, Blood Pressure and Total Test Time Monitored During Cardiological Evaluation Exercise.

Results: The Data of Weight and Body Mass Index were Similar between Periods (60.8 ± 0.3, vs. 61.2 ± 0.1 kg, P = 0:46) and (23.2 ± 0.3, vs. 23.7 ± 0.2 kg, P = 12:42). During Cardiac Evaluation, VO2max and the Test Duration were Higher in FPM Group in Comparison with the DPM Group. (VO2max = 66.0 ± 0.4 vs. 62.2 ± 0.1 units, P = 0.03, Total Time = 14:00 ± 0.1, ± 0.3 vs. 12:00 min, P = 0.04. DPM Group Responded with HR and Blood Pressure Peak Higher than FPM Group. (FCp=201±0.2 vs192±0.3 bpm, P=0.04), (190±0.2 vs 180±0.2 mmHg, P=0.04). Regarding the Deltas of the 1st and 2nd Minute of HR Recovery DPM Group Showed Lower Values Compared to FPM Group. (FCr1= -17±0.2 vs -26±0.2 bpm, P=0.02), (FCr2= -14±0.2 vs -22±0.2 bpm, P=0.01).

Conclusions: The Menstrual Cycle Interfered at Aerobic Performance, HR and BP of Professional Soccer Players, with Significant Difference in Test Effort between the Periods Evaluated, Demonstrating the Influence of the Menstrual Period to the Body's Response to Exercise."
POSTER PRESENTATION

Mental Training of Chinese Diving Team for Olympic Games

Sport psychology

"Zhongqiu Zhang, Binbin Jia, Zhao Zhu"

"China Institute of Sport Science, China Institute of Sport Science, China Institute of Sport Science"

"CN, CN, CN"

"Background:

Psychological diathesis has become a vital factor to help modern athletes succeed, especially under the intense-competition circumstance. Thus, mental training is considered as a crucial part of competitive sports in hopes of maximizing athletes’ performance. Chinese diving team has already won 39 golden medals since 1984, Los Angeles. In order to prolong this legend, researchers have provided psychological monitoring and mental training for multiple Chinese divers in a very long period of time in an effort to strengthen their mental regulation ability and guarantee a solid performance in Olympic game.

"Methods:

It mainly introduced how 4 psychological approaches were used by researchers in effort to help the elite athletes in China national diving team adjusting their mindsets and addressing some mental issues. The whole mental training program here contains 4 main parts which named Solution Focused Brief Therapy (SFBT), Imagery, Facial Expression Recognition Technology (FERT), and Yoga. During the entire mental training process, a series of studies and experiments conducted by researchers had showed that the four psychological techniques reported here are effective. Each part has a brief introduction of the psychological approach involved in and related literatures, as well as an explicit case-study.

"Results:

The results showed that Solution Focused Brief Therapy can help to solve pre-competition, non-adaptive psychological problems among Chinese elite divers. Moreover, imagery training had a positive impact on the improvement of motor skills and the stability of performance. Further, using Facial Expression Recognition Technique for the analysis of emotional behavior is also practicable for helping divers manage their emotions during intense competition. Finally, Yoga training was an accepted and effective way for Chinese divers to release both physical and psychological pressure.

"Conclusions:"
All of these practical and effective methods of mental training are applied by athletes and coaches in Chinese Diving Team and have achieved remarkable success.”
MENTAL TRAINING PRE-COMPETITIVE IN TAEKWONDO ATHLETES

Sport psychology
Rafael Chagas da Silva
Universidade de Mogi das Cruzes
BR

“Background: Brazilian Sport has been gaining space in media and in society in general. Thinking of nowadays, it is necessary to emphasize in days ahead. Taekwondo requires high levels of physical and psychological capacities. In sports, anxiety is regarded the psychological feature most affects sport performance. For this reason this study aims to verify the effectiveness of mental training, verifying cognitive anxiety level, somatic anxiety and self-confidence degree.”

Methods: This research assessed the effectiveness of psychological training system precompetitive anxiety. It was a precompetitive method mental training. Data was analyzed through a precompetitive anxiety scale (CRUZ; VIANA, 1993). Precompetitive mental training has been gaining influence in sports, because there are a lot of studies that relate its effectiveness.

Results: Precompetitive mental training has been gaining influence in sports, because there are a lot of studies that relate its effectiveness. It is known in performance athletes are excessively pressured, impairing their performance. Therefore it is important to work with a precompetitive mental training, and not just to work physical, technical and tactical features.

Conclusions: We concluded precompetitive mental training helps in regulating somatic anxiety, cognitive anxiety and self-confidence.”

Methodological quality of clinical randomized controlled researches about physiotherapy interventions in sports, indexed on PEDro database.

Sport medicine and injury prevention

"Eduardo Signorini Bicas Franco, André Kenzo Saito, Maria Stella Peccin"

"Universidade Federal de São Paulo, Universidade Federal de São Paulo, Universidade Federal de São Paulo"

"BR, BR, BR"

"Background: Evidence-based practice (EBP) has been pointed as the main ally of the warrant of potential professional actions clinically experienced by most physiotherapists as well professionals from other fields, whether in the health field or not. In this context, the evidence data platform in physiotherapy, Phisiotherapy Evidence Database (PEDro), was created in order to enhance the physiotherapy services, providing scientific evidences, by evaluating clinical trials, systematic reviews and clinical practice guidelines published in several journals. Purpose: To identify the methodological quality of randomized controlled trials (RCT) indexed to PEDro data platform in sport’s scope.

Methods: Electronic search strategy in PEDro data platform were conducted by using the following Keywords: randomized controlled trial*, injur*, rehabilit* and prevent*, as a way of selecting possible publications eligible for the study. Thereby, 557 randomized controlled trials, published between the years 1964-2015, received methodological quality’s analysis.

Results: 77 (13.82%) of the analyzed studies exhibited methodological quality between moderate to high, while 480 (86.17%) presented low methodological quality.

Conclusions: The number of randomized controlled trials indexed in PEDro data platform in the sub-discipline sports has become more frequent in recent years, but the poorly designed studies are prevalent, if compared to moderate high quality articles."
Mindfulness in Sport, Science and Recreation

Sport ethics and integrity

"Rev. Carl R. Cramer, Ed.D."

“Barry University”

“US”

“Background: In the School of Human Performance and Leisure Sciences at Barry University (HPLS), transformational moments are encouraged by our vision and mission for students to actualize their almost limitless potential. We open their minds to through contemplation of rightness of behavior and desire to be mindful of the need for an embracing of real values to identify who and whose they are and to become what they will.

Methods: To assess school and university mission engagement, students responded to five questions:
1. How have we led you to an opening of the mind?; 2. How have we led you to a contemplation of the rightness of behavior?; 3. How have we led you to a desire to be mindful of the need to embrace real values in your life?; 4. How have we led you to establish your true identity as a human person?; 5. How have we led you to reach fulfillment? These five questions elicited responses as to how students have been led to a higher level of mindfulness through coursework in the HPLS Department of Sport and Exercise Sciences (SES), through participation on teams as student-athletes in the HPLS Department of Intercollegiate Athletics (ICA) and/or through participation in intramural sports through the HPLS Department of Campus Recreation and Wellness (CRW).

Results: Responses from SES (n=120/242) were grouped by people, experiences, wellness, majors and careers and those who were not led. Responses from ICA (n=54/224) were grouped by people, experiences, team and competition and those that were not led. Responses from CRW (n=5/120) were grouped by people, experiences, and activity. SES students (56.8%) and ICA student-athletes (39%) rated being led most through experiences. The CRW participant’s response was too small (n=5) to determine a main effect.

Conclusions: Responses demonstrated the students’ level of mindfulness thereby giving evidence for school administration program planning for student mission engagement activities. The School of HPLS’s unique blend of the Department of Sport and Exercise Sciences (SES), Department of Intercollegiate Athletics (ICA) and Department of Campus Recreation and Wellness (CRW) provides opportunities to nurture mindfulness.”
Monitoring of anthropometric variables of children and adolescents who practice competitive swimming

Sport and quality of life for adolescence and aging

"Rômulo Ribeiro Sant'ana, Debora Dias Ferrareto Moura Rocco, Alexandre Galvão da Silva, Isadora dos Prazeres Vieira, Iago Nunes Aguillar, Raíssa Lara Esteves, Paloma Garcia"

"Universidade Santa Cecília, Universidade Santa Cecília, Universidade Santa Cecília, Universidade Santa Cecília, Universidade Santa Cecília, Universidade Santa Cecília, Universidade Santa Cecília"

"BR, BR, BR, BR, BR, BR, BR"

"The Aquatic Environment Permits Different Kinds of Physical Activities, Among the Modalities in the Water, Swimming is the Most Widely Practiced Around the World and Highly Recommended for All Age Groups (Andrews, 2000).

According to the Ministry of Health and Education (1986) Childhood and Adolescence are Important Periods in Which the Organism is Sensitive to Biological Changes. Children and Adolescents Suffer Positive and Negative Environmental Influences and Are Constantly Subjected to Bad Eating and Behavioral Habits in the Long Term Could Compromise Your Health. (Sichieri, 2008)

In Adolescence Occur Several Changes in the Body Structure of the Individual. Size, Shape, Circumference, Body Composition and Fat Percentage Are Some of the Variations. (Barbieri Et Al, 2007).

It Is Well Documented that Physical Exercise Are Crucial to Promote Health and Weight Control (Tolfrey; Campbell; Jones, 2004).

Opposite Inactivity, There Is A Precocious Specialization Process in Which the Prepubescent Child Is Subjected to Long Training Periods in a Specific Modality Aiming High Performance. (Kunz, 1994)

This Work Seeks to Understand if This Training Is Hampering the Development of These Children and Adolescents.

The Aim of This Study Is to Monitor the Development of Anthropometric Variables, Body Composition of Children and Adolescents Practicing Competitive Swimming.

We Were Made 3 Evaluations Carried Out in August, November 2015 and February 2016 in Children Aged 7 to 12 Years Training 4-6 Times a Week Competitive Swimming at the University Santa Cecilia. And Also Will Be Realized Two More in the Months of June and August.

Individuals Are Being Weighed on a Digital Scale Filizola Precisely 0.1kg
Stature Is Being Evaluated With a Portable Stadiometer Sanny.

Trunk-Cephalic Height, Length and Width of the Feet and Hands Are Being Evaluated According to the German Guideline DIN 33402 (1981)

The Wingspan of Superior Limbs Is Being Made From the Distance From the Tip Right Middle Finger to the Tip of the Left Middle Finger.

To Circumference of Arm, Wrist, Chest, Waist, Hip, Thigh And Ankle Was Used a Metal Tape Cescorf With Precision 0,1 Cm.


**Results**

<table>
<thead>
<tr>
<th></th>
<th>August 2015</th>
<th>December 2015</th>
<th>February 2016</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nº</td>
<td>57</td>
<td>64 54</td>
<td></td>
</tr>
<tr>
<td>Age (years)</td>
<td>10,05±1,01</td>
<td>10,48±1,1</td>
<td>9,93±1,4</td>
</tr>
<tr>
<td>Height (Cm)</td>
<td>148±0,09</td>
<td>148±0,09</td>
<td>145,36±11,13</td>
</tr>
<tr>
<td>Weight(Kg)</td>
<td>39,66±7,89</td>
<td>40,35±8,33</td>
<td>38,57±9,38</td>
</tr>
<tr>
<td>BMI(Kg/M2)</td>
<td>17,95±2,37</td>
<td>18,14±2,31</td>
<td>18,01±2,61</td>
</tr>
<tr>
<td>Wingspan(Cm)</td>
<td>150±0,09</td>
<td>151,16±10,61</td>
<td>148,1±13,23</td>
</tr>
<tr>
<td>%Fat</td>
<td>23,39±6,70</td>
<td>23,93±7,69</td>
<td>21,56±8,71</td>
</tr>
</tbody>
</table>

We Conclude that This Training Does Not Influence the Anthropometric Variables of the Population and There are Indications that These Individuals are Already Being Naturally Selected for the Sport.”

POSTER PRESENTATION

MOOD STATE BEHAVIOR IN MAXIMAL CARDIOPULMONARY EXERTION TESTING IN SOCCER ATHLETES.

Neuroscience and sport

“Helton Dias, Luis Felipe Tubagi Polito, Maria Regina Ferreira Brandão, Aylton José Figueira Junior, Henrique Rodrigues Nunes, Yago de Moura Carneiro, Rodrigo Braghetto, Valter da Conceição Ribas Lima, Vanessa Stuchi Sallero, Marcelo Callegari Zanetti”

“Universidade São Judas Tadeu, Universidade São Judas Tadeu, Universidade São Judas Tadeu, Universidade São Judas Tadeu, Universidade Metodista de São Paulo, Universidade Metodista de São Paulo, Lausanne Paulista Futebol Clube, Lausanne Paulista Futebol Clube, Universidade Metodista de São Paulo, Universidade São Judas Tadeu”

"BR, BR, BR, BR, BR, BR, BR, BR, BR, BR"

“Background: the Brunel mood scale has been efficient to evaluate the stress associated with the overtraining, and it can be used in different periods of training programs, demonstrating association among fatigue, perceived exertion, intensity, density and volume of training session. Thus, the purpose of this study is to analyze and to compare the mood states of soccer athletes thirty minutes before, immediately before and immediately after of maximal cardiopulmonary exertion testing performed on the treadmill.

Methods: the sample consisted of twelve soccer players with average age of 18, 33 ± 0, 78 years old, average weight of 70, 82 ± 7, 36Kg, average height of 1, 78 ± 0, 07m, average body mass index of 22, 30 ± 1, 47 Kg/m², average body fat percentage of 13, 81 ± 3, 00%, average fat free mass of 60, 87 ± 4, 75Kg and average resting metabolic rate of 1848, 25 ± 147, 36 Kcal. The sample was then subjected to the following exhaustion protocol: 3-minute stimulus and 1-minute passive recovery, increasing the speed in 1 km/h per stage. The verification of mood states was performed thirty minutes before, immediately before (athlete on the treadmill already) and immediately after of fatigue protocol (athlete still on the treadmill). For statistical analysis, normality test was performed as well as Kruskal Wallis using Dunn’s nonparametric comparison for post-hoc.

Results: No statistical difference was found among the three moments of the testing for tension, depression, anger and vigor. However, the fatigue immediately after the testing was significantly higher compared to the two earlier moments.

Conclusions: The fatigue identified by Brunel mood scale can indicate the exhaustion level induced by maximum testings in soccer athletes.”
POSTER PRESENTATION

Motor coordination, anthropometry and dermatoglyphics in the school literacy process

Genetics and sport

"José Fernandes Filho, Andre Luis de Souza Luna, Paula Roquetti Fernandes"

"Universidade Federal do Rio de Janeiro, Faculdade Nobre, Centro de Excelência em Educação Física"

"BR, BR, BR"

“Background:
The study analyzes the body weight and stature, the motor coordination, static equilibrium and dynamic equilibrium and dermatoglyphics characteristics of children of both sexes and aged 6 and 7 years, which presented difficulties with those that did not present difficulties in the process of literacy in a private school of Feira de Santana, Bahia-Brazil

Methods:
The anthropometry is used to identify the body weight and stature, the ENE test to measure motor coordination, dynamic and static balance and dermatoglyphic to identify the characteristics of the dermatoglyphics. The sample was composed of 61 children divided into two groups, those who had no difficulties in the process of literacy (N/TEM = 37) and the group of presenting difficulties (S/TEM = 24).

Results:
The result of the comparison of the groups (S/TEM) and (N/TEM), the test in the ENE, the motor coordination (p = 0.008), dynamic equilibrium (p = 0.005), children of the group (S/TEM) ENE test, had a higher number of negative results (75%) mainly in motor coordination and dynamic equilibrium, so prevalent low motor coordination and difficulty in dynamic equilibrium. On dermatoglyphics, STQLE (p = 0.001), STQLD (p = 0.001), STQL (p = 0.005), D10 (p = 0.006), arc (p = 0.002), loop L (p = 0.613) and whorls W (p = 0.013). The group (S/TEM) found greater amount of arc (A), the smallest number of loop (L) and whorls (W) found in smaller quantities that characterize the simplest designs that provide for low motor development.

Conclusions:
Therefore the study identifies that the anthropometry does not interfere in the cognitive, the test in ENE allowed to affirm that the motor coordination is the major valencia physics, dermatoglyphics has identified that children who exhibit difficulties behind genetic few References in motor skills, and more can be a new tool to anticipate and identify the motor difficulties, assisting in the prescription of physical education classes to the needs of children and serving as aid in the process of literacy."
POSTER PRESENTATION

“Multifunctional Gymnastic Program”: Sesc São Paulo experience in the implantation process of a physical exercise program, by promoting quality of life.

Physical activity and health

”Luciana Itapema Alves Melher, Carolina Seixas Nicolau”

”Sesc, Sesc”

”BR, BR”

”Sesc (Social Service of Commerce) is a private institution, nationwide, established in 1946. Its purpose is to promote social welfare, improve quality of life and cultural development for workers of goods, services and tourism, as well as the community as a whole.

Sesc – in São Paulo State – has currently 36 activity centers, which provide for the community a socio-cultural action committed to democratize access to the citizenship tools.

The development of programs and projects that stimulate the expansion of experience related to sports and physical activities are part of these actions. As well as being aware of the importance of continuing these practices every day in one’s life to promote quality of life and wellbeing.

In this context, Sesc São Paulo has developed a physical exercise program called “Multifunctional Gymnastic”. It is an innovative exercise program that takes into accounts the characteristics and expectations of each participant. Directed for young people from 12 years old, adults and elderlies, the participation can be on individual manner or with other people (group class). The exercise prescription is drafted from the perspective of the physical abilities development through motor skills, gradually increasing the complexity of movements performed; focusing on functionality, cognition and development of neuroplasticity.

The creation and implantation of this program took place from dialogic meetings involving Physical Activities Instructors from Sesc units, Exercise Program Supervisor of Sesc Head Office, and a Consultant / Researcher in this area in the Physical Education and Sports School of University São Paulo, intending to exchange experiences and establish an area for the construction of action and learning strategies.

This process began as trials in 2004 and was consolidated from March, 2010 to July, 2013, by creating a working group to systematize this institutional program. This experience was significant, enabling, in 2013, 61 physical activity instructors to be prepared to multiply practical and theoretical knowledge to others 364 physical activity instructors who had worked in 29 units that had developed the “Multifunctional Gymnastic Program”.
From that time on, in 2014 and 2015, support training was developed, always together with the working group participation, and in each edition, 60 physical activity instructors more updated their knowledge about the program, totaling 181 physical activity instructors prepared as multipliers.

In 2015, “Multifunctional Gymnastic Program” is present in 32 Sesc units, with approximately 45 thousand participants enrolled, from young to elderlies.

The Conclusion is that dialogic meetings and multiplier working group formation are efficient and effective strategies to the elaboration and implantation of an exercise program, to practical and theoretical alignment, to the prescription of physical exercises in accordance with recent academic studies, as well as in supporting of long-lasting and motivational physical exercise program, promoting to participants quality of life and wellbeing.”
Multilevel Modeling to Interpret Changes in Intermittent Endurance Run in Adolescent Basketball Players Across a 4-Month Competitive Period

Elite performance

"Humberto Moreira Carvalho, André Soares, Thiago Leonardi, Larissa Breder, Marina Boscariol, Carlos Eduardo Gonçalves, Roberto Rodrigues Paes"

"University of Campinas - UNICAMP, University of Campinas - UNICAMP, University of Campinas - UNICAMP, University of Campinas - UNICAMP, University of Campinas - UNICAMP, University of Coimbra, University of Campinas - UNICAMP"

“BR, BR, BR, BR, BR, PT, BR”

“Background: Intermittent high-intensity endurance is a relevant component of fitness in competitive basketball players. In particular, it may be relevant for the successful development of young basketball players. The present 4-month longitudinal study examined physical growth and development of intermittent endurance run performance in young Brazilian basketball players aged 11–15 years applying multilevel regression modeling to partition the influence of growth, body size, training experience, training and game exposure.

Methods: Anthropometry, maturity offset, years of training experience and Yo-Yo Intermittent Recovery level 1 test (Yo-Yo IR1) of players from the under-12, under-13, under 14 and under-15 teams were measured at pre- and end- 4 month competitive season (n = 44 considered for analysis). Training and game exposure were recorded across the 4 month period of observation. Three-level longitudinal models were adopted considering with each measurement (level 1) within each player (level 2) nested by age group team (Level 3).

Results: A substantial increase in Yo-Yo IR1 was observed across the for 4-month period (37.9%, CL 18.5 to 0.57), considering the significant random effects for both intercept and changes across the 4-month period at level 2 (between players) and level 3 (between age-group teams). The changes of Yo-Yo IR1 performance, accounting for the age group differences, were significantly influenced by somatic maturity status and body mass (p<0.01). Game exposure had a significant influence in Yo-Yo IR1 changes (p=0.01) in contrast to training exposure (p=0.18) and years of experience in formal basketball training (p=0.18).

Conclusions: The changes of intermittent endurance run performance in response to a 4 month competitive period, during pubertal years, in young Brazilian basketball players appear to be mostly influenced by inter-individual variation in biological maturity status and and game exposure. The results
highlight the importance of considering multilevel modeling to interpret the complex interactions of
growth, training and game exposure on performance development in adolescent basketball players.

Acknowledgements: The first author was supported by a grant from the Coordenação de
Aperfeiçoamento de Pessoal de Nível Superior [PNPD/CAPES/2013]. The patience and cooperation
of the young athletes, coaches and parents is acknowledged by the authors.”
POSTER PRESENTATION

**Muscle Contraction Speed Affects Muscle Performance and Delayed Onset Muscle Soreness**

Sport medicine and injury prevention

"Maria Alejandra Camacho-Villa, Diana Carolina Reina-Torres, Esperanza Herrera Villabona, Diana Delgado-Diaz"

"Universidad Industrial de Santander, Universidad Industrial de Santander, Universidad Industrial de Santander, Universidad Industrial de Santander"

"CO, CO, CO, CO"

Background: Lengthening contractions (LC) are widely used to treat tendinosis and strength deficits in sports activities, training and muscle rehabilitation; yet, no studies have compared its functional impact based on the contraction speed and examined changes in muscle performance variables (MP; peak torque, work and power) and delayed onset of muscle soreness (DOMS). Therefore, the purpose of this study was to compare the changes induced by a session of slow (S:30°/s) vs. fast (F:120°/s) LC on MP and DOMS in healthy and physically active young men.

Methods: 8 men were randomized to either S or F group. All subjects performed 200 isokinetic LC (20 sets, 10 reps) of the quadriceps of their dominant leg. Amount of work (W) and peak torque (PT) per set in each group was calculated; MP and DOMS were assessed at baseline and 48h post-exercise. MP dependent variables were isometric and isokinetic (60°/s) PT, time to peak (isometric and isokinetic) and W. Data were analyzed by paired and unpaired t-test for comparisons within each group and between groups, respectively. The Universidad Industrial de Santander Ethics Committee approved the study.

Results: The average total W (1661J) and PT per set (172.8Nm) decreased over the 200 repetitions (p<0.001) in both groups. During exercise in the S-group the mean PT during sets 16-20 (135.7±3.4Nm) was 34.2% lower that PT from the first 5 sets (207.8±6.6, p=0.001). In the F-group the mean PT during sets 16-20 (146.4±2.2) was 33.5% lower than the first 5 sets (220±5, p<0.001). However, there was a greater decrease in PT during the sets 16-20 in the S compared to F-group (p=0.04). The mean total W in the S-group during sets 16-20 (1298±32.9J) was 38.1% lower than the first 5 sets (2098±61.1J, p<0.001). In the F-group, the mean total W during the sets 16-20 (1334±15.1J) was 37.8% lower than the first 5 sets (2114.2±36J, p<0.001). No detectable differences during the exercise bout were detected for mean total W per set between groups (p=0.3). Comparisons of MP and DOMS between baseline and 48h post within groups showed a decrease in isometric PT of 31.3% in the S-group (pre:221, 4±34, 5Nm; 48h:152±21.5Nm, p=0.03), and 20.9% in the F-group (pre:194.4±23.5; 48h:154±21.5Nm, p=0.03).
48h:153.3±31.7Nm, p=0.03). DOMS increased in the S-group from 5.3±2.5 to 35.5±16.6 mm 48h-post (p=0.01) and from 0.8±1 to 28.7±19.5 mm (p=0.03) in the F-group. The other MP variables did not show change after the exercise bout and no differences between groups were detected.

**Conclusions:** In spite of the muscle movement’s speed differences, our results indicate that MP and DOMS are affected by a single bout of LC. It has been described that motor units recruitment occur differently based on the movement’s speed, also some muscle fiber types are more susceptible to damage induced by exercise; however, our findings do not show any impact of these physiological differences on the muscle group performance."
POSTER PRESENTATION

MUSCLE DAMAGE AND REDOX BALANCE CHANGES INDUCED BY MARATHON IN DIFFERENT WEATHER CONDITIONS

Sport medicine and injury prevention

"Rodrigo Assunção de Oliveira, Edenilson Pinto da Silva Junior, Ana Paula Sierra Reyes, Marino Pereira Benetti, Maria Augusta Pedutti Dal'Molim Kiss, Carlos Aníbal Sierra, Nabil Ghorayeb, Rafael Herling Lambertucci, Maria Fernanda Cury-Boaventura"

"Cruzeiro do Sul University, Cruzeiro do Sul University, University of São Paulo, University of São Paulo, University of São Paulo, Dante Pazzanese Institute of Cardiology, Dante Pazzanease Institute of Cardiology, Cruzeiro do Sul University, Cruzeiro do Sul University"

"BR, BR, BR, BR, BR, BR, BR, BR, BR"

“Background: Exercise-Induced Muscle Damage Involves Cellular Disturbances Depending to The Intensity, Duration, Modality and Environments Conditions. Exacerbate Reactive Oxygen Species (ROS) Production Promote Contractile Dysfunction Resulting in Muscle Weakness and Fatigue (Kerksick and Zuhl, 2015). Myocytes Also Contain an Antioxidant Defense System That May Compensate the Oxidative Damage. However, Heat Stress Causes a Disengagement of the Mitochondrial Respiratory Chain, Reducing Antioxidant Defenses and Resulting Oxidative Stress. The Aim of This Study Was to Investigate the Effects of Long-Term Exercise On Muscle Damage and Redox Balance in Different Weather Conditions.


RESULTS: Marathon Race Induced an Increase On Troponin (22-Fold), Myoglobin (22-Fold), ProBNP (4-Fold) And TBARS (2-Fold) Immediately After Race and CK (7-Fold) And CKMB (7-Fold) 24 H After Race, Indicating an Oxidative Stress, Cardiac and Muscle Damage. The Cardiac Muscle Markers and TBARS Returned to Their Initial Values 72 H After. The Weather Conditions Not Affects the Muscle Damage Markers and TBARS. The Marathon Also Induced an Elevation On SOD3 Activity 24h After Race Just in Temperate Conditions. In Addition, SOD 3 Activity Was Smaller Both Before (1-Fold) And
24 H After (2-Fold) In Hot Environment. In Contrast, GPx Activity Was Lower (1, 5-Fold) In Temperate Environment and Its Below of the Established Standards. We Not Observed Changes On GPX and CAT After Marathon in Temperate and Hot Environment.

**DISCUSSION:** Rhabdomyolysis Can Be Caused by Intense and Prolonged Exercise Causing Muscle Pain, Tenderness and Limited Mobility, having as Aggravating a Hot and Humid Environment (LATHAM J, 2002). However, Few Studies Investigated the Combined Effect of Both Heat Stress and Exercise On the Redox Balance and Muscle Damage. Previous Study Observed That Hot Environment and Mild Exercise Increased F2-Isoprostanes, While, Had No Impact On Lipid Hydroperoxides, As We Demonstrated by TBARS (MCANULTY Et Al., 2005). Knez and Périard (2014) Reported That the Hot Environment Does Not Exacerbate the Oxidative Stress, But Significantly Elevates Antioxidant Capacity Match-Play Tennis and Suggest That Large Number of Balance Redox Parameters Should Be Investigated to Determine the Role of Oxidative Stress in Different Environment. We Demonstrated That Marathon Race Induced Muscle Damage in The Same Extension in Hot and Temperate Environment. Interesting, The SOD3 Activity Decrease in Hot Environment and This Changes Should Be Explored to Understand the Consequence of This Change in Different Environments.”
Muscular Performance Characterization in Lower Limbs of Women's Soccer Professional Athletes in Preseason

Background: The investigation of the strength asymmetry between the lower limbs muscles must be considered in the ratings in the pre-season, assisting in the development of preventive programs to injuries. The goal of this study was to perform a descriptive analysis of parameters related to muscular performance of female professional football athletes in the pre-season phase.

Methods: participated in this study 27 female professional football athletes belonging to a participant team of the elite of Brazilian soccer. The mean age of the players was 25.81 ± 3.58 years, the stature of 1.66 ± 0.25 m and body mass, 64.02 ± 7.35 kg. An isokinetic dynamometer (Biodex System 4) was used to evaluate the muscular performance of the athletes in the knee joint. Assessments occurred only in the presentation of the players for the pre-season the Brazilian League. For evaluation of flexor and extensor muscles of the knee, the speeds used were 60°/s, 180°/s and 300°/s.

Results: The results (mean ± standard deviation) of peak torque (normalized by body mass of each individual) were of 180.85 ± 25.46 for dominant leg and 177.07 ± 26.09 for non-dominant leg during extension and 102.02 ± 16.88 to dominant leg and 93.33 ± 14.37 for non-dominant leg during flexion, valued at 60°/s. The average power of knee extensors were 226.04 ± 29.43 for dominant leg and 218.76 ± 27.73 for non-dominant leg and 154.04 ± 22.09 to dominant leg and 142.45 ± 24.36 to non-dominant leg during flexion, valued at 180°/s. The average results of total work were 1982.33 ± 217.95 in dominant leg and 2004.14 ± 221.003 for non-dominant leg during extension and 1600.74 ± 339.54 to dominant leg and 1598.33 ± 351.94 for non-dominant leg during flexion, measured at a speed of 300° / s. The agonist / antagonist relationship was 55.46 ± 5.97 to dominant leg and 52.11 ± 5.15 for non-dominant leg, valued at 60°/s.

Conclusions: The results of this study provide the isokinetic muscle performance reference values of professional athletes in women's football. In this sense, normative data allow the comparison of test
results of an athlete with the reference values of their group, enabling to establish a level of muscular performance to be struck with training.”
Myoglobinemia and Mild Muscle Soreness following an Adventure Sprint Race

Sport medicine and injury prevention

"Taisa Belli, Alex Harley Crisp, Rozangela Verlengia"

"Universidade Estadual de Campinas (UNICAMP), Universidade Estadual Paulista Júlio de Mesquita Filho (UNESP) - Campus Araraquara, Universidade Metodista de Piracicaba (UNIMEP)"

"BR, BR, BR"

Background: Adventure race (AR) is an ultra-prolonged sport performed in an intense interaction with different nature environments, which has experienced significant growth in later years. It is composed of multiple sports disciplines, demanding a good physical conditioning linked to a large cognitive component, and totaling from 3-24 hours (sprint races) to 1-10 days (expedition races). According to previous studies involving similar ultra-endurance events, it is plausible to believe that a certain degree of rhabdomyolysis exists during an AR, which could lead to increases in muscle soreness and consumption of non-steroidal anti-inflammatory drugs (NSAID). However, to our knowledge, these conditions were not previously assessed in the literature during an adventure sprint race. Thus, the aims of this study were to verify myoglobin plasma levels (a rhabdomyolysis marker), the level of perceived pain and NSAID usage following an adventure sprint race.

Methods: Sixteen athletes (39.4±1.6 years old; 169.9 ± 1.5 cm of height; 70.4 ± 2.5 kg of body weight; 24.4 ± 0.7 kg/m2 of body mass index; 3,219 ± 358 METs of score in the International Physical Activity Questionnaire) from eight teams (05 female, 11 male) were volunteers of this investigation. They performed an official 35-km adventure race in Minas Gerais State/Brazil, composed of mountain bike, trekking, water trekking, orienteering and rappelling disciplines. Blood samples were collected for analysis of myoglobin levels (Architect-Abbott) and athletes were asked to rate their level of muscle soreness at pre- and post-race moments. Muscle soreness was evaluated by a Visual Analogic Scale (i.e., a 10 cm-long axis ranging from 0 to 10, where 0 means “no pain” and 10 means “unbearable pain”) when the thigh were palpated during knee flexion and extension conditions. Moreover, athletes were asked about their NSAID use at post-race moment. Comparison of myoglobin levels at pre and post-race moments was verified to Wilcoxon test. Data are reported as mean ± SEM. Statistical significance was set at P<0.05 (Statistic 7.0, Statsoft, USA).

Results: The subjects completed the race in 9.5 ± 0.2 h (3.7± 0.1 km/h of average velocity). Plasma concentrations of myoglobin were within the reference range for all athletes at pre-race moment and presented a pronounced and significant increase (2, 755± 125 %; P<0.05) after the race. Muscle pág. 921
soreness rose from “no pain” to “mild pain” from pre- to post-race moments, and no consumption of NSAID was reported by all the volunteers. Furthermore, none of the athletes experienced an adverse medical event requiring medical attention during or after the race.

**Conclusions:** We concluded that rhabdomyolysis with myoglobinemia was similar, whereas muscle soreness and NSAID usage were lower in athletes following a 35-km adventure sprint race than those found in previous studies involving adventure expedition race and triathlon competitions. When considering these data together, we could argue that adventure sprint race can induce exertional rhabdomyolysis, which remains asymptomatic and not related to medicine use often observed in ultraendurance athletes."
Neuroinflammatory response in aged rats submitted to strength training
Neuroscience and sport

“Erivelton Fernandes França, Fabrízio dos Santos Cardoso, Fernando Tadeu Serra, Alexandre Aparecido de Almeida, Pedro Luiz Garcia Braga, Francisco Romero Cabral, Miguel Luiz Batista Junior, Ricardo Mario Arida, Sérgio Gomes da Silva”

“Universidade de Mogi das Cruzes, Universidade de Mogi das Cruzes, Universidade de Mogi das Cruzes, Universidade Federal de São Paulo (UNIFESP), Universidade Federal de São Paulo (UNIFESP), Hospital Israelita Albert Einstein, Universidade de Mogi das Cruzes, Universidade Federal de São Paulo (UNIFESP), Universidade de Mogi das Cruzes”

"BR, BR, BR, BR, BR, BR, BR, BR, BR"

“Background: Aging is often accompanied by cognitive decline, memory impairment and an increased susceptibility to neurodegenerative disorders. Most of these age-related alterations have been associated with deleterious processes such as neuroinflammation. Indeed, higher levels of pro-inflammatory cytokines and chemokines are found in the aged brain. This high pro-inflammatory response represents one of the mechanisms that contribute to age-associated neuronal dysfunction and brain vulnerability. In this way, we conducted an experimental study to investigate whether a strength exercise program could promote changes in inflammatory response in the brain of aged rats.

Methods: Twelve male rats Wistar (20 months of age) were randomly divided into two groups: strength training (ST; n=6) and control (CTL; n=6). The ST group was submitted to seven weeks of strength training by climbing a ladder with load (from 50 to 75% of maximum load supported). Twenty-four hours after the last training session the blood and brain (cortical and hippocampal regions) from CTL and ST groups were extracted to analyze the levels of cytokines and chemokines by Luminex MAGPIX system.

Results: The aged rats from ST group showed a significant decrease of serum levels of IL-13, IL-10 and TNFα and increase of levels of IL-18 compared to aged rats from CTL group. In the brain cortex, reduced levels of MIP-1α, EGF, IL-18 and IP-10 were observed in aged animals from ST group compared to CTL group. In the hippocampus, strength training decreased the levels of IL-1α, Rantes and increased the levels of G-CSF and IL-18.

Conclusions: The strength training is able to change the levels of cytokines and chemokines in the blood and in the brain of aged rats. Depending on the investigated structure (blood, cortex and hippocampus), pro and/or anti-inflammatory effects were noted after training. However, in most cases,
the strength training resulted in a beneficial anti-inflammatory response, mainly in the hippocampal region."
POSTER PRESENTATION

“Never Stop Trying”: Understanding Experiences of “Being an Athlete in Transition”

The athlete’s career

"KEILA SGOBI DE BARROS, MARCELO AFONSO RIBEIRO"

"SEE, USP"

"BR, BR"

“Background: The sport career is a longitudinal process consisting of several phases characterized by the degree of specialization sports, stage of life’s athlete on human development, social relations and academic level. During this, a series of events occurs, which can be seen as transitions, since they turn the way how athletes interact with the world. Unlike researches found on sport career transitions - covering the understanding of career transitions objectively, primarily targeted at their objective description, characteristics and coping strategies developed by athletes, the goal of this proposal was to understand how basketball players experience transitions that are part of the sport career development process, based on reports of athletes and former basketball athletes. In this sense, we proposed the use of the term transitions during sports career in place of sports career transitions, which often is synonymous with the sports career retirement in the literature. This appointment frees us from the shackles of periodization of the sports education, from the categories set out in the sports, from the predictability conditions of unpredictable.

Methods: We conducted a qualitative study: they were interviewed 6 athletes between 15 and 23 years-old, men and women, from the question “Tell me about your sports career”. The analysis was based on the phenomenological method developed by Husserl applied to phenomenological interview.

Results: After interviews, transcriptions, phenomenological reductions required and the application of intentional crossing method for meeting the experiences of athletes, we find five essential experiences in the transitions processes in career: the nameless affection; the eternal pursuit - “Never stop trying”; recognize/know yourself; “with basketball I learned… things to life” and defensive balance, which came in the existential questions explored by Merleau-Ponty (freedom, temporality, body in the world and intersubjectivity) which allowed us to understand affection developed in basketball practice in interweaving the relentless and careful pursuit, the career as a professional athlete that enables the recognition of self and the other from the relationships developed in a constant learning provided by the sport and the relations co-constituted in this environment that transform a group geared towards a goal in a soaked community of affection, solidarity among peers and gratitude. The analysis of these
experiences came in two structuring experiences, “the lived through/crossed - the lived with” and “gratitude” which are presented as characteristics of the community association.

**Conclusions:** The experiences enabled us to identify the importance of technical, family and experienced athletes in the transition processes during sports career and indicate that empathy and willingness to genuine encounter that respects who is the athlete and their needs are essential in any kind of intervention on the environment and sporting life. Other findings allow discussions about career transition and concepts with authors science of sport and management, enenriching possibilities the study list on the sports career phenomenon”
POSTER PRESENTATION

News Resources Mining Strategy of Large Scale Sports Events

Sport sociology

TAO YE

WUHAN SPORTS UNIVERSITY
CN

“Background:

With the development of global economy and the advancements of modern Olympic Games, sports events are becoming of increasingly widespread concern. Large-scale sports events have also became an important channel for media production. In our country, rapid development of sports causes the sports media industry to gradually become a significant sub-industry. At the same time, media’s rising influence could also be the core driving force to boost the sports industry. Moreover, the intensive competition of different media and, most importantly, the rapid development of network science and technology lead to a big change in the structure of media industry as a whole.

Methods:

Literature review method, Case study

Results:

1. Sources of news are keys to the news production and media development.
2. Several characteristics of such events (including its enormous scale, the long preparing period, the complex organization and the widespread audience) implies that the news resources and, in particular, the hidden resources generated could be extremely abundant.

Conclusions:

Regarding the methods of mining the abundance of news resources, there are three following ways in general.

Firstly, start from focusing on the existing dominant news and then dig deeper, scour for multiple times to find out the associated press. E.g., an athlete’s injury can be expanded to therapy and rehabilitation;

Secondly, starting from the time dimension, we can carry out a long-term tracking and inspection. e.g., track a stadium’s pre-game construction, game-time usage, as well as post-game maintenance and social usages. Thirdly, from one single point to a wide-spread of its surrounding news press. e.g. an athlete who had won a gold medal can be traced back to his training process, personal experience, technical backup, family environment, advertising sponsorship and so on.”
POSTER PRESENTATION

Number of cells and intracellular signaling pathways in cortex and hippocampal formation in physically active rats during post-natal brain development.

Neuroscience and sport

“Angélica Begatti Victorino, Alexandre Aparecido de Almeida, Glauber Menezes Lopim, Francisco Romero Cabral, Ivair Matias Junior, Hélio Rubens Machado, Roberto Lent, Ricardo Mario Arida, Sérgio Gomes da Silva”

“Universidade Federal de São Paulo (UNIFESP), Universidade Federal de São Paulo (UNIFESP), Universidade Federal de São Paulo (UNIFESP), Hospital Israelita Albert Einstein, Faculdade de Medicina de Ribeirão Preto (FMRP-USP), Faculdade de Medicina de Ribeirão Preto (FMRP-USP), Universidade Federal do Rio de Janeiro (UFRJ), Universidade Federal de São Paulo (UNIFESP), Hospital Israelita Albert Einstein”

"BR, BR, BR, BR, BR, BR, BR, BR, BR"

“Background: It has been observed in human and animal studies that environmental stimuli such as physical activity seem to have a favourable influence on postnatal brain development. Indeed, enhanced cognitive performance has been noted in individuals who were physically active during childhood and adolescence. In animal studies, it has also reported that early-life exercise improves the cognitive function of developing rats. The mechanisms by which juvenile exercise promotes such effects in the brain are just starting to be elucidated. One possible explanation in favour of the beneficial effect of physical activity early in life is that it enables better neural development. Probably, this better neural development occurs by activation of intracellular signaling pathways associated to cell growth, proliferation and survival. Based on this observation, the present study was designed to evaluate the number of neuronal and non-neuronal cells and the expression and activation of intracellular proteins (Akt, mTOR, p70S6K, ERK e CREB) in the cortex and hippocampal formation of adolescent rats submitted to an aerobic exercise program.

Methods: Male Wistar rats aged 21 postnatal days old (P21) were divided into two groups: exercise (n=10) and control (n=10). Animals in the exercise group were submitted to daily exercise on the treadmill between P21 and P60. After the aerobic exercise program (P60), it was investigated the number of neuronal and non-neuronal cells and the expression and activation of Akt, mTOR, p70S6K, CREB and p38 (total and phosphorylated) in the cortex and hippocampal formation of rats from the exercise and control groups. To quantify the number of cells, we used the isotropic fractionation method. To investigate the intracellular signaling pathways, we used MAGPIX® technology.
Results: Our results showed that juvenile exercise increased the cortical number of neuronal and non-neuronal cells and the hippocampal number of neuronal cells. Furthermore, it was observed an overexpression of total mTOR protein and an overactivation of Akt protein in cortical region of rats from exercise group in relation to control group.

Conclusions: These findings indicate that physical exercise can increase cortical expression and activation of intracellular proteins linked to cell proliferation and survival (mTOR and Akt) and rise absolute number of neuronal cells in the cortex and hippocampal formation of developing rats.”
NUTRITIONAL, BODY AND SLEEP QUALITY EVALUATION IN ELDERLY

Sport and quality of life for adolescence and aging
"Celine de Carvalho Furtado, Imperio Lombardi júnior"
"Federal University of São Paulo, Federal University of São Paulo"
"BR, BR"

"Introduction: Currently in Brazil, approximately 10% of the population is above 60 years. Santos city presents 19%1. Aging is a natural process, but it submits the body to various alterations with repercussions on nutritional and health aspects in the elderly2-4.

Aims: To assess the nutritional status, eating habits and the quality of sleep of elderly practicing or not of regular physical activity.

Material and Methods: Cross-sectional study with quanti/qualitative approach. A total of 85 elderly (age 70 ± 8.21 years) both gender participated in the study and evaluated for cognitive assessment (Mini-mental state examination – MMSE5), anthropometric measures (weight, stature, BMI, waist and calf circumferences – WC and CC), body composition (bioimpedance), nutritional assessment (R24h, Food Frequency Questionary – FFQ6 and Mini-nutritional Assessment - MAN®7), sleep quality (Pittsburgh8 and Epworth8 questionaries).

Results: There were significantly difference in stature, BMI, MMSE and WC between actives and sedentary and was observed elevated body fat in both groups and genders. No differences in malnutrition and/or low weight by variables MAN® and CC between groups. BMI was positively correlated with WC (r = 0.78 in actives and r = 0.65 in sedentary, p < 0.05). The consumption of macronutrients was within recommended adequacy range according to the Dietary Reference Intakes (DRI) in both groups. Regarding of dietary quality there was high consumption of coffee and low of beans and dairy products daily. The quality of sleep was bad in 57 and 77% of active and sedentary, respectively, with the presence of sleep disorders only in the sedentary group. No association was found between BMI and sleep quality in the groups.

Conclusions: The practice of physical activity brought differences between body composition and sleep quality.

Keywords: Elderly, Nutritional Evaluation, Body Composition, Sleep Quality, Pittsburgh."
**POSTER PRESENTATION**

**On Basketball Philosophy of Hoopsters**

Sport development

TNAZHENBIN

Capital University of Physical Education & Sports CN

**“Background:** Basketball philosophy is one kind of sound thinking mode based on basketball theory, which is of the profound understanding on basketball. The basketball philosophy of hoopsters is their understanding and thinking on basketball, namely, the understanding capability for the basketball tactics. This paper concentrates on analyzing the characteristics, type, psychology fundamentals of the basketball philosophy of them and cultivation approaches of basketball philosophy, and providing theoretic guide for basketball players’ practice in view of theoretic research.

**Methods:** 1. Theoretic analysis: This paper analyzes the characteristics, type, psychology fundamentals of hoopsters’ basketball philosophy by methods of logic analysis. 2. Survey: In order to study the cultivation approaches and methods for basketball philosophy, the author consulted some basketball coaches, players, experts and psychologists by methods of questionnaire and expert interview.

**Conclusions:** 1. Basketball philosophy of hoopsters belongs to operation cognition. One the one hand, Basketball players’ tactic thinking in the competition needs existed conceptions, principles and theories, which forms the theoretic thinking. On the other hand, they can obtain much experiential knowledge from practices, which forms the experiential thinking. Furthermore, Basketball players’ tactic thinking and actions in the competition is abundant and complicated, which needs experiential and intuitive thinking to deal with the tactic action, namely, forms the intuitive thinking.

2. These three tactic thinking mode plays different role in decision-making for basketball players’ tactic action. Theoretic thinking functions as analytic thinking based on existed knowledge and conceptions, which plays a main part in tactics decision-making from macroscopic view. Experiential thinking plays an important part in players’ tactics decision-making from microscopic view according to practical experience and knowledge. Intuitive thinking functions as acting ability according to varied situations, which is to use individual tactic actions in urgent and drastic situation.

3. Each tactic play has a basic ‘standard mode’. Tactic decision-making in different positions and varied situations should have different ‘rational mode’. Thus the process of coaching and training is the imitational process to ‘standard mode’ in tactic decision-making for basketball players.”
On Heritage of traditional Taijiquan in Modern Times

Sport development
Zeng Yang
Chengdu Sports university
CN

“Background: Traditional Taijiquan has strong oriental characters, and contains the spirit and wisdom of the nation. It is the most precious cultural heritage of the Chinese nation, and a national treasure. In recent years, traditional Taijiquan has been underdeveloped for various reasons. There appeared such tendencies and problems of traditional Taijiquan as fading of advantages and characteristics, reducing of Wushu learners, and facing the crisis of being inherited. The most serious problem is that it is facing the crisis of being inherited. Currently, how to inherit traditional Wushu in modern times has become the focus of the work of Wushu, under the historical background that China’ is implementing the socialist economic system reform and Chinese Wushu is opening up to the world.

Methods:
1. Literature data method
2. Expert interview method
3. Field survey method
4. Questionnaire survey method
5. Statistical method
6. Analytical method

Results: Depending on the result of our research of taijiquan, we develop traditional taijiquan courses in more than 27 universities in China such as Beijing university, Shanghai university, Wuhan university, Chengdu university etc. With good effect. And will also effectively promote the traditional Taijiquan inheritance and development.

Conclusions: Inheriting of traditional Taijiquan depends on the Chinese traditional culture; the substance of traditional Taijiquan to be inherited not only includes theoretical knowledge, practical skills and moral cultivation, but also traditional culture of the Chinese nation and national spirit, which is more important. To inherit traditional Taijiquan is the only channel to communicate with our distant ancestors and the solid cornerstone for us to step into the future. Therefore, the principle of “protection first” shall be resolutely adhered to for inheriting of traditional Taijiquan in modern times. In addition, comprehensive and complete protection on traditional Taijiquan shall be strengthened from a national level.
level; theory and technology system of traditional Taijiquan shall be built; effective means for inheriting traditional Taijiquan in modern times shall be perfected and innovated; studies on evaluation criteria for inheriting of traditional Taijiquan in modern times shall be strengthened. In short, a favorable policy and legal environment in favor of inheriting of traditional Taijiquan shall be created to preserve the characteristics of traditional Taijiquan and ensure inheriting and sustainable development of the “national essence”.

**Key words:** Traditional Taijiquan; Inheriting Wushu in modern times; Protection."
POSTER PRESENTATION

On Motivation Analysis of Career Women in Yoga Fitness Program in Chengdu, China

Sport and quality of life for adolescence and aging

"JIN YAN, Yan Hong"
"Chengdu Sport University, Chengdu Sport University"
"CN, CN"

"Background:

With the rapid economic and social development in China, yoga, as a way of health improvement and quality life, has gradually gained popularity in Chinese leisure sports market, especially among women in big cities. The study aims to explore the motivation of career women in yoga training, based on a survey of women members in commercial yoga fitness centers in Chengdu and to analyze the influence factors for the situation and provide some constructive suggestions.

Methods:

The survey is conducted among several yoga fitness centers in Chengdu with questionnaires. Literature review, expert interviews, logical analysis and others are applied to analyze the motivation of women in yoga fitness centers and the influence factors. Descriptive statistics are computed to describe the socio-demographic attributes of the women in the yoga fitness center in Chengdu. Correlation analysis are conducted to examine the associations between yoga knowledge, yoga center and their motivation and behaviors.

Results:

1. The career women surveyed in the study average 41.8 years with an average annual income of about 220, 000 yuan. They have 9 to 16 years of formal schooling. Most of them are reported to have some mental or physical problems, such as anxiety, back pain, surgery, before yoga practice.

2. Mass media is an influence factor for the women to join in yoga practice as it promotes yoga as a kind of fashionable fitness and leisure sport. Professional training and coaching, excellent venue and props in yoga fitness center attracts women to stick to the practice and meets their needs of relaxing and socializing.

3. Health promotion, body shaping, mental relaxation, pursuit of quality life are major motives for career women to practice yoga. Those who are more knowledgeable of health matters and health risk factors are more likely to stick to the habit of practicing. Most of them who have practiced yoga on a regular basis agree that yoga can ease their anxiety and depression, help their sleep and improve their life quality.
4. Due to the fast pace in urban life, career women those who could not follow yoga exercise for a long time on a regular basis complain that work stress and lack of time are the major reasons for yoga habits. Besides, lack of professional coaching and proper venue can also affect women’s interest in yoga. They could easily forget to develop a habit of yoga practice with no companions or coach, if only disciplined by themselves. If with no yoga knowledge, some of them could feel a bit frustrated with the slow progress and fundamental poses.

**Conclusions:**

With the improvement of people’s life quality in China, career women have become a key part of consumers of popular fitness products, such as yoga. The study explores their motivation in yoga practice with a survey in Chengdu and finds that health promotion, body shaping, mental relaxation, pursuit of quality life are major factors for them to choose yoga as a way of fitness, although different members have different features and demands for yoga centers. Their knowledge about health and yoga have also guided their health behaviors and habits.”
On the application of “Supermarket Physical Education” and “Shepherd Type” teaching models in Physical Education in Vocational Colleges

Sport pedagogy
"Tan Xiongying, Weng Yanghui"
"The table tennis club of Qingdao, China university of Petroleum"
"CN, CN"

"Abstract: According the literature, there are a lot of deficiencies in the physical education of current vocational colleges in China. For example, outdated teaching methods, changeless contents and fixed teaching models still follow the old teaching models before the new curriculum reform. The young generations of contemporary, with rich knowledge and information, are not satisfied with the outdated teaching modes. In addition, the outdated teaching model is also quite different with current models of scholastic physical education issued by the education department. The fierce social competition has raised even more difficult requirements to the physical and mental development of vocational college students. In order to adapt to these changes, unceasing exploration should be taken in public physical education of vocational colleges. The mode of PE reform as a practical and dominant way should be applied to the process of sports teaching. This paper, was written by an analytical study on “supermarket physical education” and “shepherd type” teaching models with the methods of documentations, field research and logical analysis. It concluded that the “shepherd type” teaching model should be correctly understand and applied with “supermarket physical education”. This proposed new requirements for the P.E teachers. They cannot rest on laurels and should advance with the times. With a good application of the “Supermarket physical education” and “Shepherd type” teaching models, the students will enjoy overall development in public physical education.”
Optimization Of Talent Training Mode In Professional Sports College Based On The Collaborative Innovative Theory

Sport pedagogy

Zhoumin Liu
Hunan Agricultural University
CN

“Background: In “collaborative innovation” as the theoretical perspective, to be coordinated “Sports College” and other “Stakeholders”, through their “strategy, organization, knowledge and technology” integration of resources, to achieve Sports College existing talent Training optimization model.

Methods: The talent training mode of 14 sports colleges taken as the research objects, literature, expert interviews, logical analysis, three combination “education, scientific research, training” mode of talent training taken as the main line.

Results: 1. since the implementation of three combinations, higher sports colleges and universities have made the achievements such as improvement of discipline and major, increase of competitive level, enhancement of scientific research ability, perfection of textbook construction, and innovation training mode. they are also faced with the plights of reinvention of discipline, homogeneity of tales, social disjoint of talent cultivation.

2. Sports College Personnel Training Mode optimization theory under consideration Collaborative Innovation Horizon: ① the essence of collaborative innovation mode of three combined talent training is the perfection, development, and enhancement on the mode of three combined talent training. ② The former highlights the characteristics of unification between education and development, cooperation between education, researching and training, and cooperation of talent cultivation between high-level sports talents and other special sports talents. ③ the related subjects of collaborative innovation mode of three combined talent training include: comprehensive, normal sports departments, sports scientific research institutes, enterprises and institutions, international sports physical education institutions. ④ Government organizations, financial institutions, legal institutions, sports intermediary organizations provide policy, financial, legal and technical support for collaborative innovation.

3. The specific optimization measures include: the construction of specialty group and brand specialty through “professional warning and adjustment plan”, “academic revitalization plan”; optimization of specialty structure through adjusting the development scale of main specialty, derived specialty and related specialty; optimization of training standard through distinguishing between style of academy,
compound and application; optimization of courses through the cooperation media between universities and institutions, universities and enterprises, universities and colleges; optimization of sports talent cultivation mode through “Double Tutorial System”, “cooperative cultivation”, “orders type training”.  

4. Sports College Personnel Training Mode Optimization Strategies: establish collaborative innovation philosophy of education, the reform of institutional mechanisms, relying on government support, and the creation of innovative platform, optimize the structure of teachers, the establishment of evaluation standards.  

**Conclusions:** Under the new situation of “collaborative innovation”, the institutions of higher sports colleges and universities should set off a new round of reform and development."
POSTER PRESENTATION

Organization of the Tutorial Education Program from Physical Education Course of Federal University of São Paulo (PET-EF Unifesp): Cross-Disciplinary as Base

Physical activity and health

"Rafael Koga Amaral, Felipe Avila, Giovanni Soares Lopes Moraes, Gustavo Marques de Azevedo, Jader Martins Ferreira, Iara Barreira Marqui, Luann Brasil Bauduin de Souza, Marco Aurélio Alves Souto, Renata Ferracioli Barbosa, Tiago de Assis Neves, Sionaldo Eduardo Ferreira, Ricardo Luís Fernandes Guerra"

"Unifesp, Unifesp, Unifesp, Unifesp, Unifesp, Unifesp, Unifesp, Unifesp, UFTM, Unifesp"

"BR, BR, BR, BR, BR, BR, BR, BR, BR, BR"

“Background: The organization and management of any group actions are essential to achieve the expected results in a follow-up. For some years, the Tutorial Education Program from the Physical Education course - Health Modality of Unifesp (PET-EF) experienced different forms of organization, which developed empirically. The aim of the study was to propose and present the internal organization of PET-EF Group, from the concept of Cross-Disciplinary, with a view to its application in the Group itself.

Methods: From the idea of Cross-Disciplinary, which is the use of terms and knowledges developed in one or more subjects in a given field of knowledge in another specific discipline, the Group Management has been developed thinking of a strategy to meet all demands employed to a PET, being a Federal Program. The management of a PET group and training periodization have similar characteristics, exemplified by the previously arranged objectives for its implementation, the adaptation dependent of the individual's actions included in this work, which resembles the Biological Individuality Principle and the inherent unpredictability of the factors associated with the empirical work. Because of the similarities of the issues, plus the related expertise to Training Periodization knowledge, the organization can be arranged in characteristic themes and terms that have ownership from the students of Physical Education course as a close analogy. Thus, from concepts of periodization of sports training, the organization with Departments has been develop, simulating the valences and capabilities of any athlete or patient in a macrocycle, mesocycle and microcycle.

Results: Has been proposed five Departaments: Department of Academic Projects, Department of Events, Department of Communication, Department of Evaluation and Department of Feedback. From this model, it was necessary a unified organization with planning for short, medium and long term, to
meet the guidelines of a PET, leaving an orientation, with autonomy, for the future members of the PET-EF Unifesp. Being a Physical Education group, we hypothesized that an organization based on terms and knowledge developed in the area fulfill such conditions.

**Conclusion**: It is believed that this new organizational perspective keeps the specific division of work developed of the Group by the Departments, in addition to increasing the clarity of the action's flow for the current and future members, also offering a basic knowledge of the operation and management of a group, respecting the desire and specific skills of each member, encouraging integration, building capacity for planning, preparation, execution and evaluation of activities related to the practice of exercise and alternative activities for the health of different populations, as well as for proposal of projects from different academic nature, consolidating more effectively the Group and its insertion in the Physical Education course."
Organizational Stressors and Psychological Needs: The Mediating Role of Athletes’ Appraisal Mechanisms

Sport psychology

"R.J. Hampson, D. Fletcher, K.J. Bartholomew, R. Arnold"
"Loughborough University, Loughborough University, University of East Anglia, University of Bath"
"GB, GB, GB, GB"

“Background: Over the past few decades, sport psychology research has pointed to the salience of athletes’ organizational stress and the satisfaction of their psychological needs as being central to their performance and well-being. However, somewhat surprisingly given their primacy in psychosocial processes, no research to date has examined the relationship between organizational stressors and psychological needs in sport performers. The purpose of this study, therefore, was to examine how athletes appraise the organizational stressors they encounter and how this effects the satisfaction or thwarting of their psychological needs.

Methods: The sample comprised 315 British athletes who were competing at either a national or international level in their sport. Participants completed a multi-section questionnaire which assessed organizational stressors, appraisal, and psychological need satisfaction and thwarting.

Results: The findings showed that i) encountering organizational stressors elicited stressful appraisals, ii) the extent to which an athlete perceived him or herself to be in control of a situation influenced whether a challenge or threat appraisal was made, and iii) the nature of an athlete’s appraisal mediated the relationship between organizational stressors and psychological need experiences. To elaborate on the first finding, the frequency and intensity of organizational demands were significantly related to both challenge and threat appraisals; however, the duration dimension was not found to be significantly related to both types of evaluation as it displayed a non-significant relationship with threat appraisals. In terms of the mediation result, it was found that challenge appraisals of the demand dimensions positively predicted need satisfaction and negatively predicted need thwarting, whereas threat appraisals of the frequency and duration of the demands negatively predicted need satisfaction, and threat appraisals of all three dimensions of organizational stressors positively predicted need thwarting.

Conclusions: This study is the first in the literature to demonstrate that how athletes appraise organizational stressors will impact, and can help to explain, why their needs might become supported or thwarted. In addition to an empirical contribution, the study can further theoretical knowledge and understanding relating to the transactional theory of stress and self-determination theory, with specific
reference to the bidirectional relationship between appraisals and psychological needs, and the
distinction between psychological need satisfaction and thwarting. For practice, the findings can inform
the planning of primary and secondary stress management interventions to both optimize the stress
experience and support high quality motivation and need satisfaction.”
Oscillation of plantar pressure center in athletes and non-athletes with and without ankle sprains

Sport medicine and injury prevention

“André Kenzo Saito, Martina Navarro, Marcelo Faria Silva, Eduardo Kenzo Arie, Maria Stella Peccin”

“Fundação Pró-Esporte de Santos (FUPES), Federal University of São Paulo, Centro Universitário Metodista, Santa Casa da Misericórdia de Santos, Federal University of São Paulo”

“BR, BR, BR, BR, BR”

“Background: To assess whether there is any difference in the oscillation of the plantar pressure center in single-leg stance between athletes and non-athletes with and without ankle sprains.

Methods: 54 volunteers performed four static assessments and one dynamic assessment while standing on one foot on a baropodometer, barefoot, for 10 seconds in each test. The variables of area (cm²), distance (cm), anteroposterior oscillation (cm), mediolateral oscillation (cm) and mean velocity (cm/s) were analyzed. The items “other symptoms” and “sports and recreation” of the subjective Foot and Ankle Outcome Score (FAOS) questionnaire were applied. For the statistical analysis, repeated-measurement ANOVA (ANOVA-MR), multivariate ANOVA (MANOVA), Tukey’s post-hoc test and partial eta squared were used.

Results: ANOVA-MR revealed differences regarding distance, with major effects for eyes (p < 0.001), knees (p < 0.001), group (p < 0.05) and the interaction between eyes and knees (p < 0.05); and regarding mean velocity with major effects for eyes (p < 0.001), knees (p < 0.001) (p < 0.05), group (p < 0.05) and the interaction between eyes and knees (p < 0.05). MANOVA revealed main group effects for distance (p < 0.05), anteroposterior oscillation (p < 0.05) and mean velocity (p < 0.05). In the FAOS questionnaire, there were no differences: “other symptoms”, p > 0.05; and “sport and recreation”, p > 0.05.

Conclusions: Athletes present higher mean velocity of oscillation of plantar pressure center and generally do not have differences in oscillation amplitude in the sagittal and coronal planes, in comparison with non-athletes.”
PARTICIPATION OF ATHLETES IN GOVERNANCE AND SPORT POLICIES DEVELOPMENT IN BRAZIL

"Flávia da Cunha Bastos, Tatiana de Barros Freire, Maria Tereza Silveira Böhme"
"University of São Paulo School of Physical Education and Sport, University of São Paulo School of Physical Education and Sport, University of São Paulo School of Physical Education and Sport"
"BR, BR, BR"

"Background: Countries that have achieved international success in high-level sport have plans for national actions, managed by different agencies, drawn up centrally and implemented throughout the country. In the last decade, different studies analyzed the organizational structure of national sports programs. Among them, the Model SPLISS (Sports Policies Leading to Sporting Success) that considers nine pillars in an international comparative survey of 15 countries (De Bosscher et al., 2015). Pillar 2, the model basis, refers to governance, structure, and organization of policies for the sport, with an integrated approach to the development of these policies. On this basis, the sports system is structured so that, with the entry of financial resources (Pillar 1), sports administration entities may plan, manage, implement, and evaluate actions related to other pillars (3-9). The objective of this research is to analyze the participation of athletes in the formulation and evaluation of sport policies, one of the aspects analyzed in Pillar 2.

Methods: Quantitative research was developed at the national (2011) and regional levels - 9 States and the Federal District (2014). Data were collected from athletes that answered an online questionnaire consisting of 57 questions. At the national level, responses of 449 athletes (29 sports), were obtained. At the regional level, 444 athletes (18 sports) answered the research. The results show that at the federal level there is a minority of National Federations having Athletes Commissions (30%).

Results: The involvement of athletes in political decisions BEFORE (discussion and drawing up) and AFTER (results) the implementation of policy plans was rated by 51% of respondents as “not involved or insufficiently involved.” At the regional level, the data show a low involvement in the discussion and policy-making: 47% of the interviewed people evaluating as “insufficiently or not involved” in the Regional Federations and 52% State Departments, respectively, and 20% and 24% “do not know”. Similar results were obtained on the involvement in the evaluation of policies AFTER the policy plans have been implemented. Concerning Regional Federations, 41% of the athletes consider their participation as “insufficiently or not involved” and 24% said “did not know”. To the State Departments the results was similar: 42% and 27% respectively.
Conclusions: Regarding these data we can conclude that most athletes are not involved in any stage of the management of targeted policies to their status as subject of these policies in the country. The active participation of athletes in the formulation of the actions is not common to all states. This situation tends to change from the determination of a new law that was approved in the country in 2013, which provides for measures to the representation of warranty class athletes in decisions about regulations of competitions and steering boards and election in the entities that want to access public funding."
POSTER PRESENTATION

Parvalbumin Expression and Distribution in the Hippocampal Formation of Rats Submitted to Enriched Environment or Physical Exercise During Postnatal Brain Development

Neuroscience and sport

“Fernando Tadeu Serra, Bruno Henrique Silva Araújo Torres, Laila Brito Torres, Flávia Dona, Francisco Romero Cabral, Maria José da Silva Fernandes, Ricardo Mario Arida, Sérgio Gomes da Silva”

“Faculdade do Clube Náutico Mogiano (FCNM); Universidade de Mogi das Cruzes, Universidade Federal de São Paulo (UNIFESP), Universidade Federal de São Paulo (UNIFESP), Universidade Anhanguera de São Paulo (UNIAN), Hospital Israelita Albert Einstein (HIAE), Universidade Federal de São Paulo (UNIFESP), Universidade Federal de São Paulo (UNIFESP), Faculdade do Clube Náutico Mogiano (FCNM); Hospital Israelita Albert Einstein (HIAE); Universidade de Mogi das Cruzes (UMC)”

“BR, BR, BR, BR, BR, BR, BR, BR, BR”

“Background: Several models of experience have been found to influence molecular systems that are important for maintaining neural function and plasticity. The stimuli required to elicit plasticity are thought to be activity-dependent. In this context, the physical activity models have been used to explore experience effects on brain function. Nevertheless, there are only few studies that investigate the effect of these models in the brain in the maturational process. Therefore, we investigated whether environmental enrichment or forced physical exercise would promote similar changes in the hippocampal formation of developing rats. For this aim, we performed an immunohistochemical and immunoblotting study using the calcium-binding protein parvalbumin as a neuroplastic marker.

Methods: Male Wistar rats aged 21 postnatal days old (P21) were divided into three groups: enriched environment (EE; n=8), exercise (EX; n=8) and control (CTL; n=8) groups. From P21 to P60, animals of the EE group were placed in large cages containing a variety of objects (e.g., boxes, tubes, ladders and wheel running). Animals of the EX group were submitted to daily exercise on the treadmill between P21 and P60. Running time and speed gradually increased over this period, reaching a maximum of 18 m/min for 60 min. At P61, animals of all groups were killed for immunohistochemical (n= 4 for each group) and immunoblot (n= 4 for each group) analyses.

Results: No difference in expression and distribution of parvalbumin hippocampal was detected between EE and CTL groups. However, the parvalbumin expression and distribution was enhanced significantly in hippocampal formation of rats submitted to daily treadmill exercise (EX group) when compared to the CTL group.
Conclusions: These findings suggest that brain in maturational process may be differentially sensitive to the physical activity models. Specifically, our results suggest that neuroplasticity during postnatal period of brain development (evaluated by hippocampal parvalbumin) may be more influenced by physical exercise than to enriched environment."
Perceived barriers and facilitators to physical activity and sport in adults with spinal cord injury: a case study in João Pessoa-PB

Physical activity and health

"Elaine Cappellazzo Souto, Hélio José Alves do Amaral Filho, Leonardo dos Santos Oliveira, Marcia Greguol"

"UFPB, UFPB, UFPB, UEL"

"BR, BR, BR, BR"

“Background: The spinal cord injury (SCI) can lead to motor, sensory, autonomic, psychological and affective disorders, making it difficult to maintain an active lifestyle and contributing to the presence of secondary conditions and comorbidities. The physical activity and sport programs have been widely considered for this population in the rehabilitation and after discharge for health promotion. However, people with disabilities are the least likely to have an active lifestyle. Thus, it is important to understand what contributes and discourage this behavior in people with SCI to stimulate their participation in physical activity programs and sports. Objective: To analyze the perceived barriers and facilitators to physical activity and sport in adults with SCI. Methods: It is a descriptive study with a qualitative approach, carried out with seven people with SCI from university extension programs aimed at rehabilitation of people with disabilities, three paraplegic and four tetraplegic, five males and two females, mean age 36 years (±11). It was used a semi-structured interview created by the author with questions regarding to sociodemographic data, disability profile, recommendations, degree of dependence, practice before and after the injury and the perceived barriers and facilitators to practice physical activity and sport. Data analysis was based on content analysis as proposed by Bardin, therefore created three categories for the analysis of perceived barriers and facilitators, which were Environmental, Social and Personal aspects. Results: The main barriers to practice of physical activity and sport were divided into Environmental: transport and accessibility; Social: unprepared teachers; and Personal: lack of autonomy. Related to facilitators, the personal aspect was the only one present in the speeches: better quality of life, gain independence, health and self-esteem. Conclusions: It found more barriers than facilitators. It is necessary to make these facilitators motives are predominant on the barriers imposed, with support and help from family and society."
Performance and physiological characteristics of Brazilian women’s soccer players classified by maximal aerobic power: a preliminary study

Elite performance

“Claudio Andre Barbosa de Lira, Rodrigo Luiz Vancini, Rafael Júlio de Freitas Guina Fachina, Marília dos Santos Andrade”

“Federal University of Goiás, Federal University of Espírito Santo, State University of Campinas, Federal University of São Paulo”

“BR, BR, BR, BR”

“Background: Female soccer practice has increased markedly in recent years. Soccer is a team sport and an intermittent exercise that requires repeatedly maximal or near-maximal efforts, interspersed with brief recovery intervals, over an extended period of time, i.e., “repeated-sprint ability” (RSA). During a game, elite-players run around 10 km at an average intensity close to the anaerobic threshold. Thus, the aim of our study was to evaluate, RSA and performance, and physiological variables of soccer players divided, according to the median separation technique (Chaouachi et al, 2010), in groups with high and low VO2max.

Methods: We evaluated 20 female soccer players’ (different field positions) of a national competitive team. The evaluations were: DEXA: body composition to determine body fat (%); Maximal graded exercise test: physiological responses to exercise and aerobic power (VO2max) to compose the study groups; RSA: 10 sprints (20m) interspersed of active recovery (20s). RSA variables was monitoring by photocells and consisted: lower sprint time, total time (tt, seconds) and % of decay (dec%). Immediately after test the subjective perceived exertion (SPE) was determinate (Borg 15 point scale) and after 3 minutes blood was collected for determination of lactate concentration; Vertical jump, consisted of jumping assessment (Squat jump: SJ and Counter Movement Jump: CMJ) on a force plate. The parameter evaluated was the greatest height (cm) reached (after several single jumps with 15 seconds intervals) for each jump type; Statistical analysis: data were presented as mean±standard deviation (SD). The comparison between groups (higher and lower VO2max - median value = 52.01 mL/kg/min) was performed using the t Student test for independent samples. Statistical significance was set at p <0.05.

Results: Comparing the groups with higher (54.6±2.4 mL/kg/min, n=10) and lower (48.5±2.9 mL/kg/min, n=10) VO2max (p<0.05), we needed highlight: RSA- tt (sec), 34.02±1.48 and 35.06±0.76 (p=0.063); %dec, 3.4±1.3 and 4.6±1.4 (p=0.072); SPE 12.7±3.0 and 14.4±2.5 (p=0.184); Aerobic
performance- vVO2max (km/h), 15.8±1.1 and 14.9±1.0 (p=0.076); Vertical jump height (cm)- SJ, 37.1±4.3 and 33.1±3.3 (p<0.05); CMJ, 39.5±5.1 and 35.1±3.1 (p<0.05); and Body composition- body fat (%), 21.6±5.6 and 25.2±4.6 (p=0.152).

**Conclusions:** Soccer performance is a construct based on multi-factorial performance components (technical, tactical, and physiological) and their interaction at the individual and team levels. Despite having been a strong tendency for statistical differences between groups this does not occurred probably by a small sample size and that we have analyzed players of different positions together. Our main Conclusion was that low aerobic power can impact negatively vertical jump performance. Considering that the individual performance can influence the team performance, improved cardiorespiratory fitness could improve this scenario."
Performance variables evaluated by specific tests in Brazilian water polo players

Elite performance

"Rodrigo Luiz Vancini, Claudio Andre Barbosa de Lira, Rafael Júlio de Freitas Guina Fachina, Marília dos Santos Andrade"

"Federal University of Espírito Santo, Federal University of Goiás, Estadual University of Campinas, Federal University of São Paulo"

"BR, BR, BR, BR"

"Background: Water pole (WP) is a sport with intermittent characteristics, i.e. high intensity periods interspersed with brief recovery period in low to moderate intensity. In addition, physiological exercise responses in aquatic environment are very specific, and different from running or cycling activities. This scenario shows the importance of developing specific tests to determine the levels of aerobic and anaerobic fitness. Thus, the aim of our study was to propose a specific protocol test for WP athletes.

Methods: Twenty three athletes took part in this study. Athletes performed specific tests for WP in the aquatic environment (with an interval of 48 hours): Anaerobic test for WP (AnaWP) - performing of 30 jumps vertically (recorded by camcorder) with specific lower limb movements of WP (known as eggbeater). Athletes' performance was determined by evaluating the height (cm) achieved in the 1st, 15th and 30th (H1st/15th/30th) jumps, jumps total time (TT30-seconds) and fatigue index (FI-%). Blood samples were collected for the lactate assessment immediately after the 30th jump (0) and at 1st, 3rd, 5th, 8th and 12th minutes after test ([Lac0/1/3/5/8/12]); Aerobic test for WP (AerWP) - performing WP eggbeater in vertical position by maintaining the water at the level of the xiphoid process. The initial ballast (held at chest level) had 2kg and was increased every 3 minutes, 2kg, until voluntary exhaustion. At the end of each stage, blood was collected for the lactate determination and measurement of pulmonary gas exchange. Maximal oxygen uptake (VO2max), maximal HR (HRmax), maximum load (Lmax - ballast) reached and the peak concentration of lactate ([Lacp]) were measured. The calculation of the ballast weight and HR of the second lactate threshold (LT2) was determinate by linear interpolation for lactate at 4mmol/L. The % of HRmax and Lmax in LT2 were calculated. The data were presented by descriptive statistics.

Results: AnaWP (n=23) - H1st (44±6 cm), H15th (32±7 cm) and H30th (24±9 cm); TT30 (56.9±9.5 s); FI (42.0±12.5%); [Lac0], [Lac1], [Lac3], [Lac5], [Lac8] and [Lac12] (5.2±1.7; 7.8±1.6; 9.0±2.0; 9.4±2.2; 9.2±2.7; 8.5±2.2mmol/L, respectively); AerWP (n=23): VO2max (44.4±5.3mL/kg/min), HRmax
(174.3±9.1 bpm), [Lacp] (8.6±2.1 mmol/L), Lmax (12.9±2.3 kg) and LT2 (157.5±13.5 bpm and 8.9±2.5 kg, 90.5±8.2% of HRmax and 69.2±14.4% of Lmax, respectively).

**Conclusions:** The AnaWP and AerWP tests have potential to evaluate WP athletes and to prescribing individualized training. Finally, the obtained indexes in AnaWP were consistent with the Wingate test and AerWP reached literature criteria in determining VO2max and LT2.”
Periodized Resistance Training Improve Hyperandrogenism, Menstrual Regularity and Reduce Anthropometric Indicators of Central Obesity without Weight Loss in Women with Polycystic Ovary Syndrome

Physical activity and health

"Gislaine Satyko Kogure, Rafael Costa Silva, Daiana Cristina Chielli Pedroso, Cristiana Libardi Miranda Furtado, Fabiene Karine Picchi Ramos, Victor Barbosa Ribeiro, Rosana Maria dos Reis"

"Ribeirao Preto Medical School - University of Sao Paulo, Ribeirao Preto, Ribeirao Preto Medical School - University of Sao Paulo, Ribeirao Preto, Ribeirao Preto Medical School - University of Sao Paulo, Ribeirao Preto, Ribeirao Preto Medical School - University of Sao Paulo, Ribeirao Preto, Ribeirao Preto Medical School - University of Sao Paulo, Ribeirao Preto, Ribeirao Preto Medical School - University of Sao Paulo, Ribeirao Preto"

"BR, BR, BR, BR, BR, BR, BR, BR, BR"

“Background: Polycystic ovary syndrome (PCOS) is the common endocrine disorder affecting 7 - 14% women of reproductive age. This is associated with central obesity, insulin resistance, type 2 diabetes and dyslipidemia. Chronic anovulation, infertility and hyperandrogenism are its main characteristics. Weight reduction and physical exercise are recommended as first-line treatment in PCOS, with the aim of prevent cardiovascular disease and restore ovarian function. The purpose of this study was investigate the effects of progressive resistance training (PRT) on anthropometric indices (AI), body fat percentage (% BF) and muscle strength (MS) in women with and without PCOS, and its effects on metabolic factors and steroid hormone concentrations related to PCOS. This is a nonrandomized, therapeutic, open, single-arm study.

Methods: 45 sedentary women with PCOS and 52 non-PCOS/control group (CG), with 18 - 37 years old and body mass indices (BMIs) between 18 - 39.9 Kg/m2, received PRT through a linear periodization three times a week for four months, that followed trend of decreasing volume and increasing intensity throughout the training period. The exercises included bench press, leg extension, front lat pull-down, leg curl, lateral raise, leg press (45°), triceps pulley, calf leg press, arm curl, and abdominal exercise executed in alternating segments. Before and after PRT, the concentrations hormones, metabolic factors, maximal dynamic strength (1-RM) tests in exercise bench press (trunk), leg extension (lower limb) and arm curl (upper limb) were realized. Were measurement AI (BMI, waist circumference (WC), waist-to-hip ratio (WHR), and waist-to-height ratio (WHtR), umbilical (UWC) and
conicity index (C-index)), %BF and sum of 4 skinfold thickness (4DC - trunk (subscapular and supra-iliac), upper limb (triceps) and lower limb (thigh)) by antropometry. Menstrual regularity was recorded before, during and after PRT. Data were analyzed statistically by mixed effects linear regression. To post-test comparisons was used orthogonal contrasts. Level of significance P <0.05.

**Results:** After PRT, testosterone reduced (PCOS, P<0.01; CG, P<0.01) and fasting glucose levels improved in both groups (PCOS, P<0.01; CG, P=0.03). Androstenedione increased (P<0.01) compared to CG and SHBG (sex hormone-binding globulin) reduced in PCOS (PCOS, P=0.01). No differences in fasting insulin and HOMA-IR (homeostatic model assessment – insulin resistance) were observed. WC, WHtR and C-index were reduced in the PCOS group compared to baseline values (P<0.01). UWC were reduced between (P=0.01) and within groups (P<0.01), as well as % BF and 4DC (P<0.01). Both groups showed MS gains in all exercises (P<0.01) without differences between the groups. During PRT, 17 women with amenorrhea had menstrual bleeding. **Conclusion:** The PRT alone can improve hyperandrogenism, menstrual regularity and BC with reduce central obesity, without metabolic impacts in PCOS group. The PRT promoted MS gains in both group. This results point role beneficial and the weight reduction need not be the exercise endpoint in this population."
POSTER PRESENTATION

Personality traits in swimming athletes of Speed, Middle and Bottom.

Sport psychology

“Gabriele Matias Avelino do Bonfim, Cassio de Miranda Meira Junior, Beatriz Matias Avelino do Bonfim”

“University of São Paulo, University of São Paulo, University of São Paulo”

“BR, BR, BR”

“Background: The study addresses the personality traits in swimming athletes, in order to relate scores of extroversion, neuroticism and Psychoticism with major or preference tests (speed, middle and bottom).

Methods: The sample consisted of 67 swimmers from both genders and from different income levels, which responded individually. the “Eysenck Personality Questionnaire”.

Results: Multivariate analysis indicated that only the proof of variables and sex was that they had significant differences, since the other variables (competitive level and disability) if it had no significant differences in relation to personality traits. On Factor Proof: F (4, 47) = 2.40; p = 0.06; ηp² = 0.17; in Psychoticism stroke, swimmers of the background evidence scored higher swimmers of speed tests. The factor Sex: F (4, 46) = 5.29; p = 0.001; ηp² = 0.32; in Neuroticism trait, women athletes scored higher than the men athletes.

Conclusions: So in relation to the evidence Psychoticism trait had high scores in swimmers of the background evidence compared with the speed and relative to sex Neuroticism trait was higher in women athletes compared with men athletes.”
Poster Presentation

Pet Bottle Board: an Alternative for Education Physical Professional to Instruct the Stand Up Paddle

Sport development

"Fernando Tadeu Serra, Eduardo Varejão Díaz Placencia, Sérgio Gomes da Silva, Gustavo de Moraes Rodrigues"

"Faculdade do Clube Náutico Mogiano (FCNM); Universidade de Mogi das Cruzes (UMC), Universidade Federal de São Paulo (UNIFESP), Universidade Federal de São Paulo (UNIFESP), Faculdade do Clube Náutico Mogiano (FCNM)"

"BR, BR, BR, BR"

"Background: Lack of material generates difficulties in work developmental of physical education teacher. Producing alternatives materials through recycled objects is a economic and ecological way to compensate the shortage of material. Usage of alternative materials is actually already a reality in sport world. Confection of surfboards using PET bottle is something is being disseminated in Brazil and some countries else. Since its production is possible in several sizes, PET bottle board might be used in a variety of surf modalities, including Stand Up Paddle (SUP) practice. SUP joins conventional surf and canoeing features. Regarding SUP board confection through PET bottle is made in Brazilian territory and there are few studies about recycled material effectiveness, this study aimed to assess alternative material usage in SUP practice, present recycled material sources that can be used in SUP board confection and compare the effectiveness of alternative material with conventional board.

Methods: To achieve proposed goals, it was applied 10 sessions of SUP classes to 16 volunteers, aging 18 to 30 years old, who had never got any contact with surf practice. Participants was separated into 2 uniform groups. Groups were differenced between participants who used alternative material board (PMA) and participants with conventional material (PMC). Classes were recorded through a video camera and daily practice reports. Data was analyzed through qualitative and quantitative methods that consisted in movement observational during classes, quantify and compare them intra and intergroups. It was also analyzed and described individual board features.

Results: Both groups require an average of 3 days to control the direction of the board and learn to practice SUP. PMC group had an average of three falls five imbalances and required about three days to properly carry out the body and stroke movements. Already the PMA group had an average of two drops and four imbalances and took about two days to properly carry out the body and stroke movements. The average time that the PMC group spent to carry out the learning test (task) was 158.57
seconds and the PMA group was 165.26 seconds. In the retention test the PMC group took on average 126.36 seconds while the PMA group showed 133.29 seconds.

**Conclusions:** Even PET board is smaller than fiber board. The analyzed variables in this study have not shown differences between groups. Therefore, PET bottle board is a instrument as good as fiber board for SUP learning. All procedures used in this research was approved by Ethic Committee of University Mogi das Cruzes, under protocol number 1082190, and followed the ethical and legal precepts.”
PHOTOTHERAPY ASSOCIATED WITH A PROTOCOL EXERCISES ON QUALITY OF LIFE AND BALANCE IN PATIENTS WITH KNEE OSTEOARTHRITIS

Rehabilitation

"Johny Nelson de Almeida, Laura de Marchi dos Santos, André Cabral Sardim, Carlos Eduardo Pinfield"
"Federal University of São Paulo, Federal University of São Paulo, Federal University of São Paulo"
"BR, BR, BR, BR"

"Background:

Osteoarthritis (OA) is one of the most prevalent rheumatic diseases in the elderly and is associated with pain, joint stiffness, deformity and progressive loss of function. Physiotherapy through kinesiotherapy, proprioceptive exercises and physical agents can improve symptoms related to OA. The objective of this study was to evaluate the effect of laser therapy of low intensity on quality of life and balance in patients with knee OA.

Methods:

The participants were 16 patients clinically diagnosed with unilateral or bilateral OA of the knee and X-ray concordant with the criteria of the American College of Rheumatology for the diagnosis of OA. The patients were randomly divided into 2 groups. Group 1: underwent a treatment program of exercises and Group 2: same treatment program of exercises associated with laser therapy of low intensity. The groups were treated for 12 weeks, three times a week. All patients underwent pre and post-treatment using the SF-36 and the Berg Balance Scale questionnaire.

Results:

There were no significant differences in the evaluations of quality of life and balance in comparisons between post-treatment, however there was significant improvement in both groups over time.

Conclusions:

The quality of life and balance showed improvement as much in the group submitted only to the exercise treatment program, as the group associated with low intensity laser therapy in the quadriceps muscle."
POSTER PRESENTATION

Physical Activities and Health Promotion with Schoolchildren: Experience Report

Physical activity and health

“Cristiane de Souza Moraes Donegá, Ailton de Souza Aragão”

“Federal University of Triangulo Mineiro, Federal University of Triangulo Mineiro"

“BR, BR"

“Background: The school has been shown a privileged place to conduct health promotion activities, because the children remain there for long periods, alternating among one or two periods. The creation of the School Health Program evidenced the importance of this partnership, when allowed the children perform actions in the field of health. Physical activities are some of these promotion health activities, because it promotes welfare and pleasure, younger to prevent and control various diseases such as obesity and diabetes mellitus, whose relationship with the lifestyle has affected more and more children. Allied to this premise, the sports pratice promotes reflective debate on the social determinants of health and social vulnerabilities associated with them, considered a direct interference in the process health-disease. The aim of this paper has focused on promoting the health of school children through recreational and sport activities aligned to the biopsychosocial model of health care.

Methods: The actions are part of the Education-Extension interface of Health and Society discipline of Occupational Therapy and Physical Education courses, Federal University of Triângulo Mineiro. The actions were conducted with children aged 8 to 10 years in municipal schools. Activities were accomplished twice a week. In total there were eight meetings, with the participation of 60 children and 50 academics. Guided by the concept of health promotion, we adopt participatory methodologies, which are distinguished by the engagement of children in the proposition of activities, and the preparation of the activities was made by the academic students. The selected sport activities, were football, volleyball and dodgeball. And yet the adoption of a field book to register the impressions obtained from the school routine by the academic students.

Results: In the proposal stage, academic students identified vulnerabilities, such as the absence of parents, in addition to unemployment of or both; precarious housing and inadequate alimentation. Manifestations of violence were observed in the children’s daily life, such as psychological, social and physical. The contact with drugs was not evidenced. The leisure time of children is concentrated on television programs, and sociability of children is restricted to the space of the neighborhood. In the stage of sport activities development, the children presented exacerbated aggressiveness, use of profanity and individualism.
Conclusions: The promotion of the health of schoolchildren shown to be complex on allowing the emersion of issues that affect the health of children, which indicates the necessity for activities that stimulate the biopsychosocial look. The sports practice should be encouraged at school as a relational development opportunity, with a view that is a health promotion component. The meetings helped the students to find out the social vulnerability to which the children are subject, and multiprofessional possibilities of intervention at school, referring to the contents studied in the discipline."
POSTER PRESENTATION

Physical activity based a traditional- and supervised sports practice: a tracking study of long-term follow up in younger students

Physical activity and health

"Roberta Luksevicius Rica, João Marcelo de Querioz Miranda, Marcio Roberto Doro, Aylton Figueira Junior, Eliane Florencio Gama, Danilo Sales Bocalini"

"São Judas Tadeu University, São Paulo, SP, Brazil, São Judas Tadeu University, São Paulo, SP, Brazil, São Judas Tadeu University, São Paulo, SP, Brazil, São Judas Tadeu University, São Paulo, SP, Brazil, São Judas Tadeu University, São Paulo, SP, Brazil, São Judas Tadeu University, São Paulo, SP, Brazil, São Judas Tadeu University, São Paulo, SP, Brazil, São Judas Tadeu University, São Paulo, SP, Brazil"

"BR, BR, BR, BR, BR, BR"

Background: The maintenance of appropriate parameters of health-related physical status are recognized for contributing to the structural and functional aspects in different ages. Additionally, an inverse relationship with the development of chronic diseases in adulthood had been observed with increased physical inactivity among children, contributed with alterations in health profile. Furthermore, evidence of the changes magnitude in anthropometric and functional parameters still unclear in long-term follow-up. In this way, the aim of this study was compare the physical fitness of children who underwent traditional- and supervised sports practice in scholar environmental.

Methods: Three years longitudinal study (February 2008, 2009 and 2010) was designed to follow up 50 children (from 8 to 10 years) into two randomized groups: traditional- (T, n: 27) and supervised-sport group (S, n: 23). The T group was submitted to traditional physical education (2 days per week for 50 minutes each class - totaling 100 minutes per weekly). The S was submitted to traditional physical education and additional a supervised sport activities (5 days per week for 60 minutes each session - totaling 400 minutes per weekly). It was evaluated the: a) anthropometric (body mass (BM, kg), stature (ST, cm), body mass index (BMI, kg/m2) and adiposity by the sum of triceps, subscapular and suprailliac skinfolds (SF, mm); b) neuromotor (agility (A, sec), stand long jump (LJ, m) and trunk strength (TS, rep) as upper limb strength by fixed bar stand of arms (FB, sec). The statistic analysis was assessed by Linear Person Correlation and Student t Test with p <.05 as significance.

Results: Our data showed that between 2008 and 2010, no differences were found in BM (T: 31 ± 7; S: 26 ± 9%), S (T: 11 ± 2; S: 10 ± 2%), SF (T: 17 ± 13; S: 10 ± 17%), A (T: -36 ± 20; S: -41 ± 23%). On the other hand significant changes were found for BMI (T: 12 ± 9; S: 8 ± 9; p=0.012), HI (T: 12 ± 10; S: 18 ± 10; p=0.03), TS (T: 10 ± 39; S: 31 ± 23; p=0.02) and FB (T: -62 ± 111, S: 61 ± 27, p = 0.01).
After analyses Linear Person correlation evidenced high tracking response to HI (r: .997), TS (r: .989) and TB (r: .995) to S group, similar results to r values were found to T group (LJ: .996, TS: .935, TB: .894).

**Conclusions:** Our data suggested that the total amount of minutes per week contributed to BMI, LJ, TS and TB changes in T group. On the other hand, the BM, S, and A variables remained stable during three years follow up in both groups. These data allow us to suggest that children have to accumulate at least 300-400 minutes in sport practice and physical activity."
POSTER PRESENTATION

Physical activity in childhood on drug use and occupational activity of physically active elderly

Physical activity and health

"Marcio Doro, Carlos Eduardo Pereira Peleckas, Roberta L. Rlca, João Marcelo de Queiroz Miranda, Aylton Figueira Junior, Fabio Luis Ceschini, Maria Luiza de Jesus Miranda, Danilo Sales Bocallini"

"São Judas Tadeu University, São Judas Tadeu University, São Judas Tadeu University, São Judas Tadeu University, São Judas Tadeu University, São Judas Tadeu University, São Judas Tadeu University, São Judas Tadeu University"

"BR, BR, BR, BR, BR, BR, BR, BR"

"Background: Currently, the effects of individual behavior on health status had been often studied, although there are positive evidence for health in relation to lifestyle and physical activity, there a lack of information of impact by active lifestyle at childhood in old age as well on occupational activity is still quite contradictory when associated with aging.

PURPOSE: Evaluate the influence of the practice of physical activity in childhood consumption and expenditure of medicines and occupational activity of physically active older people.

METHODS: Fifty six physically older subject voluntarily answered the international physical activity questionary (IPAQ) considering a child period (retrospective analyze) and a second instrument containing questions regarding usage and spending on medicines and activity occupational. The subjects were distributed in two groups: active (AC) and unactive (UnC) childhood). The differences between the parameters were analyzed by Student's t test. The statistical significance was set at p <0.05.

RESULTS: Were not found statistical differences on age (AC: 70 ± 5 vs. UnC: 69 ± 4; years), BMI (AC: 27 ± 3 vs. 28 ± 3 NA; kg/m2) and time expenditure to physical activity weekly (AC: 211 ± 97 vs. NA: 171 ± 47; minutes) between groups. At similar way, the total cost (162 ± 86 reais), the amount of medicine (4 ± 2 unites) and the monthly income (AC: 3 ± 2, basic wages) of AC group was not different to UnC (170 ± 104 reais, 7 ± 2 unites, 2 ± 1 basic wages) groups respectively. However, significant differences (X2, p = 0.001) were found at occupational activity, and 25% of AC group had been self related an economic activity, however, just 5% of UnC group presented autonomy to economic activity by self.

CONCLUSION: The study results indicate that the fact that the elderly have been physically active in childhood does not interfere in the number and total drug spending, however, it was found association
between performance in the labor market in the INA group. Indicating a tendency to predisposition to work in older who reported being physically active in childhood while increasing income."
POSTER PRESENTATION

Physical Activity, Nutrition and Bone Characteristics in 10-12 Year-old Hungarian Children

Physical activity and health
"Márta Szmodis, Edit Bosnyák, Anna Protzner, Emese Trájer, Anna Farkas, Gábor Szőts, Miklós Tóth"
"University of Physical Education, Budapest, University of Physical Education, Budapest, University of Physical Education, Budapest, University of Physical Education, Budapest, University of Physical Education, Budapest, University of Physical Education, Budapest"
"HU, HU, HU, HU, HU, HU"

“Background: Regular physical activity and adequate nutrition have favourable influence on the bone status, while body structure and function could be altered with lifestyle. The main aim of this study was to analyse habitual physical activity, body parameters, macro- and micronutrient intake and ultrasound bone characteristics in prepubertal children.

Methods: Hungarian children aged between 10 to 12 years (N=123; 59 girls and 64 boys) provided physical activity, anthropometric, diet, and bone data. All girls were premenarcheal. Children from twelve different schools in various regions - the capital, large towns, small towns and villages - were included. Objective level of habitual physical activity was measured with accelerometer (Actigraph GT3X+). Diet was evaluated by three-day, 24-hour food recall. Calcaneal quantitative ultrasound (QUS) parameters were registered with Sonost 3000 bone densitometer. The analysis contained speed of sound (SOS, m/s), broadband ultrasound attenuation (BUA, dB/MHz), bone quantity index (BQI=αSOS+βBUA). Differences between subgroups were tested by Student’s t-test. Correlation patterns of the variables for total sample and subgroups were analyzed (p<0.05).

Results:
Nutrition and anthropometric variables did not differ by gender. Values of Broadband Ultrasound Attenuation (BUA) were significantly higher in boys. Girls spent significantly more time being sedentary, and boys had more light, moderate, vigorous, and moderate to vigorous physical activity (MVPA) levels. On average, the children accumulated more than twice the suggested amount of current public health guidelines for MVPA: 159.23±36.90 vs. 133.44±44.28 min. QUS parameters correlated significantly with vigorous physical activity in boys, and with age, height, weight, fat percentage and BMI for both sexes. There was no significant relationship between nutrition and QUS; however, inadequate vitamin K intake correlated with less favourable bone parameters.

Conclusions:
Changes in the ultrasound bone characteristics among 10 to 12 year old children mainly depended on the amount of intense physical activity and age and age-dependent anthropometric variables; nutrition could not be decisive.
POSTER PRESENTATION

Physical Exercise Reduces Gluconeogenesis Through Reduction of Pyruvate Carboxylase (PCB) in the Liver of Obese Mice

Physical activity and health

"Rafael Calais Gaspar, Vitor Rosetto Muñoz, Guilherme Pedron Formigari, Marcella Sant’Ana, Dennys Esper Cintra, Eduardo Rochete Ropelle, Leandro Pereira de Moura, José Rodrigo Pauli"

"University of Campinas, University of Campinas, University of Campinas, University of Campinas, University of Campinas, University of Campinas, University of Campinas, University of Campinas"

"BR, BR, BR, BR, BR, BR, BR, BR"

"Background: The impairment in the insulin pathway that is called insulin resistance (IR), contributes to the imbalance in the glucose homeostasis. In the liver, this condition can increase the activity of enzymes involved in the hepatic glucose production. Among these enzymes, pyruvate carboxylase (PCB) has been shown great importance because of its role in the conversion of pyruvate in oxaloacetate. Moreover, the increase in lipolysis in white adipose tissue (WAT) because of insulin resistance can increase the levels of free fatty acids (FFA) in the bloodstream and contribute to the increment of Acetyl-CoA and PCB activity in the liver. On the other hand, the physical exercise has shown to be a great strategy against obesity and insulin resistance. In this line of thought, several studies have been shown that the physical exercise reduces the hepatic glucose production. However, little is known about the regulation of these mechanisms. Therefore, studies that evaluate the effects of physical exercise on PCB levels can elucidate new mechanisms by which exercise can regulate the hepatic glucose production. In the present study, we evaluated the role of chronic physical exercise on the levels of PCB in hepatic tissue of obese and insulin resistant mice.

Methods: Swiss mice (4 weeks old) were divided into 3 groups: Sedentary Control (C) sedentary animals fed with control diet, Sedentary Obese (SO) sedentary animals fed with HFD and Trained Obese (TO) animals fed with HFD and submitted to the training protocol. Protocol training was carried out for 1h/ day, 5 days/week, during 8 weeks and it was performed at the intensity of 60% of maximum power, which was determined at the beginning of the experiment. During the last experimental week the insulin tolerance test (ITT) and glucose tolerance test (GTT) were performed. Twenty four hours after the last physical exercise session the animals were euthanized and the liver was harvested for subsequent analysis.

Results: The mice subjected to chronic physical exercise showed decreased in body weight compared with SO group. Moreover, the physical exercise was able to increase the insulin sensitivity compared..."
with sedentary obese group. After this, we evaluated the phosphorylation and levels of Akt and PCB in the liver from the different groups. TO group showed increase in the phosphorylation of Akt compared with SO group. Furthermore, SO showed increased levels of PCB compared with control group. Nevertheless, the physical exercise was able to decrease the levels of PCB when the group TO was compared with SO.

**Conclusions:** Taking all results together, the physical exercise reduced body weight and increased insulin sensitivity as expected. These results can be explained due to the changes in PCB levels in relation with SO group. Therefore, the mice fed with high fat diet showed increase in PCB levels. However, trained obese mice presented a significant decrease in levels of PCB, thus physical exercise seems to be able to regulate hepatic gluconeogenesis through PCB protein."
POSTER PRESENTATION

Physical exercise throughout adult life improves memory of rats

Neuroscience and sport

"Glauber Menezes Lopim, Diego Vannucci Campos, Robson Campos Gutierre, Alexandre Aparecido de Almeida, Eduardo Alves da Silva, Ricardo Mario Arida"

"Federal University of São Paulo, Federal University of São Paulo, Federal University of São Paulo, Federal University of São Paulo, Federal University of São Paulo, Federal University of São Paulo"

"BR, BR, BR, BR, BR, BR"

“Background: Decline in processing speed, memory, and executive function is a relatively widespread characteristic of aging. Human and animal studies demonstrate that exercise is a powerful behavioral intervention to improve cognitive function and brain health. Studies in aged humans have demonstrated that high levels of physical activity are associated with improved cognitive scores, as well as with reduced incidence of dementia. From an experimental perspective, rodent studies demonstrate that exercise leads to improvements in hippocampal-dependents task. However, there is no reliable information from literature about the impact of physical exercise throughout adult life.

Aim: To analyze the long-term memory of rats submitted to physical exercise throughout adult life.

Methods: Fifteen rats, two months old, were divided into control (CTL; n=9) and exercise (EX; n=6) groups. Rats from exercise group were submitted to physical exercise on a treadmill (AVS Projetos) during 18 months, 5 times/week, for 30 minutes, with intensity varying between 12 and 18m/min. After 18 months, rats from CTL and EX groups were weighed and submitted to inhibitory avoidance task.

Results: Animals from EX group presented increased body weight when compared to CTL group (p=0.04). In the inhibitory avoidance task, rats from both groups presented similar latency of crossing (p=0.13). In the test session, rats from the EX group presented significantly high latency for crossing when compared to CTL group (p=0.016).

Conclusions: Rats that performed physical exercise throughout adult life presented increase in body weight and improvement in the long-term memory."
POSTER PRESENTATION

Physical Fitness and Gait Parameters of Middle-Aged Women: Preliminary Results after a Strength Training

Physical activity and health

"Lucas Caldas, Ana Luiza de Castro Lopes, Graciane Freitas, Gustavo Ramos Dalla Bernardina, Pietro Cerveri, Amanda Piaia Silvatti"

"Universidade Federal de Viçosa, Universidade Federal de Viçosa, Universidade Federal de Viçosa, Universidade Federal de Viçosa, Politecnico di Milano, Universidade Federal de Viçosa"

"BR, BR, BR, BR, IT, BR"

"Background:
Since the practice of physical exercises contributes significantly to the maintenance and improvement of physical fitness, the objective of this study was to investigate the effects of 8 weeks of strength training on the middle-aged women physical capacities and on the gait parameters.

"Methods:
5 physically active middle-aged women (+/-49 years) performed a systematic physical activity program composed by 8 weeks of strength training (3x week, 50 min/session). Before starting the strength training, 20 weeks of the basics physical capacities was performed. The physical fitness was evaluated in 2 times: T1-pre-training and T2-post-training (Upper and lower limbs and abdominal strength; Agility and Lower limbs flexibility). 18 optoelectronic cameras (240Hz) were positioned around the subjects (acquisition volume: 8x3x3m3) in order to obtain the 3D kinematic data of the lower limbs (27 retro-reflective markers). From the 3D data, we calculated the angular and linear gait parameters of 5 gait cycles (ankle, knee and hip flexion/extension range of motion (RoM); step and stride length, velocity, stride width, stance time, cycle time, double limb support time). Since we have a small sample size, we used a non-parametric test (Wilcoxon p<0.05) in order to analyze the effectiveness of the training on the physical capacities, on gait parameters, and on the symmetry between limbs.

"Results:
The lower limb strength and the agility/dynamic balance increased in T2 (Siting-Rising Test: pre:15.6, post:18.4rep; Agility/dynamic balance: pre:5.5, post:4.6s). No significant difference was found in the others tests. The left ankle (pre:25.5°, post:33.9°) and right hip (pre:41.3°, post:49.7°) RoM increased in T2. No significant differences were found in the linear gait parameters and in the comparison between limbs. The preliminary results showed a maintenance or an improvement in their physical fitness arise against the expected decline of it with the aging. These results, also could indicate a decreasing in their
risks of fall. A symmetrical gait was found and the linear parameters values can be classified as a normal gait. The RoM values found in this work corroborate with the values reported in the literature. Despite the fact that the RoM of the right and left joints were not significantly different in both, T1 e T2, we can highlight that the gain of RoM in the left ankle and right hip allows an approximation of the values between limbs (T2).

Conclusions:
Therefore, we conclude that 8 weeks of strength training for middle-aged women was effective to maintain or to improve their physical fitness and linear and angular gait parameters."
Background: Developmental changes are observed in postural control system during the first years of life. These changes have been explained as resulting from the use and integration of sensory cues from different channels, which provide information about body dynamics (position and velocity). Despite the recent advances in understanding some aspects of the postural control system functioning, it is not yet clear when children reach similar adult-like performance. Thus, there is the need to obtain and organize normative data to provide performance analysis and evaluation in different age groups to enable means of inferring and consequently evaluating postural control functioning in children and adolescents with typical and atypical development throughout the first years of life. Therefore, the purpose of this study was to obtain normative data of children and adolescents performance while maintaining the upright posture in different conditions of vision and basis of support.

Methods: The study included 91 participants, boys and girls age groups 6-16 years. All participants were from Rio Claro city public schools, with previous parents’ authorization. Each participant was asked to remain standing as still as possible on a force platform. Four trials were performed, 1-minute each, in the conditions: 1) parallel feet and eyes open; 2) parallel feet and closed eyes; 3) feet in semi-tandem position and open eyes; and 4) feet in semi-tandem position and eyes closed. The order of attempts was randomly assigned. The forces applied to the force platform were used to estimate the pressure centre position (CP), in the anterior-posterior and medial-lateral directions, and to calculate the total displacement, mean amplitude and of CP trajectories.

Results: The results indicated that there was a decrease in the total displacement, mean amplitude and velocity of CP trajectories with increasing age. The performance of postural control was deteriorated in the conditions without vision and with reduced support base for all ages. The changes in postural performance does not occur linearly, being checked even after the first decade of life, and reflects the possible changes of sensory and motor systems.

Conclusions:
The performance of postural control improves with aging, even after the first decade of life, reaching adult-like 14 years old. These results suggest that developmental changes occur even after the first decade of life.”
Preparation of a World Class Para-Sprinter towards World Championship: Reflective Practise

Elite performance
"Ivy Wai Teng Loke, Lee Jin Wei, Nor Syazana Binti Bistamam"
"NATIONAL SPORTS INSTITUTE OF MALAYSIA, NATIONAL SPORTS INSTITUTE OF MALAYSIA, NATIONAL SPORTS INSTITUTE OF MALAYSIA"
"MY, MY, MY"

Background:
This study was designed to describe training interventions and sports science services preparation of a world class Para-sprinter in preparation for world championship who improved 0.48 sec throughout the preparation period from 2014 to 2015.

Methods:
The athlete is a 100m male sprinter with cerebral palsy and was 27 years old at the commencement of the study. Monitoring was done periodically within 2 years period on preparation towards world championship. He was on consistent full time training up to 9-12 sessions/week where each session ranged from 1-4 hours.

The athlete has excellent aerobic capacity where predicted VO2 max was at 48ml/kg/min. Throughout the monitoring period, body composition improved from increased of lean body mass 2.8kg while body fat percentage was maintained around 6.7%. Besides, 1RM squat relative strength improved from 1.41 to 1.49 although no significant changes observed in bench press result.

Periodic energy expenditure assessment found that energy expenditure during training ranges from 500kcal to 1000kcal/session. Nutritional assessment showed energy and carbohydrate intake improved from achieving 60% at initial of study to completely achieve dietary requirement. Hydration status monitoring was done from time to time to ensure the athlete performance is not affected by dehydration.

Results:
A difference of 0.48 sec differentiate between podium or non-podium athletes in world championship. Sports science services are training interventions monitoring tool on the athlete performance. An improvement of lean body mass together with relative strength was a prominent changes that possibly explained the improved performance as many previous studies suggested on the positive relationship between maximal squat strength and sprint times.

Adequate nutrition intake enhanced the training adaptation through changes in body composition and nutrition recovery. Variability of weather at training venue caused big sweat rate ranged from 0.8 to 1.49 kg/hour.
1.0L/hr. Hence hydration monitoring was done for immediate feedback on individualized hydration strategy and awareness education purpose to minimized performance limiting factor.

The extensive training program was responsible for these changes and monitoring of adaptation leads to peak physical condition towards world championship. It is difficult to appreciate the extent to which this work had an impact on sprinting performance given the running techniques of a sprinter and psychological area is not investigated which requires future attention.

**Conclusions:**
The extensive training program was responsible for these changes and monitoring of adaptation leads to peak physical condition towards world championship. It is difficult to appreciate the extent to which this work had an impact on sprinting performance given the running techniques of a sprinter and psychological area is not investigated which requires future attention.”
Preservice Elementary Teachers’ Physical Educator Identity

Physical activity and health

“Rulan Shangguan, Jingwen Liu, Xiaofen Keating, Li Chen, Yao Fan, Mingying Deng”

“The University of Texas at Austin, The University of Texas at Austin, The University of Texas at Austin, Delaware State University, Northeast Normal University, Jiangxi Agricultural University”


**Background:**
Implementation of school-based quality physical education (QPE) has been suggested to have positive impacts on students’ health to combat the worldwide obesity epidemic. A supportive school environment is important to maintain such impacts, demanding non-PE teachers to embrace the value of PE and commit to facilitate PE-related initiatives. Teachers who identified themselves as PE supportive teachers are more likely to reinforce a physically active environment in school settings. Empirical studies indicated that teachers’ professional identity is the driving force for teaching commitment and self-development. Moreover, it has been assumed that physical education teacher education (PETE) programs as the first stage to form and refine positive physical educator identity (PEI), could alter preservice teachers’ existing identity and the effects from previous life experience. The purpose of the study was to examine the effects of a kinesiology course on non-PE preservice elementary teachers’ PEI.

**Methods:**
Students in a kinesiology class (Children’s Movement) designed to prepare these preservice teachers to be ready to lead PE class or school physical activity participated in this study. A pre-validated survey with using a 7-level Likert scale was used to measure 3 domains of PEI. The domains included: 1) sense of becoming a PE supportive elementary teacher referring to the extent to which individuals view themselves as supporting P.E in future career; 2) negative affectivity referring to the extent to which an individual experiences negative affect in response to undesirable outcomes in PE teaching; and 3) professional growth as a PE supportive teacher. Demographic information including gender, ethnicity, major, year in college, and PA level. The survey was distributed to all students at the beginning of the course and at the end of the course. Data analyses were performed using SPSS 21.0. Descriptive analyses and repeated measure MANOVA were employed to examine preservice elementary teachers’ PEI.

**Results:**

Twenty-four students participated in the study (Mage=22.08). Overall, there were 21 females (87.5%) and 3 males (12.5%). The mean scores of each of the PEI domains at the pre-test were: 5.61 ± 0.78, 5.52 ± 0.81, 4.96 ± 0.89, respectively; at the post-test the mean scores were 5.72 ± 0.78, 5.64 ± 0.64, 4.96 ± 0.93, respectively. In general, the overall PEI did not change significantly between the pre- and post-tests, however, PEI differed among ethnicity groups (Wilks' Lambda=0.361, F(3, 18)=2.536, p=0.019). Domain 1 and domain 2 of the PEI scale increased significantly overtime (p=0.038, p=0.044 respectively), while the increase in domain 3 was marginal. Moreover, domain 3 was significantly different across ethnicity groups (p=0.002). In addition, African American and Asian preservice teachers were more likely to increase their PEI overtime. Specifically, the Asian and Hispanic groups demonstrated increased PEI in all the 3 domains, while African American group had lower PEI from pre- to post- tests in domain 2 only. It was surprising to find that the Caucasian group had decreased PEI in all the 3 domains. 
Prevalence of Allergy and Allergic Symptoms in Elite Endurance Athletes

Sport medicine and injury prevention

"Renata Nakata Teixeira, Gerson Santos Leite, Mariana Vano Galvão Almeida França, Rosana Camara Agondi, Celso Ricardo Fernandes de Carvalho"

"University of Sao Paulo, University of Sao Paulo, University Anhembi Morumbi, University of Sao Paulo, University of Sao Paulo"

"BR, BR, BR, BR, BR"

"Background: The prevalence of allergy in athletes is increasing, and its risk varies across sports. Most of the studies have been assessing the prevalence of allergic symptoms using questionnaires, thus, the real prevalence of allergy in elite endurance athletes remains unknown. The aim of this study was to assess the prevalence of allergy and allergic symptoms in elite endurance athletes.

Methods: Sixty male elite athletes (40 runners and 20 triathletes) were invited to take part in this cross sectional study. They were assessed for allergy by serum specific IgE to the most common inhalant and only results > 0, 35 IU/mL were considered positive. Allergy was defined as a sensitization to at least one of the selected allergens. Allergy symptoms were assessed using the AQUA© questionnaire that is composed of 25 questions regarding allergic symptoms, family history of allergy, suspicion of allergy, and the use of allergy medicines. The sum of these questions was used to classify athletes with (score <5) and without symptoms of allergy (score <5). Athletes were asked additional questions about training experience, training distance per week, and best performance in 10 kilometers, half-marathon and marathon (for the runners) and Olympic distance, half-ironman and ironman (for the triathletes).

Results: 60 of 103 athletes, agreed to participate in the study. The average age was 29.9 ± 6.0 years old. The athletes were involved in long distance sports for 9.7 ± 5.7 years and the performance of the distance runners (10km, half marathon and marathon) and triathletes (Olympic distance, half ironman and ironman) were respectively: 31.0±1.2min, 1h:07min±1.9min and 2h:24min±5.8min, and 1h:55±4.9min, 4h:03±13.9min and 9h:04±28.9. The prevalence of allergy (IgE antibodies to at least one or more common inhalant allergens) was 57.6% and 54.2% of athletes had a positive AQUA© score. Twenty-five percent (15/59) and 37.2% (22/59) of athletes reported a physician-diagnosed allergic disease and a self-reported allergic symptom, respectively.

Conclusions: Elite endurance athletes have a high prevalence of allergy. Allergy certainly influences wellbeing and probably, the athletic performance; therefore, elite endurance athletes should be assessed for allergy."
Background: Acquiring the capability of moving with proficiency throughout the life can be considered as one of the key aspects of human development. Building a broad and proficient motor repertoire, in the first decade of life, can be a determining factor in order to, later in life, be enrolled in physical activity programs and sport practice. Contemporary lifestyles have lead to a dramatic reduction of physical activity enrollment even in children. Moreover, several studies have indirectly indicated motor delay of fundamental motor skills in Brazilian children, and a more representative and direct diagnosis is needed in order to better examine motor proficiency of these children. Therefore, the purpose of this study was to diagnose the proficiency level of fundamental motor skills in São Paulo city children.

Methods: Three hundred and eighty-three children (6-, 8- and 10-years-old), from all five geographic regions of São Paulo city (North, South, East, West, and Downtown) participated of this study. Data collection took place at selected schools when children were videotaped performing the locomotor and object control subtest skills of the Test of Gross Motor Development, 2nd edition (TGMD-2). Three trained examiners, using the performance criteria for each of the motor skills, examined the motor skill performance in order to obtain the raw scores, equivalent motor age and gross motor quotient for each child.

Results: The results revealed that children from Sao Paulo are lagging behind the expected proficiency level of the fundamental motor skills. Regardless of gender, city or region, the equivalent motor age is below the respective chronological age for both locomotor and object-control skills. Moreover, the observed delay is accentuated as chronological age increases, suggesting that children seem to “accumulate” motor delays with age. Based on the evaluation criteria of TGMD-2, children from São Paulo city were classified as “poor”, at the age of 6-year-old, and “very poor”, at the 8- and 10-year-old.

Conclusions: This finding is alarming because if children do not reach proficiency in the fundamental motor skills, which are the basis for building a motor repertoire, they may be limited in the acquisition of new and more complex specific skills and consequently could quit from practicing since they have difficulties to perform the necessary movements. Based upon these results, it might be suggested that
measures must be taken in order to ensure that our children master and become proficient in the fundamental motor skills.”
POSTER PRESENTATION

Profile of muscle strength balance ratios of shoulder and body composition in CrossFit™ athletes.

Physical activity and health

"Valentine Zimermann Vargas, Caroline Mota, Wallace de Almeida Silva, Marilia dos Santos Andrade"
"Universidade Federal de São Paulo, Universidade Federal de São Paulo, Universidade Federal de São Paulo, Universidade Federal de São Paulo"
"BR, BR, BR, BR"

“Background: Despite the increasing popularity of short duration, high-volume, and high-intensity exercise, called as CrossFit™ training in the whole word, there are few researches about this subject. The modality draws attention because of variability of overhead movements and intensity of training that is consider as risk factors for sports injuries. The main purpose of the present study was to describe the CrossFit™ athletes’ isokinetic strength, balance strength ratio and body composition. We also aimed to compare isokinetic strength profile of CrossFit™ athletes with a control group.

Methods: The study was conducted among 32 male athletes for two different modalities, 21 from soccer (control group) and eleven from CrossFit™, between 18 and 40 years old from São Paulo, Brazil. Biodex isokinetic dynamometer (Biodex Medical Systems Inc®, Shirley, New York, USA) was used to assess the concentric (conc) and eccentric (ecc) internal (IR) and external (ER) shoulder rotators muscles peak torque (PT) and conventional (ERconc/ERcon) and functional (ERecc/IRconc) balance ratios in both sides. Fat mass and fat free mass of CrossFit™ athletes were measured by dual-energy X-ray absorptiometry (DXA, software version 12.3, Lunar DPX, Madison, WI).

Results: CrossFit™ athletes was: 31.9±5.9 years old, 85.2±9 kg, 1.76±0.06 m and control group was: 23.0±5.3 years old, 74.5±9.9 kg and 1.77±0.06 m. Conventional balance ratio for CrossFit™ athletes was 62.0±6.9% (right side) and 66.0 ±9.5% (left side). Control group presented 78, 9±21.7 % (right side) and 78.8±20.5 % (left side). There was a significant difference (p=0.01) between groups in right side. The mean value for CrossFit™ athletes conventional balance ratio (right side) was out of the recommended value, which is 0.66 to 0.75. Functional balance ratio for CrossFit™ group was 0, 9±0.1 in the both sides, which is significant lower (p<0.01) than the values presented by control group 1.1±0.2 (right side) and 1.2±0.3 (left side). The mean value for CrossFit™ athletes functional balance ratio (right side) was out of the recommended value, higher than 1.0. CrossFit™ athletes presented 19.4±7.4% of body fat mass and 77.1±6.9% of body lean mass.
Conclusions: CrossFit™ trainers presented lower conventional and function balance ratios than the control group, and the mean values were out of the recommended literature values, therefore they are at an increased risk of shoulder injuries. However, these are preliminary results and caution should be taken with this interpretation. 
POSTER PRESENTATION

Project “Remar para o Futuro”: Anthropometric and Physical Comparisons Between Selected Students and Their Reference Population.

Sport development
"Aline Xavier Tuchtenhagen, Marcelo dos Santos Vaz, Oguener Tissot, Verônica Diedrich, Mariana Alvariz Lopes, Eraldo dos Santos Pinheiro, Fabrício Boscolo Del Vecchio"
"Universidade Federal de Pelotas, Universidade Federal de Pelotas, Universidade Federal de Pelotas, Universidade Federal de Pelotas, Universidade Federal de Pelotas, Universidade Federal de Pelotas"
"BR, BR, BR, BR, BR, BR"

“Background:” Determination and detection of people with favorable profiles to competitive sports practice has been considered in various initiatives. Objective: To compare anthropometric and physical variables between selected and not selected peoples for the project “Remar para o Futuro”, from Pelotas, RS.

Methods: The study involved 224 students from four schools. They were evaluated about anthropometry, with body mass measurements (BM in kg), height (m) - with which were calculated body mass index (BMI) and body surface (BS) = armspan (cm) and trunk-cephalic height (cm). It were evaluated the lower limbs power with horizontal jump (cm) and the performance in 30s specific test in rowing ergometer. Two way ANOVA considered age group (up to 12 years, 13-14 years, 15 years or older) and outcome (selected [SEL] versus non-selected [NSEL]), and were weighted by sex.

Results: Of the 224 schools evaluated, 106 were girls and 118 were boys ($\chi^2=0.64; p=.42$). About the age groups, 36 were until 12 years, 109 were between 13 and 14 years and 79 were 15 or older ($\chi^2=36.06; p>.001$). The average age was 14±1.5 years, with no differences between genders ($p=.93$) and between selected and non-selected ($p = .71$). For BM, was found no differences considering genders ($F=0.57; p=.45$), but between outcomes ($p<.001$) and groups ($p<.001$), with the youngest being lighter than oldest (53±2.3 kg vs. 62±1.5kg) and selected were heavier (62±2.7 kg vs. 54.3±1, 18kg).

In height, differences were found between gender ($p<.001$), groups ($p<.001$) and outcome (SEL=1.68±0.01 m and NSEL=1.58±0.07 m, p <.001). In armspan, differences were found between genders ($p=.002$), groups ($p<.001$) and outcomes (SEL=1.7±0.02m and NSEL = 1.58±0.08 m; p<.001). For trunk-cephalic height, differences were found between groups ($p<.001$) and outcomes (SEL = 1.29±0.04 m and NSEL = 1.25±0, 09nm, p <.001). For BMI were not observed differences between genders ($p=.09$) and outcomes ($p=.22$), but between groups ($p=.02$), that was not confirmed in the
univariate analysis (p=.16). On the other hand, concerning BS, were found no differences between genders (p=.15), but between groups (p<.001) and outcome (SEL = 2.40±0.26 and NSEL = 2.22±0.33, p<.001). In the horizontal jump, differences were found in gender (F=87.43, p<.001), groups (F=4.42; p=.013) and outcomes (SEL = 157.82±27.47 and NSEL = 146.9±27.46; F=7.56, p=.006). To the distance in 30s rowing ergometer were found differences for sex, group and outcome (p<.001), SEL and NSEL covered, respectively, 114±13m and 109±19m, the maximum power measurements were 261±114W to SEL and 224±91W to NSEL, and mean power was 163±62W to SEL and 45±56W to NSEL. Peak power relative to body mass showed no differences between groups (p>.05) and outcomes (p>.05), and the mean showed no differences between outcomes (p>.05).

Conclusions: Participants selected to compose the “Remar para o futuro” team are taller and heavier, exhibit greater armspan and BS. They also showed better performance in lower limbs power test and in the rowing ergometer. 

POSTER PRESENTATION

Promote Cultural Awareness by Engaging Students in Sport and Performance Activities

Sport pedagogy
"Chi Zhang, Hongwei Guan, Mary Bentley, Hongjun Fan"
"China West Normal University, Ithaca College, Ithaca College, China West Normal University"
"CN, US, US, CN"

“Background: With the trend of globalization, cultural competence is becoming critically important for young students to be prepared as future global citizens for this diverse world. As an educational effort to create more opportunities for students to have an international experience, many colleges and universities have established global partners. One of the common institutional goals is to help students understand different cultures and promote diversity. More and more study abroad programs have been developed to allow students to have an immersive global learning experience. However, it is impossible for every student to travel abroad because of language barriers, financial and other limitations. While some students do take opportunities of participating in study abroad programs, it is an important and challenging task for institutional leaders and faculty educators to create effective and meaningful learning experiences for both visiting students from abroad and local students on hosting campus. This paper is based on a successful education program between China West Normal University (CWNNU) and Ithaca College of USA. Case presentation: With institutional support from both CWNNU and Ithaca College, a short-term program was planned and implemented in summer 2015. While a group of 14 students led by two faculty leaders studied abroad in China, CWNNU hosted the group and involved 300+ CWNNU students from School of Physical Education, School of Music, and School of Journalism and Communication in a series of cultural exchange activities purposefully according to their majors. Students from the US and China were mixed and immersed together during their Tai Chi learning and practice, volleyball competition and collaborative music and dancing performance activities. The volleyball competition and collaborative concert were observed by 3500+ students, faculty and staff. Discussion & Conclusion: Diverse cultural exposure allows students an incredibly heightened level of insight into different ways of doing things, both professionally and personally. Based on reflection papers and discussions after the program, transformative learning has been attested and observed from both CWNNU and Ithaca College students. Students expressed stronger interest in the other culture as well as language. The program allowed students to taste foreign cultures and question different cultural assumptions. Students from different countries with diverse cultural background share common values in sport and music performance. Mutual respect has been established with better understanding
of each other. As a result, students become key actors in the integration of culture, sport and communication. The program is a strong evidence that one of the best ways to establish friendly relations between young people of different cultures is to engage them in sport and collaborative performance activities."
Proposal of Training Organization to Basketball Male Contemporary Elite in the Competitive Period

Elite performance

"José Francisco Daniel, Vagner Roberto Bergamo, Carlos Roberto Padovani, Paulo Cesar Montagner, João Paulo Borin"

"Pontifical Catholic University of Campinas, Pontifical Catholic University of Campinas, Paulista State University, State University of Campinas, State University of Campinas"

"BR, BR, BR, BR, BR"

"Background:

One concern of professional coaching staff and elite basketball researchers is the organization of a training program that enable athletes to develop better decision-making performance in tactical aspects of the game. It is known that sports optimization is related to the control of a wide variety of influences and respecting their interaction is important to achieve great results. This variety of interference must follow the specific actions that mark the competition, therefore, training closer to the game actions is essential to achieve this optimization. Thereby, the aims of this study were to describe the intensity of official games of the Brazilian Basketball Championship; and propose a training organization that attends the needs of elite contemporary male basketball in competitive period.

Methods:

Ten elite basketball male players (27.6±5.54years; 91.61±11.51kg; 1.93±0.08m), from a specific team, were observed in six games of the National Basketball Championship, in the adult male category. Before the beginning of the competition were performed anthropometric measurements and physical tests, and using videos of six matches, were characterized the tactic and technique, collective and individual components. To check the physical demand athletes played with heart rate (HR) transmitter. The data were kept in computational bank and produced descriptive information.

Results:

The main results pointed to descriptive values of %HRpeak game: minimum value: 46.03, median: 89.95, maximum: 100.00, mean and standard deviation: 88.27±7.74; tactical actions: defense: 88.4±7.6, offense: 88.1±7.8, transitions: defense: 88.4±8.8 and offense: 88.4±7.8; functions: point guard: 89.3±8.0, forward guard 88.0±8.4, forward: 86.9±7.5, center forward 88.8±6.9 and center: 88.3±8.2. From these data it is suggested that the training means and methods should be oriented, for the most part, with the integration of all components of training - physical (PH), technical (TE) and...
tactical (TA), and in each of the training session, the intensity of the exercises should be based on game’s %HRpeak. The PH work must be performed in court, associated with the TE component and/or TA, whereas TE should be second TA aim. All exercises applied to athletes must have requirement and duration, as close to the game situation. The training means and methods must allow high variability of TA situation, so the players have diversified possibility of action choice and can perform like game situation. It also suggests that the specific resistance should be worked through the game method and quantitative (volume) and qualitative (intensity, complexity) aspects must be determinants to achieve the aims.

Conclusions:
Because of the intensity that the sport is practiced in competitive period, the training organization process must be based in this reality. Preparation time should be optimized and for this, the means and methods must be associated with the training components."
Prospects of Neurorehabilitation Using Rehabgesture and NeuroR Systems

Rehabilitation

"Alexandre Fonseca Brandão, Gilda Assis, Raphael Casseb, Sara Regina Meira Almeida, Li Li Min, Gabriela Castellano"

"State University of Campinas, State University of Campinas, State University of Campinas, State University of Campinas, State University of Campinas"

"BR, BR, BR, BR, BR, BR"

“Background: Measuring the Gain of Joint Mobility of the Affected Limb During Physical Therapy is of Great Interest for Occupational and Physical Therapists to Evidence and Record Patient Progress. Here We Evaluated a Male Patient, 47 Years, Righthanded, Who Suffered a Left Ischemic Stroke (Verified by Magnetic Resonance Imaging) 10 Months Previously, Which Affected the Right Side of His Body. Aims: To Use RehabGesture® to Measure Changes in Range of Motion (ROM) of the Upper Limbs, for a Stroke Patient Undergoing Conventional Motor Rehabilitation Therapy Combined With NeuroR-based Therapy.

Methods: Both NeuroR and RehabGesture® are Software Tools Developed by the Authors. NeuroR is an Augmented Reality System for Motor Stimuli that Simulates, on a Computer Screen, a Virtual Arm in Place of the Affected Arm. RehabGesture® Allows ROM Measurement, and Was Used for ROM Evaluation of Upper Limbs Before and After the Physiotherapy Session. The Study Was Approved by the Ethics Committee of UNICAMP – CAAE:35771314.4.0000.5404.

Results: Whereas the Normal ROM Value During Shoulder Abduction is Between 0° and 180° (Evaluated for the Left Shoulder), the Data Showed an Abduction of the Right Shoulder Joint Ranging Between 31° and 54° Before the Physiotherapy Session and Between 20° and 32° Afterwards.

Conclusions: The Values Found for the Right ArmDemonstrated a Functional Restriction of the Affected Limb and a ROM Reduction from the Beginning to the End of the Therapy Session, which Indicates a Possible Fatigue During Treatment for this Joint."
Psychological Assessment of Adolescent Volleyball Athletes: Competitive Anxiety and Mood Alterations over a Regular Season

Sport psychology

"Luís Eduardo d’Almeida Manfrinati, Ricardo da Costa Padovani"
"Federal University of São Paulo, Federal University of São Paulo"
"BR, BR"

“Background:
Sports in general requires knowledge and the following of established rules, learning specific psychomotor skills, concentration and attention to the movements, regular training, discipline and dedication. In the case of adolescent athletes this particular period of development might cause changes in several physical and cognitive aspects affecting the sport performance. When it comes to a sport like volleyball that requires mainly cooperation, concentration and quick decision making, these attributes may induce the outcome of a competition. Competitive anxiety and deficiencies to control the emotions has been considered by sports psychology experts as important psychological aspects in sport. The objective of this research was to evaluate the levels of competitive anxiety and mood alterations over a regular season of adolescent volleyball players compared to the characteristics of parental style, physical height and sport experience.

Methods:
It is a longitudinal and quantitative study. The sample was formed by 13 athletes, evaluated over four stages during a regular season. Instruments: Competitive State Anxiety Inventory 2R (CSAI-2R), Brunel’s mood scale (BRUMS). The study was approved by the Research Ethics Committee of the Federal University of São Paulo (664.979/14).

Results:
The group obtained higher scores in competitive anxiety and mood in the initial stage “away from home”. However, lower scores were reached in the third stage, semi-final “at home”, after a good performance during the previous stage. The principal discovery was the difference between the tension initially and the other stages, which were related to the parental behavior and changes according to the sport experience, the physical height and the specific volleyball function.

Conclusions:
The importance of parental styles was noted in the sporting development of adolescents, together with the impact of the competitive environment in cognitive aspects and emotional reactions of young athletes. It also indicates the importance of having a sport psychologist in every sport team.”
**POSTER PRESENTATION**

**PSYCHOLOGICAL CHARACTERISTICS IN BRAZILIAN FOOTBALL PLAYERS**

Sport psychology

"PAULA T. FERNANDES, MARINA B. P. VIDUAL"

"UNICAMP, UNICAMP"

"BR, BR"

“**Background:** It’s important to know the psychological characterization (emotional and cognitive) to the preparation of the football players. So, this study aimed to characterize the psychological profile of Brazilian football players, comparing man and woman.

**Methods:** We evaluated 29 woman (W) (mean age: 16 years, SD=3, 62) and 29 man (M) (mean age: 22 years, SD=3, 25) of two teams from São Paulo state. We used the following instruments to this characterization: Profile of Mood States (POMS), Sport Competition Anxiety Test (SCAT), Competitive State Anxiety Inventory-2 (CSAI-2), Beck Anxiety Inventory (BAI), Recovery Stress Questionnaire for Athletes (Sport RESTQ-76), Rosenberg Self-Esteem Scale, Resilience Scale, Motivation Inventory (IMPRAFE-54), Trait Sport-Confidence Inventory (TSCI), Bredemeier Athletic Aggression Inventory (BAAGI), Body Image Scale, The World Health Organization Quality of Life (WHOQoL-Bref), Concentrated Attention Test (Teste AC), Pictorial Test of Memory (TEPIC-M), Codes and Abstract Reasoning subtests of the Wechsler Adult Intelligence Scale (WAIS), Coloured Trail Making Test (TTC).

**Results:** The results showed statistically significant differences: anxiety: W=21.2, M=18.6, p=0.014; aggression: W=73.9, M=70.3, p=0.05; body image: W=79.7, M=98.5, p<0.001; self-confidence: W=78.9, M=93.2, p<0.001, self-esteem: W=10.6, M=4.3, p<0.001; quality of life: W=3.9, M=4.3, p=0.01; competitiveness motivational aspect: W=32.2, M=35.4, p=0.017; vigor component of mood states: W=15.31, M=19.4, p=0.005; speed processing: W=79.6, M=56.3, p<0.001; perceptual tracking: W=17.6, M=36.9, p=0.003; memory: W=16.9, M=14.2, p=0.003; focused attention: W=75.5, M=88.9, P=0.025.

**Conclusions:** The male athletes showed higher levels compared to the female athletes in the following emotional aspects: anxiety, aggression, body image, self-confidence, self-esteem, quality of life, and competitiveness motivational aspect and vigor component of mood states. For the cognitive aspects, female athletes showed best levels in: speed processing, perceptual tracking and memory, while male athletes showed better levels in focused attention. Thus, the psychological profile proposed in this study
proved useful to measure psychological aspects of athletes and can be used as a guide for intervention and psychological preparation in football, possible to be expanded to other sports."
Psychological characteristics of Brazilian parabadminton athletes

Sport psychology

“João Guilherme Cren Chiminazzo, Aline Miranda Strapasson, Julia Barreira, Létisson Samarone, Elisa Mara Ribeiro da Silva, Tamyack Macedo, Paula Teixeira Fernandes”

“Unicamp, Unicamp, Unicamp, Gepen, Gepen, Gepen, Unicamp”

"BR, BR, BR, BR, BR, BR, BR"

**Background:** The training of a parabadminton athlete must cover the technical, physical, tactical and psychological aspects required by the sport. It is important to know these variables throughout the training, especially in the moments before the competition to maximize the athlete’s performance. So the purpose of this study was to characterize the psychological profile of Brazilian parabadminton athletes in a pre-competition period.

**Methods:** We evaluated 11 male parabadminton athletes in pre-competition period. They had a mean age of 33.4 (SD ± 11.6) years and practiced the sport for nearly four years. The instruments used to evaluate their psychological profile were: Sport Competition Anxiety Test (SCAT), Profile of Mood States (POMS) and the World Health Organization Quality of Life (WHOQL-Bref). The evaluations were performed by the same examiner during the training. The study was approved by the Unicamp Ethics Committee. Descriptive statistics were used to explore the database collected. To analyze the characteristics presented in the POMS questionnaire, we used the normative values for athletes proposed by Terry. To analyze the association between the answers given in different questionnaires we used the Pearson correlation coefficient. The significance level was set at p <0.05.

**Results:** We found that the athletes showed the “iceberg” profile in POMS questionnaire, however the tension domain showed higher scores (13.4±5.6) when compared to the expected by athletes (5.7). When analyzed the responses in the WHOQOL, the athletes had the highest scores in the quality of life domain (4.3±0.5) and lower scores in the physical domain (3.9±0.6). Analyzing the correlation coefficients between all questionnaires we found that SCAT showed a positive correlation with several POMS domains: tension (r=0.75, p<0.01), depression (r=0.62, p=0.04), aggression (r=0.63, p=0.03) and confusion (r=0.70, p=0.01). Moreover, we found that the psychological domain of WHOQOL presented a proportional inverse relationship with POMS domains, the higher the values intension (r=-0.85, p<0.01), depression (r=-0.70, p=0.01), aggression (r=-0.73, p<0.01), fatigue (r=-0.66, p=0.02) and confusion (r=-0.81, p<0.01), the lower the scores in the psychological domain.
Conclusions: Athletes showed a good capacity for action and reaction observed by the results of the POMS. Lower scores in physical domain and higher scores tension shows up an imbalance of energy to share, an aspect that can be developed by members of the technical staff. As for quality of life, it is concluded that athletes are able to perform their activities properly."
POSTER PRESENTATION

PSYCHOSOCIAL IMPLICATIONS IN ELDERLY IN A RUNNING CLUB

Sport and quality of life for adolescence and aging

"Emerson José Lima da Silva, Daniela Vilela dos Reis, Aline Gomes Uehara, Renan Venâncio dos Santos Alves, Eduardo Alexandre Pereira e Silva, Danieli Andrade de Oliveira"

"Sesc Thermas de Presidente Prudente, Sesc Thermas de Presidente Prudente, Sesc Thermas de Presidente Prudente, Sesc Thermas de Presidente Prudente, Sesc Thermas de Presidente Prudente"

"BR, BR, BR, BR, BR, BR"

"Background: Running and walking have been looked for the elderly who, through sports, look for keeping or improving their quality of life. The aging process influences directly the elderly with the social environment they are inserted in, producing psychosocial adjustments or changes. The proposed work had as main goal to investigate and analyze if through regular attendance to the running club classes the elderly would show effective improvement in the following aspects: interpersonal relationship, autonomy to work on daily life tasks, quality of life and stress level control.

Methods: It was used for the qualitative research an interview semi-structured, applied to the 33 attending elderly in the running club groups at SESC Thermas of Presidente Prudente. After collecting their data, it was used content analysis technique to analyze the results found.

Results: The results show that regarding the interpersonal relationship with other people, friends, family members and other students, 100% of the elderly affirmed to have improved. Regarding the daily life tasks (ADVs) such as walking, grabbing objects, getting in the car and household chores, 89.82% show to have started feeling more capable of performing such activities; 88.23% show to have improved their quality of life; 87.5% of their answers show that their stress level control in random day-by-day situations have also improved.

Conclusions: The psychosocial aspects are directly affected and improved by attending the club classes, which highlights the importance of the continuity theory relation, describing the aging process as just another milestone to be lived by the individual, in a way to continue to interact with the environment and the world and the theory of physical activity being so important for the elderly to keep active physically and also create a daily habit, living the practice of considered social activities."
Quantification force provided by the kick Dolio Tchagi impact in the region atm

Technology in sports

Joyce Vieira Martins dos Santos
Faculdade Clube Nautico Mogiano
BR

"Background:" The main feature of taekwondo is to strike blows using lower limbs. Dollyo tchagui kick is one of most applied in face region in championships and during training, because it provides a better score. Taekwondo requires the use of protector in order to minimize impacts generated by the blows. To keep the athlete head protected it is used an helmet. However, it is frequently in competitions and during the training to happen lesions in the temporomandibular joint (TMJ). This joint is one of the most complex in the body, and is responsible for chewing and speaking.

Methods: Thus, this study aims to quantify the power generated by Dollyo Tchagui kick in ATM region. Therefore it was developed an application that allows to recognize gestures and 20 points of the body joint. To develop the power measurement application described in this study it was uses functions found in MS-Kinect library, created for computational purposes. Is allowed us to create an objected orientted algorithm. In this study participated 7 athletes, aged 16 to 30 of both female; N=4; 49Kg, 57Kg, 67Kg and over de 67Kg) and male (N=3; até 58Kg, 68Kg e 80Kg). The volunteers were positioned in the field of recognition of the Kinect sensor and each participant performed 3 turns of Dollyo Tchagui kick in a Bob Sparring. Information data of each kick were analyzed in real time and stored by the application. For system validation, Bob Sparring was instrumented with the load cell sensor to compare the power intensity measured with the results presented by developed application.

Results: Results were presented in graphics performance and comparing the operation and system repeatability. Through mathematical modeling, electronics and programming on a single set was possible to quantify the power provided in the TMJ region by Dolly Tchagui kick.

Conclusions: Results showed the impact power of the kick in real time with videogrammetry using a device of easy access with the Kinect."
POSTER PRESENTATION

Quo Status of Participation of Physical Activity for Beijing Citizen Aged 16 to 70 and Demand for PA Service

Sport development

"Wang Kaizhen, ZhanBing, Li Xiaotian"

"Capital University of Physical Education and Sports, Capital University of Physical Education and Sports, Capital University of Physical Education and Sports"

"CN, CN, CN"

"To completely know the quo status of participation of PA for Beijing citizen and their demand for the PA service and to set up the five-year plan for Beijing, the government department-Beijing Municipal Bureau of Sports entrusted our university to launch the project in 2014. The project of survey started in July, 2014 and fulfilled in December, 2015. By the Methodology of questionnaire and mathematical statistics, 3316 samples aged from 16 to 70 had been randomly distributed and 3304 copies had been retrieved. The results are as followed:

1. The total population aged 16 to 70 is approximately 10.384 million in Beijing, of which sports population accounts for 37.25% with the male is 17.88% and female 19.36%. Since female older adults are active in the regular PA before 8:00 and after 5:00, the results show that the proportion of female participation is higher than that of male and the people aged 40 to 69 are most active.

2. The most popular PA in leisure time is brisk walking (24.29%), jogging (12.84%), exercise in Fitness Path (equipment installed in local residence financed by government)(11.79%), which are low-cost and low-skilled.

3. The places for PA are outdoors of residential district (31.2%), park(29.9%), indoors of residential district(27.8%), on the street (17%), square(16.3%), and other areas (18.2%), which means the surrounding places of residential district are preferred.

4. The top three motivations to participate PA are to enhance the strength and health(31.82%), leisure and entertainment(20.21%), to prevent disease(15.11%) in sequence. The difference for male and female is that male people prefer to take part in skillful activities.

5. As to the organization of PA, participation by individuals, with friends or with families accounts for 41.36%, 32.14%, and 20.39% respectively. Male people intend to participate individually and independently while female people participate PA in communities, taking family members.

6. The proportion of participating PA after 18:00 o’clock is 57.28% and before 9:00 o’clock accounts for 32.87%. The average duration of participation in PA is 6.13 years with men are 0.8 longer than women.
7. The top three influential factors are from colleagues and friends (36.91%), families (24.82%), and media (14.47%) in sequence. Unfortunately, PE only ranks the fourth.

**Conclusion:**

There are 37.25% of Beijing citizens aged 16 to 70 frequently participating PA. The most popular events are brisk walking, jogging, and exercise in Fitness Path. Most people aged 61 to 70 prefer to brisk walking and exercise in Fitness Path with low intensity. Female people prefer brisk walking, Fitness Path, Dancing, Rope Skipping with lowly intensive, rhythmic and collective characteristics. And most of citizens prefer to participate individually, with friends or with families. The surrounding residential places or parks are preferred. The top three reasons to hinder them from participation PA are busy work, no interest and laziness. The demand for PA service now is the increase of places in communities, development of local organizations, the finance support, and Popularization of scientific fitness method."
Background: The aim of this study was to compare the rotation range of motion and performance in Closed Kinetic Chain test in handball male athletes with and without shoulder injury. Methods: The study included 33 teams of players from the National League and the State Championship Handball, mean age 21.48 ± 4.10 years, average weight 88.75 ± 13.04 kg, average height 1.85 ± 0.07 meters, early practice 8.03 ± 3.91 years, average weekly training hours 9.27 ± 0.97 hours. All subjects answered an anamnesis and EROE scale and questionnaire SPADI, as well anthropometric data were collected. The range of shoulder rotation was measured using a goniometer. All subjects performed the Closed Kinect Chain test. The Mann-Whitney test was used to detect differences between groups and also to evaluate the performance differences in CKC test. The one-way ANOVA test was applied to evaluate the differences between the shoulder goniometry values between the groups with and without a history of injury. Results: There was a significant difference between internal and external rotation of shoulder range of motion in both of groups but there is no difference between subjects with or without shoulder injury. There were no statistical differences between the groups and the test results of CKC. Conclusions: There was no significant difference between the results obtained by subjects with lesions when compared to subjects without injury, but more studies are needed to verify that the involvement level of the athlete’s shoulder joint has influence on the performance in CKC test."
POSTER PRESENTATION

REASONS FOR ATHLETE'S PERMANENCE IN BRAZILIAN PARALYMPICS SPORTS

Elite performance

"Vinícius Denardin Cardoso, Marcelo de Castro Haiachi, Alberto Reinaldo Reppold Filho, Adroaldo Cezar Araújo Gaya"

"State University of Roraima-UERR, Federal University of Sergipe - UFS, Federal University of Rio Grande do Sul - UFRGS, Federal University of Rio Grande do Sul - UFRGS"

"BR, BR, BR, BR"

"The Brazilian Paralympic sport presents a scenario of conquests, marks and records that makes their success is seen for all the population. The hard work of many athletes associated with extensive planning of the brazilian sports managers makes the Brazilian Paralympic sport is considered an emerging power on the international scene. Results demonstrate the evolution that Paralympic sport reaches in Brazil and for the Paralympic Games in Rio de Janeiro in 2016, the goal stipulated by the Brazilian Paralympic Committee is the 5th place. Also is possible to realize that is increasingly growing number of people with disabilities entering the sport, stimulated by different factors, seek through sport a new way to improve their health status, financial autonomy and also conquering positive results in high paralympic performance. Thus, for the purpose of improve the conditions of sports activities, whether directed to health or high performance, it is important to know the reasons that lead athletes with disabilities to remain inserted in sports. The aim of the study is to identify the reasons that lead the athlete with disabilities to remain practicing their sport? The study is characterized as descriptive and qualitative approach. Data collection was conducted through semi-structured interview. The study included 20 Paralympics athletes from modalities Athletics and Swimming, all athletes are covered by the Bolsa Pódio Program from Ministry of Sports - Brazil. After the analysis the information collected, the study showed that the reasons considered most important to the permanence of Brazilian paralympic athletes in the sport are: Incentive Education Teachers Physics and Coaches n = 19 (95%), where the support of these professionals were considered fundamental for your sporting career; Family Support n = 12 (60%), the presence of your parents was considered essential in all athlete's life; also was observed the Participation in competitions n = 14 (75%), where competitiveness is important to continue training; and also Sociability n = 3 (15%), which be among friends and establish new friendships through sport is considered important for your sport career. These are the main reasons that athletes have to remain in the sport and are considered decisive for their continuance in the sport. In this way, knowing the reasons that lead high-performance athletes to stay in sports, we can provide
important information to coaches and managers in order to prevent possible dropouts in Paralympic sports and also how to motivate their athletes in training and competitive periods. With this, more Paralympians can get positive results and contribute to the consolidation of Brazil as one of the world Paralympic powers.

**KEYWORDS:** Paralympic Sport; Paralympic athlete; High performance; Permanence in sport.
Background: Excess of body fat, often resulting from lifestyle habits, increases the risk of cardiovascular disease (CVD) and the prevalence of deaths from chronic non-communicable diseases (NCDs). Reduction in body weight may normalize blood pressure levels, making unnecessary the use of medications for hypertensive individuals. Worldwide prevalence of hypertension in adolescents (3-11%) bolster the need for multiprofissional programs of obesity treatment with a focus on physical activity, psychological and nutritional intervention, which may contribute to the reduction of risk factors for CVD. Aiming to understand the relationship between blood pressure and anthropometric variables, body composition and physical fitness in adolescents with overweight, it was decided to investigate the influence of body mass, body mass index (BMI), waist circumference (WC), relative fat mass (RFM) and VO2max over blood pressure (BP) of beginner adolescents in a Multiprofessional Program of Obesity Treatment (MPOT).

Methods: This is a cross-sectional study, with 27 adolescents aged 14 to 17 years old committed in a MPOT between 2014 and 2015, which were analyzed the anthropometric data (body mass, BMI and WC), body composition (RFM), physical fitness (cardiorespiratory fitness - VO2 max) and blood pressure (BP). There were used the cutoffs from The International Diabetes Federation consensus definition of the metabolic syndrome in children and adolescents for blood pressure classification in the normal and altered. It was held descriptive statistics (mean, standard deviation and frequency distribution) and inferential (t-student test and Mann Whitney U test) to observe the results.

Results: Comparing the body mass, BMI, WC, RFM and VO2max among adolescents with normal blood pressure (NBP) and altered (ABP), it was observed that the group with ABP showed the worst results with significant differences for body mass, BMI and WC. In addition, there was a major change in prevalence of blood pressure among adolescent males, severely obese, abnormal WC, higher RFM and lesser VO2max.
Conclusions: Body mass, BMI and WC directly influence blood pressure among adolescents, highlighting the need for obesity prevention and treatment based on multidisciplinary programs for this population, since excess of weight is recognized as a major determinant of blood pressure elevation both in adults and in children and adolescents.”
POSTER PRESENTATION

Relationship between Beck Battery for Quad Rugby Skills Test Scores and Seated Limits of Stability of Wheelchair Rugby Players

Elite performance

"Laura O. Carmona, Paula B.R. Santos, Patrícia S. Vigário, Thiago Lemos"
"UNISUAM, Rio de Janeiro, Brasil, UNISUAM, Rio de Janeiro, Brasil, UNISUAM, Rio de Janeiro, Brasil, UNISUAM, Rio de Janeiro, Brasil"
"BR, BR, BR, BR"

“Background: Trunk function is a very important aspect of adapted wheelchair sports, because it potentially helps the athlete at various sports-specific activities. For example, it has been demonstrated that a higher arc trunk movement allows greater acceleration capacity at the beginning of a sprint. In wheelchair rugby (WR), the trunk function is an important part of athletes’ classification. However, there was no evidence that higher trunk function is associated with improved performance in this modality. The aim of this study was to investigate the association between the trunk function and sports-specific skills performance of WR athletes.

Methods: Fifteen male athletes from Brazilian national team (n=7) and a local WR team (n=8) were evaluated. Trunk function was assessed in terms of limits of stability (LS) in the seated position. The athletes were positioned over a force platform suspended on a woodblock and instructed to lean their bodies as far as possible in eight directions indicated on a computer screen. Center of pressure (COP) coordinates were calculated from the ground reaction forces acquired with the force platform. LS were computed as the log-transformed area of 68% confidence ellipse adjusted to maximal COP excursion achieved for the eight directions. For the assessment of sports-specific skills performance the Beck Battery for Quad Rugby Skills Test (Beck Battery) was applied. Three trials were performed for each one of the five tasks of the Beck Battery, and the best performance was considered for further analysis. Person correlation coefficient (R) was used to determine the association between LS and Beck Battery scores. The 95% confidence interval (CI) of R was estimated through bootstrapping. Statistical significant was set at P<0.05.

Results: Pearson correlation analysis did not result in any significant association between LS and Beck Battery scores (all P<0.1). Nevertheless, a qualitative analysis reveals that the association between LS and pass for accuracy scores was moderate (R=0.43, 95% CI of 0.15-0.69), ranged from small to large according to Cohen’s scale.
**Conclusions:** Sport-specific skills performance are not significant associated with seated limits of stability of wheelchair rugby players. A moderate relationship can be suggested only for the pass for accuracy test. Our results suggest that trunk function have minor impact on wheelchair rugby performance.”
POSTER PRESENTATION

Relationship Between Different Levels of Physical Activity and Quality of Life in the Consumption of Psychotropic Substances Among Adolescents

Sport and quality of life for adolescence and aging

"Bruno de Oliveira Pinheiro, André Luiz Monezi Andrade, Denise De Micheli"

"Federal University of São Paulo, Anhembi Morumbi University, Federal University of São Paulo"

"BR, BR, BR"

“Background: The growing use / abuse of legal and illegal substances among adolescents has been the subject of numerous studies, focusing not only on the prevalence of use, but also on factors associated with the risk and protection, among the levels of quality of life and physical activity, by the effect on the health of the young. This study aimed to investigate the relationship between different levels of physical activity, quality of life and consumption of psychotropic substances among students.

Methods: The study was conducted with 754 adolescents from four public schools selected by criteria of convenience. We used as instruments the International Physical Activity Questionnaire (IPAQ), the KIDSCREEN-27 and the Drug Use Screening Inventory (DUSI), beyond a sociodemographic questionnaire with information related to academic aspects, all self-applicable. The data underwent descriptive analysis and hypothesis testing, mean and variance based on test Kolmorov-Smirnov. The data underwent descriptive analysis and hypothesis testing. To compare the groups used the Student t test for continuous variables and the chi-square test for categorical variables.

Results: In relation to the level of physical activity, 33% of the sample practiced low, 51% moderate and 16% high level. Compared to other groups, students of the high level of physical activity group had lower levels of quality of life in dimensions related to autonomy / relationship with parents, friends / social support and school performance and higher use of drug use, energy drinks and ergogenic.

Conclusions: The results found here consider that the use of substances can also be associated with the practice of physical activities, even if considered healthy practices, undermining its effectiveness as a protective factor when excessive practice of physical activity becomes risky behavior for use drug and negatively affecting the adolescent's quality of life. In general, it is suggested to carry out interventions of educational nature on substance use, as to adolescents practice physical activities as to parents and coaches."
POSTER PRESENTATION

RELATIONSHIP between SELF-ESTEEM and RELATIVE AGE EFFECT and/or REGULAR EXERCISE in JAPANESE ELEMENTARY SCHOOL CHILDREN

Sport psychology
"Jin Uchimaru, Naoko Kikuchi, Hidekazu Takemura, Hiromu Hariu, Kazuo Kuno"
"Sendai University, Sendai University, Sendai University, Sendai University, Sendai University"

"Background: It is well known that lower physical fitness, exercise dislike and insufficient exercise in children are a serious problem for healthy growth and development of physical and mental. In particular, self-esteem is essential in exercise and sports activities. However, there are also unclear points such as the relationship of exercise habit and/or lifestyle and self-esteem in the growth and development period. Also, Self-esteem would be effect by growth and development in youth, and relative age effect (RAE) is an important issue in considering of self-esteem etc. The purpose of this study was to evaluate the relationship between self-esteem and relative age effect and/or regular exercise in the Japanese elementary school children.

Methods: This study was conducted among 3,680 children (1.805 boys, 1.875 girls), 4th-6th grade elementary school children (aged 9-12 years old), from 21 elementary schools in south district in Miyagi, Japan. All participants were asked to fill out self-report measures of habitual of exercise and self-esteem questionnaire. Self-esteem was investigated using Self-esteem Scale (Tokyo edition, 2011). This scale contains 22 items or phrases to measure individuals’ worth and attitudes toward a real emotion concerning each item on a four-point Likert's scale (absolutely agree, agree, disagree, absolutely disagree) with scores of 1–4 and an average score of 1–4 points. Also, we evaluated three category of self-acceptance, that is, self-assertion and self-determination using by this scale. To evaluate relative age effect (RAE), we compare to the self-esteem at each birth month of annual-age group. Furthermore, participants were divided into four groups for each grade and gender from habitual of exercise questionnaire; high regular exercise (HE: more 3 days/wk), middle regular exercise (ME: 1~2 days/wk), low regular exercise (LE: 1~3 days/month), and no exercise (NE). And we compared self-esteem with self-acceptance, self-assertion and self-determination among each groups.

Results: Self-esteem of 4th and 5th grade children was effect by RAE. That is, the self-esteem of early birth month children was higher than that of latter birth month children. On the other hand, we could not find change in RAE of 6th grade children. Regardless of the gender, self-esteem of HE in each grade was higher than any other group. And, Self-acceptance, assertion and determination also tended to be higher in HE group.
higher due to the frequency of exercise habits, respectively. Self-acceptance, assertion and determination of girl in each grade were higher than that of boy. Self-esteem has become a low value with the upper grades.

**Conclusions:** Our results indicate that 1) RAE would be influence on self-esteem of youth, and 2) regular exercise would be enhanced and/or improved self-esteem in elementary school children. In addition, puberty may be further complicate self-esteem in children of this age. Further studies needed to confirm whether relate to the physical fitness level and lifestyle and self-esteem could be suggested as a new exercise intervention or clinical strategy for the health growth of children."
POSTER PRESENTATION

Relationship Between the Rate of Perceived Exertion and Treadmill Speed in Soccer Players

Neuroscience and sport

“Luis Felipe Tubagi Polito, Aylton José Figueira Junior, Marcelo Callegari Zanetti, Carla Giuliano Pinto Montenegro, Marcelo Luiz Marquezi, Juliana Lino, Kátia Ponciano, Danilo Sales Bocallini, Hamdi Chtourou, Felipe Dorta Valverde, Marcelo Santin Cascapera, Maria Regina Ferreira Brandão”

“São Judas Tadeu University, São Judas Tadeu University, São Judas Tadeu University, Albert Einstein Hospital, Cidade de São Paulo University, Cidade de São Paulo University, São Judas Tadeu University, São Judas Tadeu University, National Centre of Medicine and Sciences in Sport, Metodista de São Paulo University, Cidade de São Paulo University, São Judas Tadeu University”

“BR, BR, BR, BR, BR, BR, BR, BR, BR, BR, BR”

“Background: The central signals from ventilation and also the peripheral signals integration from the muscles and joints have their integration in the somatosensory cortex, enabling local or general perception of effort. Another more recent theoretical model explain the perceived exertion by increasing corollaries stimuli to motor impulses, where the intensification of motor impulses generated by the central nervous system for the movement executions would be the main factor responsible for the increased of rate of perceived exertion (RPE). Despite the RPE usually be uses as estimate of internal training load and monitoring the exercise, few instruments are designed and validated for specific populations and sports. Thus, the purpose of this study was to validate a specific perceived exertion scale for soccer players using cartoons and numbers, checking the validity of this instrument from its correlation with the treadmill velocity during the incremental test, and the correlation of velocity with other physiological and metabolic parameters. Methods: the Gol Cartoon Scale (GOL) composed by 6 cartoons that show different grades of effort (1: low effort to 6: exhaustion) and the Heart Rate (HR), Percentage of Maximal Heart Rate (%HRmax), and the Blood Lactate Concentration ([La]) were evaluated at the maximum cardiorespiratory exercise test by ergospirometry. The test protocol consisted of 3 minutes stimulus steps with 1-minute recovery between progressive increases of 1 Km/h. Thirteen soccer players (age 18.8 ± 0.77 years, height 177 ± 8.0 cm, body mass 70.8 ± 7.53 kg, body fat percentage 13.42 ± 3.19 %, lean mass 60.49 ± 4.75 kg and fat mass 9.60 ± 3.19 kg) were evaluated. Correlations among the treadmill velocity, GOL, HR, %HRmax, and [La] scales was assessed for each three minutes and for the total test (p<0.05). Results: the results showed a high and significant correlation between the variables Treadmill Speed and Gol Scale (r = 0.90, p<0.05), Treadmill Speed and HR (r = 0.86, p<0.05), Treadmill Speed and %HRmax (r = 0.93, p<0.05), Treadmill Scale and [La]
(r = 0.77, p<0.05). **Conclusions:** We can conclude that the Gol Cartoon Scale is a valid, practice and good option to determine RPE in soccer players, and can be used to soccer players from different nationalities and languages.

(11) 9.6195-8447 / e-mail: lfelipeef@uol.com.br"
POSTER PRESENTATION

Relative Performance Index (RPI)- An Alternative Approach to Measure Performance

Elite performance

"Domingos Rodrigues Pandelo Junior, Andressa F de Abreu, Paulo Henrique de Azevedo"

"GEPEFEX/UNIFESP, GEPEFEX/UNIFESP, UNIFESP"

"BR, BR, BR"

“Background: The proposed model differs from the traditional performance analysis, which considers only the absolute performance (final placing on the competition). In the relative performance index, proposed here, we consider how much an athlete was better than others competitors in terms of performance (measured by time). How to measure the relative performance of athletes in different events, in different years, without only consider the final ranking? How to differentiate an athlete who arrives 1 second behind the first-place, from another that comes 1000 seconds behind the first-place?

Methods: The 10 best Ironman athletes, who participated in the World Championship in Kona, HI, from 1981 to 2013, were analyzed. To enter in the sample, the basic criterion was defined as having completed at least five IM World Championship in the top 10 rank. For analysis of relative performance, we created a “P index” of relative performance, measured by the athlete’s performance semicovariance, with the average performance of the top 10, divided by the athlete’s average performance semivariance. The use of semicovariance and semivariance was indicated to capture only performances above the average, since the goal was to measure superior average performance.

Results:

Conclusions: The relative performance index can be used to compare athletes who competed at different periods. With the traditional model of absolute performance that is not possible, because we have change in bicycle technology, training strategies and nutrition, for example. It can also be used to evaluate the relative performance of the disciplines of a competition (in the case of triathlon, we can divide the index for swimming, biking and running), contributing to the coaches to target the on the training of their athletes. To the relative performance, the consistency of results is the great goal to be reached. Although the present study has been done with triathlon, this index could be applied in other sports."
Representativity of São Paulo State’s Women’s Artistic Gymnastics in the Brazilian Cenario

Sport development

"Letícia Bartholomeu de Queiroz Lima, Laurita Marconi Schiavon"

"São Paulo State University, University of Campinas"

"BR, BR"

"Background: Artistic Gymnastics is a sport that has had greater prominence and disclosure in Brazil within the last 15 years, possibly due to the better results obtained by Brazilian gymnasts in the international arena. The Brazilian southwest, in addition to being a more populous region with greater economic relevance in the country, concentrates 40% of the entities affiliated with the state gymnastics federations in the country. The state of São Paulo stands out because of its large population, its greater economic representativeness in the country and for being the state that has invested the most in sports in the last ten years. It also has the Federation with the largest number of affiliated entities among the state gymnastics federations.

Methods: This documental research investigated Women’s Artistic Gymnastics (WAG) in the state of São Paulo, Brazil, by analyzing the results of the Brazilian WAG Championship, a relevant nationwide competition of significant repercussion in the country, in four editions (2011 to 2014).

Results: In view of the results, the participants and the participating institutions in the four years of the Brazilian WAG Championship analyzed in its different categories (9 and 10, 11 and 12, 13 to 15 and from 16 years old) and levels (A for higher demand and B for lower demand), the state of São Paulo was observed, quantitatively, to have a significant output of gymnasts, with the largest number of participating gymnasts in practically all categories and levels, with an exception only in the 9 and 10 years old B category in 2011 and 2012; and it was also the state with the largest number of registered entities, which may also suggest a diversity of available places to practice the modality. However, if observed the quality of the gymnasts, taking the number of medals as a reference point, there is some disparity. In the 9 and 10, 11 and 12 and 13 to 15 B years old categories, the state won 45.75% medals in relation to the other states. Although, in the 13 to 15 A and from 16 years old categories, categories in which athletes are of age to participate in the Olympic Games and World Championships, São Paulo’s performance falls drastically, with a reduced number of victories, 11.83%. Among the institutions in São Paulo, there is a prevalence of public institutions, most of which are managed by city halls. The Metropolitan Region of São Paulo (MRSP), however, stands out in relation to the other regions of the state, due to the fact that, in addition to having a presence in all categories and levels, it
presented a higher number of victories than the other regions of the state, 88.8%. Moreover, there was just a small presence of entities from the other regions of the state in the level of highest difficulty (level A), seven entities in the 9 and 10 years old category and one in 11 and 12, with no representation in the others categories.

**Conclusions:** The state of São Paulo, more specifically the MRSP, is well represented in Brazilian WAG. However, despite being a state with many institutions that offer WAG practices and have expressive results, the situation in the state as a whole is not the same.
Research on anatomical features of basketball skills and specific strength training issues
Sport pedagogy
"Xueling Zhang, Minghai Wang, Yufei Du"
"Physical Education College of Zhengzhou University, Physical Education College of Zhengzhou University, Physical Education College of Zhengzhou University"
"CN, CN, CN"

Background:
Combining the basketball characteristics, this article analyses the anatomy characteristics of basketball skills, on the basis of the Physiological and sports training theory, it analyses the strength quality and the decisive factor, then, talking about the problem of the special strength training. This article is trying to provide scientific basis for strength training of basketball players.
The basketball movement, in nature, is a kind of accuracy under strong fighting [1]. Such feature makes the physical strength be the foundation of other qualities of basketball players, especially now days this movement develops toward paying more attention to body strength and coaches regard it as a key . when basketball players training themselves, one of basic principles is identifying with special power [2], that is to say, when choosing training ways one show have a good knowledge of muscle work as well as operating principle of these muscles, and quantity of motion show be based on energy-offer pattern and metabolism of muscles, so the relative energy-offer systems will be trained well .

Methods:
1. Develop maximum strength of muscle
2. Develop fast strength of muscle
3. Develop muscular endurance
4. Static exercise
5. Concentric exercise

Results:
1. harder training on fast twitch fibres mainly
2. take more eccentric strength training
3. strength training principles

Conclusions:
The core area, the middle segment of a human body, is an entirety formed from waist, pelvis and hip joints. Specially the area above hip joints under shoulder joints includes pelvis. The muscle groups
included are at dorsum, at belly and all the muscle groups instituting the hip joint[8]. The muscle contraction in a player’s core area can create a pivot for the movement of upper and lower limbs and coordinate them to smash, so as to optimize the producing and passing and controlling of strength[9]. So the core area of a player is the key point to complete the technical movements.

Basketball is a sport event aimed at shooting. It needs the participation of plenty of joints and muscle groups such as the jump-start and emergency stop and the stability of body posture in air and so on. It requires not only integral control but also precise control of body (the core area) and limbs. In domestic fields of basketball training, people used to put emphasis on limbs but not body (the core area), especially the strength training of deep small-muscle groups. After long-term intensive training and matches, parts of basketball players’ shoulder, knee and ankle are easy to get lesions because of excessive burden. After systemic training of core strength, a basketball player."
Research on China’s Preparation Strategy for competing at the 2022 Winter Olympics

Elite performance
Hou Haibo
China Sport Information Center
CN

“Background:
In July 2015, Beijing and co-host city Zhangjiakou, in surrounding Hebei Province, won the right to host the 2022 Winter Olympic Games. How Chinese athletes can deliver a remarkable performance at home in 2022 is now a hot topic among the Chinese sports community.

Methods:
By using the methods of literature research, statistical analysis and experts interview, this paper researches into the present situation of winter sports in China, and gives suggestions on China’s preparation strategy for competing at the 2022 Winter Olympic Games.

Results:
1. China’s achievements at the Winter Olympics
Since its Winter Olympics debut in 1980, China has remoulded itself from a winter sports minnow to a competitive force. Claiming its first-ever Winter Olympic medal (a silver) in Albertville in 1992 and its first-ever gold in Salt Lake City in 2002, China has bagged a total of 12 gold, 22 silver and 19 bronze medals in the past 10 winter games.

2. Problems Facing China
Because of its natural conditions and the public’s exercise habits, winter sports facilities are inadequate and winter events less popular in China, leading to a relatively low competitive level in winter events. China broke into the top ten of the Winter Olympic Games medal tally only once. Ice sports, short track speed skating in particular, have become China’s main source of golds and medals. The 2018 Games in South Korea’s Pyeongchang features seven sports, 15 disciplines and 102 events, while China now has launched seven sports, 13 disciplines and 75 events. Compared with the sporting powers in the medal tally, fewer winter events qualify China for the Winter Olympics and its medal haul is more narrowly distributed.

Conclusions:
This paper gives the following Suggestions:
1. to cement its dominance in some events and try to increase the number of events it dominates
2. to develop its potentially strong events and strive for a breakthrough
3. to bring about a more balanced development of events, narrowing the gap between China and world powers in its weak events
4. to allocate more funds to winter sports and expand fund-raising channels
5. to enhance exchanges and cooperation between China and foreign countries in order to get a better understanding of the new trends in the development of winter sports around the world
6. to step up efforts to cultivate reserve talent, ensuring the sustainable development of winter sports in China
7. to build a first-class coaching staff and innovate training and management methods
8. to increase the number of winter sports venues and facilities and make them more accessible to the public, laying the foundation for the further development of winter sports.
9. to step up scientific research and service provision, and improve the scientific level of training and boost the capability of sports equipment development.
POSTER PRESENTATION

Research on Development of Students’ Sports Associations in Chinese University Nowadays

Sport pedagogy

"Jie Shi, Guangan Hao"

"Peking University, Peking University"

"CN, CN"

“Background:” Students’ sports associations which aim to students’ interests are more popular than traditional P.E. courses. According to real surveys from thirteen students’ associations, the sporting spirits include ideal, justice and freedom have affected all aspects of culture in Chinese universities. Education ideas and methods are promoted by the development of students’ sports associations.

Methods:” literature analysis, interviewing method, case study method.

Results:” After extensive reading of relevant literature, the first phase, we selected widely twenty-eight communities as the object of study to preliminary data collection and analysis. The second phase, according to the factors such as the basis of geographical distribution of universities and the size and level of development, we selected thirteen representative sports associations to do in-depth analysis. Finally, I summarized four features of the Chinese students’ sports association nowadays. It includes the standardization of the management system, the pluralism of activities, the diversification of participation, the compaction of contacting teaching. After comparing with different association, I found sports associations of college students a tendency to polarization. After in-depth study, I find three problems especially in some sports associations which have challenges or troubles. The problems are mixed brand building, inaccurate association positioning and formidable historical heritage.

Conclusions:” To solve the development of undergraduates’ association, I need through the Stakeholder Analysis Theory and Government Theory to confirm the interested parties. It includes mainly university administration, brothers associations, sponsors and the media. The methods for the development of undergraduates’ sports associations have to base on the interested parties. Through innovation, marketing and cooperation, association can achieve scientific development goals.”
POSTER PRESENTATION

Research on Non-protein Energy Metabolism Balance of Athletes

Sport nutrition
"JIAOJIAO LU, JUN QIU, QIAN XU, JINHAO WANG"
"Shanghai Research Institute of Sports Science, Shanghai Research Institute of Sports Science, Shanghai Research Institute of Sports Science, Shanghai Research Institute of Sports Science"
"CN, CN, CN, CN"

“Background:
Modern pentathlon and fencing as two different types of sports both have a high demand for energy reserves, so reasonable dietary supplement plays a key role for physical recovery. In the daily diet, protein as a part of the body is not directly involved in energy sources. Human body needs energy mainly comes from the carbohydrate and fat stored in the body, we call it non-protein energy system. This study was designed to discover the feature of non-protein dietary intake and energy expenditure of modern pentathlon and fencing athletes.

Methods:
Study in a total of 17 athletes, of which nine men and eight women. The average age was 24.5±3. All experiments for 3 days. Testing the resting energy expenditure (REE), and the body shape (height, weight, body composition) on the first and the third days early in the morning on an empty stomach. Record for three consecutive days to fill in diet (dietary record, DR), using food weighing method to calculate the dietary energy intake (EI).

Results:
There is no significant difference between energy intake (EI) and energy expenditure (EE) in modern pentathlon athletes (P=0.084), but EI is lower than EE from the average. The EI of fencing athletes is statistically lower than EE (P=0.015), which means the non-protein energy intake is insufficient. These results indicated that the daily diet of Shanghai modern pentathlon and fencing athletes is lower than the actual energy consumption. According to the “Recommended Dietary Nutrients and Food Intake for Chinese Athletes "by Chen Jili etc. The non-protein substance energy intake of modern pentathlon and fencing athletes were below the recommended value. In the resting state, there is no significant difference between the modern pentathlon and fencing athletes in REE (P = 0.935). There is no significant difference between the modern pentathlon and fencing athletes in the energy provided by carbohydrate and fat oxidation (P=0.862 and P=0.897, respectively). The proportion of energy
supply from carbohydrate and fat both close to 1.1: 1 (1.17 : 1 and 1.15 : 1, respectively). Athletes for three consecutive days of dietary survey found that athletes of different events without significant difference in EI (P=0.929), carbohydrate and fat intake and the proportion of energy supply has no obvious difference, for CHO: FAT=1.77: 1 and 1.92: 1 respectively.

**Conclusions:**
The non-protein substance energy intake of Shanghai modern pentathlon and fencing athletes is insufficient, need to further strengthen in the diet supplement. The proportion of carbohydrate and fat intake of modern pentathlon athletes needs to be further optimized. There was no significant correlation between REE and sports type.”
POSTER PRESENTATION

Research on the advertising strategy of the broadcast of sports events in China

Sport development
Yuanyuan Liu
Wuhan sports university
CN

“Background: This article focuses on the change of advertising forms from the aspect of integrated marketing. The advertising forms of Guangzhou Evergrande in the FIFA Club World Cup are given as an example. In the examples we studied the change of advertising forms and its following effects. It will provide future guidance for the future change of advertising form in broadcasting.

Methods: Literature review, survey, interview, case study

Results: 3.1 Integrating marketing is the integration of independent marketing, and maximizing profits through synergy.
3.2 Sport and activity products. While integrating the resources, it was found that every sport activity requires large amount of sport products
3.3 Sports area and location. No matter watching the game at the stadium or by living broadcast, the sponsor brands are clearly visible, such as Alibaba E-Auto.
3.4 Content of reports. Due to space limitations, only a small proportion of the audience could see the game at the stadium. As a result, winning TV broadcast right is important. For example, Whaley and China Sports Media built strategy alliance, and they won the Club World Cup internet TV (OTT) exclusive broadcasting right in mainland China.
3.5 Sports prints. During the sports event, many products could be taken full advantage through sports broadcasting, invitation letter and handbag. They could add additional commercial functions.
3.6 The use of advertising. The information is composed of small units, which can impact the audience in different ways. One example is the ad placement in broadcast networks.
3.7 Sports title. Alibaba E-Auto replaced Toyota to officially name the Club World Cup. It reached an agreement with FIFA. The following effect is the large flow of capital into the sport industry. The Guangzhou Evergrande team was also renamed Guangzhou Evergrande Taobao Team, which had a strong impact on the audience.

Conclusions: 4.1 Sports events provide great business opportunity for advertising. Advertising takes the advantage of other industries through sports events. The interest of the public is inspired and the brand reputation is enhanced through commercial promotion.
4.2 The three-dimensional broadcasting enhances the advertising value. Multi-directional stereo reflects various forms of advertising, such as live TV and internet broadcast, and news report. Sports broadcasting is not only broadcasting the game, more importantly, it is to obtain the exclusive report power through broadcasting. The stereo form could thus improve the advertising value, and bring more benefits.

4.3 Developing advertising suit, choose service at one’s own will. Media business should join with each other. Even if the exclusive resources could not be shared with other media during the event, it is applicable to charge a reprint fee for broadcast later.

4.4 Joint advocacy with sports column. Since sports columns are professional and responsive, they obtain high attention from sport fans.

4.5 Enhancing the evaluation of the advertising effect. From the study of advertising effect, personalized advertisements cater better to the market.”
Research on the Biochemical Indexes Variation of Elite Chinese Diving Athletes during the China National Games’ reparation cycle

Elite performance

"Ying Chen, Yuan Zhang, Jin-hong Li"

"Guangdong Provincial Institute of Sports Science, Guangdong Provincial Institute of Sports Science, Guangdong Sports Technique Collage"

"CN, CN, CN"

"Background": There were few reports about long-term follow-up monitor and comparative analysis about the variation of one sports team’s biochemical indices. In order to provide a theoretical foundation for the scientific training and nutrition supporting for different event, gender and level athletes during different years of the China National Games’ cycle, we had four years’ tracing research regarding the Guangdong diving team.

Methods: Subjects included 36 elite diving athletes (16 males, 20 females). SPSS17.0 was used to analyse the data of diving athletes’ HB, CK and BUN during the China National Games’ cycle.

Results: (1) in the National Games year, CK of female athletes was significantly higher than the other years (P < 0.001), BUN of male athletes was significant higher than the other years (P < 0.001), HB of male and female athletes were both significantly higher than the other years (P < 0.001). (2) HB of platform athletes was significantly lower than springboard athletes both in male (P < 0.01) and female (P < 0.01). (3) HB, CK and BUN of 8 male athletes who all achieved the National Diving Championship’s first prizes were all significantly higher than other male athletes (P < 0.001).

Conclusions: These results indicated that cycle stage, event, gender and level all had effect on the biochemical indices of diving athletes. In the National Game’s year, BUN might be more suitable to male athletes as function monitoring index, whereas the changing of CK with training intensity might be more sensitive to female athletes.”
Research on the Design and Application of Youth Football Games

Sport pedagogy
"Yan Hong, Jin Yan"
"Chengdu Sport University, Chengdu Sport University"
"CN, CN"

“Background:
Game is a kind of effective, popular form for teenagers in physical education and sports training. Many years ago, Menotti, the Argentine football coach, made it clear that “the game is the soil of cultivating elite football players”. As a leading country in the world of football, Argentina has excellent ideas and experience in sports training. It is a consensus and an inevitable choice to adopt the policy of systematic planning and cultivating young football talents. In recent years, football has become popular and vigorous on Chinese campus, and has also been included as a course at many schools and universities. The purpose of this study is to stimulate teenagers’ interest in football and cultivate their sportsmanship by being involved in the game. The study also tries to explore the characteristics of football, adding the game to various kinds of activities so as to help young players master techniques and skills in football as well as enhance their physical fitness and comprehensive capacity. With the integrity of physical education teaching theory and practical experience, the study highlights the unique features of sports games in Chinese campus football activities, which will provide guidance for the development of Chinese campus football in future.

Methods:
Literature review, experimental method, logic analysis

Results:
1. Football game meets the need of youngsters, who are very active and energetic to play games and quick to imitate and learn what they are interested in. Thus football game can bring benefits to their physical and mental development.

2. The priority for a football coach is to cultivate the personality of football players when they are young. The young players should be allowed to exert their potentials and take initiatives to form a positive atmosphere in the team when being trained in group.

3. The development of football consciousness can be regarded as the core of youth football game, as it mainly covers the following issues, such as an integrated design about the physical, technical, and tactical aspects, and its application.
Conclusions:

1. Football games is a good activity which allows young people to enjoy the sport and build up their physiques, so as to achieve the comprehensive development of human being.

2. Football games can help young people make full best of the benefits of football, improve their understanding in football skills, tactics and promote training methods and effects by enhancing their interest and enabling them to have wonderful experience in the game.

3. The principles of the design should agree with the physical and mental development characteristics of young people, which mean they should be natural, flexible and variable.

4. A sound design of football games can improve the level of development of youth football training, and promote the future of football in China."
POSTER PRESENTATION

Research on the Reuse of Winter Olympic Venues after Games

Sport development
TENG LENG
Beijing Sport University
CN

“Background:

With the development of Olympic Agenda and acquaintance of host cities in which construction of venues can exert an influence on urban development, the construction and post-games exploitation and utilization of Winter Olympic venues present some new features which is not only form their own rules, but hand on and improve session by session. From the Calgary Winter Olympics in 1988 appeared the first winter Olympic Park, to the 2014 Sochi Olympic Park achieve a great success in post-games operation, the development of the winter Olympic venues has entered a new historical period. In this period, the construction and exploitation and utilization of Winter Olympic venues integrates with the host city tightly. It provides more public sport and leisure space for residents in winter, as the same as winter travel destination for tourists. What is more, it promoted construction of urban infrastructure which accelerated development of district and the urban renewal. Additionally, the modes of management depended on sport management system combining various roles of main bodies, which can be classified three modes: government-led, business-led, and juridical association-led. The choice of which mode should be taken lied on diversity national management system. After that, property right of venue could be clarity, while it turns into the phase of exploitation of venue. In terms of exploitation, Olympic venues should be exploited which treated as a sort of special source and product, including the exploitation of functions and values of venues, making Winter Olympic venues exert efficiency to the maximum extent by exploitation of a definite range of products and projects. The functions and values of venues are deemed to be contents of exploitation, while a definite range of products and projects are intended to be approaches of exploitation.

Methods:
Documentation, Investigation, Statistics, Comparison

Results:

Base on the differences between the backgrounds and concept of host cities, each Winter Olympics has its own characteristic, which makes the mode not exactly the same and cannot repeat all the time, while each scheme has general patterns and rules of Winter Olympic venues that can be refined and
concluded. In terms of handling the cases of previous Winter Olympic Games, this paper disseminates respectively firstly, then sum up the general laws which apply to most Olympic venues. In the first part, historical facts are described in terms of session from the whole concept; in the second part, it specify the cor-relativity between the construction and post-games exploitation and utilization; in the third part, focusing on the commonality and laws of post-games exploitation and utilization.

Conclusions:
By comparing the different modes of management and operation of previous Olympic venues since 1988, we can learn some lessons about construction and exploitation and utilization of Winter Olympic venues, then reasoning out the trend of exploitation and utilization of further Winter Olympic venues to Provide the theoretical basis and practical eases."
POSTER PRESENTATION

Research on the Risk Prevention of School Sports

Sport sociology

CHEN WEI

WUHAN SPORTS UNIVERSITY
CN

“Background:

In recent years, school sports in China have developed fast but it also occur kinds of complicated and specialized school risk events in the process of physical education. In this paper, the author analyzes and assess the risk events existing in the school sports using risk management theory and tools, and attempts to build a set of accordingly preventive measures.

Methods:

literature review method; survey method; interview method; case analysis method

Results:

1.1 The risk management of school sports is the management process to make implementation of risk control and prevention to decrease the level of risk to the lowest level through identifying the uncertainties factors which affect to achieve the goals of school sports.

1.2 Through risk identification found that the occurrence of risk events are most likely to be caused by cognitive ability, safety awareness and responsibility of teachers, students and other staff, the safety hazard of sports venues and equipment, insecurity of the external environment, force majeure and other risks.

1.3 Through risk assessment found that there are several reasons that cause injury occurred, in which the most frequently are security risks of venues and equipment; misconduct or malfunction of students; mismanagement or dereliction of duty of teachers; confrontational accidents; weather and environmental factors.

1.4 The school should choose a reasonable and effective risk control mode and prevention system to minimize the injuries and losses as much as possible. On the one hand, aims to avoid possible risks; On the other hand, aims to minimize losses and achieve risk mitigation to those events that have already occurred.

1.5 Current school sports risk management system is not perfect. It has many problems, such as the inadequate laws and policies, lack of risk management ability and awareness and active control strategies.
1.6 In education developed countries, risk management has the typical features on policy supporting, institutional guarantee, clear duties and perfect insurance.

Conclusions:

1.1 School sports risk have characteristics of objectivity, uncertainty and variability, also they can be managed.

1.2 School sports risk management has its unique characteristics in risk identification, assessment and control. The happening of school sports risk has its internal and external causes; the frequency and amplitude loss of risk events vary in different situations of risk; we should choose different risk control prevention system and different risk models towards different kind of risk events.

1.3 Based on the experience of some developed countries, the school should bring in sound system of relevant laws and policies; developing the risk management awareness; improving risk management capabilities and enhancing the policy initiative to deal with the risk."
POSTER PRESENTATION

Research on the System of Disabled Sports Fitness in Urban Communities

Physical activity and health
"Jin Mei, Wang Jiahong, Chang Furong, Fu Hui"
"Tianjin University of Sport, Soochow University of Sport, Tianjin University of Sport"
"CN, CN, CN, CN"

“Background:

This study takes Tianjin as an example and disabled groups in the six communities as the research object. Centering on the service situation of physical exercise and the disabled people’s appeals, this research looks into the composition, characteristics and physical exercise condition of the disabled as well as relevant service system for them. This can make the physical exercise work targeting the disabled more specific, enhance the organization of these sports activities and provide fitness guidance and service for the disabled, so as to promote the physical fitness of the disabled, bring the joy of exercise, confidence and perseverance to them.

Methods:

This study mainly adopts the quantitative method which is supplemented by the qualitative method. The interview data is collected for the analysis of questionnaire results.

Results:

3.1. Present situation of physical exercise of the disabled in urban communities
3.1.1 Policy support Tianjin’s government has issued relevant policies to protect the lawful rights and interests of the disabled.
3.1.2 Organization Physical exercise service for the disabled is mainly carried out by the community associations of the disabled.
3.1.3 Funding In addition to the sources of funding and using that are specified in the government’s policy documents.
3.1.4 Tianjin urban communities provide two major types of exercise venues: one is the public fitness site while another is the center specifically for the disabled
3.1.5 Tianjin has held five courses for disabled sports fitness instructors.
3.1.6 Tianjin hold “The disabled fitness week” along with the national disabled fitness week annually.
3.2. Restricting factors of urban disabled sports service
3.2.1 The service range of community associations of the disabled is too large. Demand outweighs supply.
3.2.2 The lack of disabled sports instructors makes it hard to meet the needs of community disabled sports.
3.2.3 The lack of community venues and facilities for disabled sports.
3.2.4 The limited source of funding constrains the work of community disabled sports.
3.2.5 The weak awareness of the disabled people to participate in sports.

4. Conclusion
4.1 Further popularize the disabled sports in the community and enrich relevant activities and services.
4.2 Enhance the training of disabled sports instructors, so that more disabled people can be instructed about the scientific way of doing sports.
4.3 Improve the construction of community sports facilities for the disabled and provide special venues for the disabled sports.
4.4 Broaden the channels to raise funds and tap into social capital and corporate sponsorship.
4.5 Carry out rich and colorful community sports activities, mobilize the enthusiasm of the disabled to participate in physical exercise."
Research on the Training Factors for Swimming Achievement of College Women Swimmers

“Background:
Training in college has their own characters, which is influenced by many factors such as time, pressure of study and training condition. Women swimmers are more likely influenced by psychological and physiological factors. So this essay investigated and researched on training factors for swimming achievement of college women swimmers from the sports training aspect, to seek more suitable training method for college women swimmers. It has important significance to explore training rules and promote sports level of college.

Methods:
1 Methods of literature review
2 Methods of questionnaire
3 Methods of interview
4 Methods of mathematical statistics: factor analysis method

Results:
The result shows that the achievement of women swimmers is going down regularly. There are five main factors influencing achievement, which are holiday training, female special psychology and physiology, scientific training, decline of sports quality and the decrease of amount of exercise.

Conclusions:
1 The top five factors influencing achievement are holiday training, female special psychology and physiology, scientific training, decline of sports quality and the decrease of amount of exercise. They are mutual influenced and restricted.
2 Holiday training is related with management request of college, social practice and study of students. And the coaches’ salary in holiday will influence continuity of training.
3 Menstruate and decline of training desire influence women swimmers’ achievement a lot. For the decline of training desire, pressure of study and policy to inspire are the main reasons.
4 About scientific training, technique training and land training is restricted by time arrangement. Personal training is affected by field, number of coaches and general environment.
5 Long period suspend training is the main reason to lead to decline of sports quality.
6 The conflict between study and training is the main reason to lead to decrease of amount of exercise.”
POSTER PRESENTATION

Resistance Training for Elderly Living with HIV

Physical activity and health

"Paula Maria Loiola de Souza, Marcelo Nascimento Burattini"

"School of Medicine, University of São Paulo, School of Medicine, University of São Paulo"

"BR, BR"

"Background: HIV infection among elderly is an increasing problem in the world and in Brazil. People sexual lifespan increased, what facilitates HIV infection at older ages, and successful antiretroviral therapy make HIV infected people live longer. HIV infection accelerates aging, leading to premature frailty, sarcopenia and osteo-metabolic related diseases. Exercises, including resistance training, are amongst the most valuables non-medical therapeutics for improving health conditions related to aging, also in people living with HIV. In this study, we show how to establish a successful resistance-training program directed to this population.

Methods: We adapted the ACSM resistance training protocol to apply it to elderly HIV infected. We also developed a specific approach to convince those people and their doctors of the benefits and safety of engaging in an oriented resistance-training program. It consists of two one-hour sessions per week, including only the main exercise for all major muscular groups, under the supervision of expert professionals, supervised by a trained physician. Exercise comprised three series of progressive loads and decreasing 12-8 repetitions, with sub-maximal load being the highest used in the last series, for each muscular group. In the event of an interruption of the training program due to medical or social conditions, frequent on this population, participants were re-evaluated on readmission and the program tailored to their actual condition.

Results: 108 HIV positive adults older than 60 years old were invited to participate in the training program, of whom only 14 begun. Complains of no interest, not having time or having impeding clinical conditions were the main reasons mentioned for declining the invitation. In addition, only 11 of the 14 who started the program ended the first year of training. The abandon occurred due to new medical conditions or worsening of the initial clinical picture. Those who completed the one-year protocol achieved very promising results, without any significant adverse event. Their strength increased on average 23.33 kg, p=0.008, (representing 90% of gain in relation to their initial strength). In addition, their final strength were comparable to those of non-HIV elderly matched for gender and age for all muscular groups trained. Finally, their performance on functional tests and daily life activities return to normal after the one-year training program.

pág. 1035
**Conclusions:** We demonstrated that, a safe and viable resistance-training program can be designed for elderly living with HIV, even for those with advanced disease, resulting in significant improvement of strength and daily-life activities performance.”
Resistance training practitioners do not control the rest interval between sets

Background: Because of the recognized health benefits, resistance training (RT) has become an integral part of a fitness program. In this context, the rest period between sets is one of the determinants of exercise intensity and consequently the results obtained and for this reason must be controlled. The easiest manner to control the rest period between sets is through wristwatch/stopwatch. Objective: (1) to describe rest period between sets reported by RT practitioners; (2) to verify whether RT practitioners control the rest period between sets; and (3) to verify how the RT practitioners control the recovery time between sets.

Methods: Study participants were 320 subjects (164 men and 154 women; aged: 33.5 ± 13.0 years). About 62% of participants had experience of six months or more with RT. Participants were recruited from gyms from the municipalities of Goiânia (GO) and Vitória (ES). In order to meet the objectives, a questionnaire was created. This questionnaire was divided into two parts: 1-personal data (occupation, education level and existing diseases) and 2-physical training characteristics. Results: Regarding the rest interval between sets, 9% have adopted 15 seconds, 28% have adopted 30 seconds, 17% have adopted 45 seconds, 32% have adopted 60 seconds, 3% have adopted 90 seconds, 1% has adopted more than 90 seconds and 10% reported not control the break between sets, and 83% of total reported control rest interval between sets. However, only 25% of participants use wristwatch, despite 77% know that the rest interval between sets influences the intensity of the exercise and 72% know that control of the rest interval between sets is a determining factor in the RT results.

Conclusion: Although the literature shows the influence of rest interval between sets in adaptations related to RT, the participants of this study did not control the recovery period between sets and possibly the desired results are not achieved.
POSTER PRESENTATION

Respiratory exercise increment pulmonary function, quality of life and psychological parameters in institutionalized bedridden older people

Physical activity and health

"Mauro Sérgio Perilhão, Ariana Aline da Silva, Lilian Luiz da Silva Alves, Roberta Luksevicius Rica, Juliana Valente Francica, Angélica Castilho Alonso, Maria Luiza de Jesus Miranda, Tomaz Ferreira da Silva, Aylton Figueira Junior, Danilo Sales Bocalini"

"São Judas Tadeu University, São Judas Tadeu University, São Judas Tadeu University, São Judas Tadeu University, São Judas Tadeu University, São Judas Tadeu University, São Judas Tadeu University, São Judas Tadeu University, São Judas Tadeu University" "BR, BR, BR, BR, BR, BR, BR, BR, BR"

"Background: Aging leads to physiological changes on respiratory function as well as reduction in the chest expansion specially on institutionalized bedridden older people. Respiratory exercise is a common physical therapy resource, however, little is knowledge about the effects of respiratory exercise on institutionalized bedridden older people. The aim of this study was to evaluate the effects of 12 weeks of a respiratory exercise program in lung function, self-related quality of life, depression and anxiety in institutionalized bedridden older people.

Methods: Twelve older subject (over 60 years old) without medical contraindications to practice breathing exercise were distributed into two groups: control (CG, n: 6) and respiratory training (RT, n: 6). The exercise protocol (12 exercises, 15 sets, 45 minutes, 12 weeks) used consisted in an exercise program developed in order to increase the thoracic mobility. The following parameters were evaluated: body composition, lung function, self-related quality of life, depression and anxiety.

Results: Were not found differences in body composition between groups. However, significant increase (p< 0.01) were found in lung function (peak flow: 15 ± 6%, forced vital capacity: 17 ± 5% and forced expiratory volume: 14 ± 3%) and cirtometry (20 ± 4 %) on TR group. Increments on self-related quality of life were found in all domains (dyspnea: 18 ± 7, fatigue: 18 ± 12, emotional: 15 ± 7, self-control: 20 ± 11; %) compared to CG (dyspnea: 3 ± 12, fatigue: 1 ± 9, emotional: 6 ± 10, self-control: 1 ± 11; %). Improvement on depression level (before: 14 ± 2, after 10 ± 2) and anxiety (before: 45 ± 5, after: 35 ± 8) status were found on TR group, but not to C (depression: 15 ± 3 vs 16 ± 1; anxiety: 47 ± 6 vs 50 ± 5) in both parameters.
**Conclusions:** Our data confirm that 12 weeks of respiratory training improve lung function with concomitant relief of depression and anxiety symptoms and increment on self-related quality of life in institutionalized bedridden older people."
RESPIRATORY QUOTIENT ASSESSMENT IN A SENIOR GROUP RANDOMIZED AND CONTROLLED, WALKING PRACTITIONERS

Sport and quality of life for adolescence and aging

"Thiago Costa Florentino, David Haluli Sobrinho, Flamarion Clériston Candido Elias, Fabio Sanches Rodrigues, Roberto Fernandes Nobre, Jakson Nantes Lopes do Couto"

"USP, UFPE, UFPE, UNINOVE, UNIP, UNOPAR"

"BR, BR, BR, BR, BR, BR"

"Background: In Brazil, as in other developing countries, there is an increasing life expectancy among people aged greater than 60 years, according to the Brazilian Institute of Geography and Statistics (IBGE). The predominance of aerobic exercise is very important in human aging, helping to increase the quality of life that can reduce the deleterious effects of chronic diseases. The respiratory quotient (RQ) is the reason that quantifies the caloric expenditure of carbohydrates macronutrients, proteins and lipids. Larger values (≥ 1, 01Kj) indicate an increased carbohydrate consumption, as predominant source of energy, resulting in a greater chance of muscle fatigue in excessive physical exertion. Objectives: The aim of this study was to examine the effect of aerobic exercise on the respiratory quotient (RQ) in the elderly aged over 60 years after three months of physical training involving walking

Methods:

We performed a randomized controlled trial in the control group (CG) and experimental group (EG) in healthy elderly. The control group was instructed to not to participate in hiking regularly, and EG was submitted to training with aerobic feature at an intensity of 50% to 75% of MAX H.R. achieved in the test of physical effort done previously controlled by rate monitors. The volume of each session was 30 minutes of solid walking in the weekly frequency of 3 times. After this period of said training plan, the elderly EG and CG participated in a second analysis of respiratory capacity. For statistical analysis we used the "Test t of student" for paired data, significance level of p ≤ 0.05

Results:

QR CG showed a non-significant decrease (p = 0.13) of 1.11 to 1.07 (Δ% of 3.6). This same scenario happened to EG with no significant (p = 0.36) starting from 1.08 to 1.05 (Δ% 2.8) post-workout

Conclusions:

We conclude that the respiratory quotient (RQ) was demonstrated as a good indicator of caloric expenditure for the sample analyzed. The cases showed elevated values of RQ immediately after the end of the physical effort and the use of carbohydrate as the predominant energy source, indicating...
physical exhaustion hit. The ratio of carbon dioxide production was decreased in relation to oxygen consumption with no significant results, including in terms of physical training involving walking. We suggest studies covering a longer period of intervention.”
**POSTER PRESENTATION**

*Review: The Acute Influence of Endurance Exercise in Thyroid Hormones*

Sport medicine and injury prevention

"Paulo José Gomes Puccinelli, Clayton Luiz Dornelles Macedo"

"Federal University of São Paulo, Federal University of São Paulo"

"BR, BR"

*Background:* Thyroid hormones are key substances in normal homeostasis, having variable influence on cell metabolism on different organs. Exercise is a stressful situation that challenges this homeostasis, and one of the systems affected is the hypothalamic-pituitary-thyroid axis. While data have been reported on effects of exercise on thyroid hormones metabolism, the results have been inconsistent or even contradictory. These divergent results may be due to differences on exercise (intensity, duration, frequency and design of training program) and in individual features (gender, age and baseline physical status). The aim of this review article is to investigate the acute effects on thyroid hormones parameters that have been studied in endurance athletes.

*Methods:* Using PubMed database, review articles that discuss the influence of endurance physical activity on a thyroid hormone metabolism and hypothalamic-pituitary-thyroid axis.

*Results:* Eight studies have been elected. GALBO ET AL showed, with eight men during graded maximal and prolonged exhaustive treadmill running, an increased TSH concentration, but no rise in concentrations of T3 and T4, after prolonged exercise compared to the rest. HESSE ET AL studied the effect of three distances of 75 km, 45 km and marathon (42.2km). T4 levels increased in the 75km and marathon group but decreased in the 45 km group post-race. T3 also dropped only in the 45 km group. rT3, measured only in the marathon and 75 km groups, rose in both groups. MALARKEY ET AL investigated 35 triathletes and had a rise in TSH, which returned to normal over 18h post-event as a result. DESSYPRIS ET AL determined TSH and other hormones concentration before and after marathon, in 10 runners, and found none of the functional parameters of the thyroid-pituitary axis significant changes. However, SANDER ET AL revealed an increase in TSH and fT4 post-marathon, with a decrease in fT3 and rise in T4 to rT3 conversion, which was still detectable 22 hours after the race completion. SEMPLE ET AL report on marathon runners revealed no change in TSH, T4, T3, or rT3 levels before and after the marathon. SCHUMANN ET AL saw no differences between the baseline and post concentration of serum TSH, in 29 subjects on a cycle ergometer over 30 minutes of steady-state cycling. HACKNEY ET AL compared the thyroid hormonal responses to high-intensity interval
exercise and steady-state endurance exercise in highly trained males and found increased levels of fT4, fT3 and rT3 after 45-minute run.

**Conclusions:** In summary, the thyroid function changes secondary to exercise represent a complex physiologic response, which is difficult to characterize fully. There are many influence factors in the thyroid hormones response to exercise. Results about the acute adaptation on thyroid hormones by endurance exercise are still conflicting. One of the most consistent findings is that rT3 tends to increase with ultradistance exercise. TSH, T4 and fT4 seems to increase after endurance exercise. T3 appears to be unaffected by exercise. In Conclusion, future studies should be performed to try to isolate the acute influence of endurance exercise in thyroid hormones.
Reviewing the Determinants Of International Paralympic Success For the Development Of A National Framework Of Elite Sport Policy Factors Influencing Para-Sporting Excellence

Governance and policy

"Aurélie Pankowiak, Dr. Camilla Brockett, Prof. Dr. Hans Westerbeek, Prof. Dr. Veerle De Bosscher"

"Victoria University, Victoria University, Victoria University, Vrije Universiteit Brussel"

"AU, AU, AU, BE"

“Background:
With the rise of the Paralympic Games, a growing number of countries are entering the Global Sporting Arms Race for international Paralympic success. As a result, policy makers are recognising the need to strategically invest in elite sport development structures to optimise pathway support for Paralympic athletes. In the Olympic context, authors have shown that international sporting success is the result of complex interactions between 1/ the country’s overall profile, 2/ its elite sport climate/policies, 3/ the athlete’s personal predispositions and environment. The aim of this paper is to present a review of the state of knowledge on these factors in the Paralympic context and their implications for the development of a national policy framework of key factors influencing international para-sporting success.

Methods:
A narrative literature review was conducted using a conceptual framework (De Bosscher et al., 2006) which classifies factors influencing international sporting success in three dimensions: the macro-level (countries’ social, cultural, political, economic and geographic context); the meso-level (factors that shape elite sport systems and can be influenced by policy); the micro-level (athletes’ physical characteristics and social support).

Results:
The review reveals that while the achievement of Olympic and Paralympic success share many common influential factors at the macro-, meso- and micro-levels, there are specific factors to the para-sport context. These factors potentially have an influence on Paralympic success, but evidence of this link is limited. At the macro level, causes of disability (eg. war situations), social conditions of and treatments towards people with disabilities are suggested factors. At the meso- and micro-levels, specific factors relate to the current trend of integrating para-sport in national sporting structures and the degree to which there is understanding and response at the elite level towards: the specific requirements of para-sport (eg. classification, technology), the complexities of its governance at the
national level, and the diverse profiles and needs of Paralympic athletes (e.g. age, socio-economic situation, acquired vs congenital impairment).

**Conclusions:**
While knowledge surrounding elite para-sport is developing, this review illustrates that para-sport is under represented in sport management and policy literature. With regards to national elite sport policy/development systems specifically, the key determinants of Paralympic excellence requires further investigation. This study is the first stage of a larger doctoral research project that aims to address the knowledge gap by developing and validating a national framework of elite sport policy factors influencing international para-sporting success."
Risk Factors and Lifestyle Among Elite Athletes and the General Population

"SERGIO ITACARAMBI GUASQUE FARIA, LUIZ FABRIZIO STOPPIGLIA, CHRISTIANNE DE FARIA COELHO RAVAGNANI, FABRICIO CESAR DE PAULA RAVAGNANI, EDUARDO ADRIÃO DE ARAUJO SILVA"

"Federal University of Mato Grosso, Federal University of Mato Grosso, Federal University of Mato Grosso, Federal University of Mato Grosso, Federal University of Mato Grosso"

"BR, BR, BR, BR, BR"

Background: Longitudinal studies and review of mortality rates among athletes compared to the general population indicate a higher life expectancy of athletes differences in life expectancy between athletes groups. We proposed to investigate factors that contribute to increased longevity in different kinds of sports and how they relate to the general population.

Methods: Data on physical and mental components of health were collected, gathering information about athletes’ lifestyle between October 2013 and November 2015. We divided the athletes into three subgroups (resistance, mixed and strength), with subgroups based on the predominance of metabolic routes as follows: resistance (predominantly oxidative), mixed (average prevalence) and strength (predominantly glycolytic).

Results: Among the sports sub-groups, no differences were observed in the proportion of white, brown and black persons, subjective perception of health, self-reported depression and anxiety, cigarette smoking and alcohol consumption, body mass index (BMI) and % body fat, blood pressure and maximal oxygen uptake (VO2max). The endurance sports showed greater number of people with a family income greater than 8 times the minimum wage (P=0.002) and greater prevalence of other formal jobs (P<0.001), while the mixed sports showed greater number of people without another job (P<0.001). No differences were found between the categories on alcohol consumption and smoking.

Comparing subgroups of athletes with the general population, alcohol consumption was lower for all categories (p≤0.05). The consumption of tobacco and BMI were below the population only for the strength category (P≤0.01). The subjective perception of health (excellent and very good) by athletes was below the the general population in all categories (P≤0.01). There were no differences in blood pressure and self-assessment of anxiety or depression.

Conclusions: Athletes are “fingered” individuals chosen for their greater physical strength and less vulnerability to health problems. The perception of health of athletes appears also to be more careful.
than the non-athlete population and they associate a good health to good physical performance. Athletes tend to have better health habits, such as drinking less, but smoking less. The endurance sports had the highest number of individuals outside of overweight (BMI) and smoking less, relative to population. These health habits adopted by athletes, concomitant with the high volume of physical activity contribute to their greater longevity, especially for the resistance category, as shown by earlier works."
POSTER PRESENTATION

Rowing ergometer exercise on balance among older person
Sport and quality of life for adolescence and aging
"Rachnavy Pornthep, Khaothin Tawichai"
"Suranaree University of Technology, Suranaree University of Technology"
"TH, TH"

"Background:
It is well known that balance ability decrease with increasing age and known that some type of exercise can improve balance ability. Rowing exercise is the effective mode for older fitness because it is the low impact exercise that used the major muscle and used balance during slide the seat. Therefore, the effects of rowing ergometer exercise program on balance among the elderly were studied.

Methods:
Forty healthy elderly persons, ranging in ages from 60-80 years old participated in this study. The Subjects who participated in this study were randomly selected and equally divide into two groups (experimental group (n=20) and a control group (n=20)). The experimental group participated in 12-weeks rowing ergometer exercise program comprising 20 minute sessions with 60 percent of maximum heart rate 3 times a week, while the control group maintained their usual physical activities during the study period. Balance were measured prior to and after the 6th and 12th weeks of training.

Results:
The results revealed that 1. Mean scores of balance between control group and experiment group were statically different after the 6th and 12th weeks of training. However, there were not different before training. 2. Mean scores of balance before training of both groups were not different. However, after the 12th weeks of training the mean scores of experiment group were significantly greater than before training and the 6th weeks of training. There were not different in the control group. The results indicate that the rowing ergometer exercise program enhanced balance of the elderly persons.

Conclusions:
The rowing ergometer exercise should be implemented for health promotion and improved physical health among the elderly. However, modification of the duration and resistance in rowing ergometer should be considered to suit the elderly."
POSTER PRESENTATION

Russian Sports Complex Ready for Labour and Defense and Preparing for its Implementation.

Sport pedagogy
"Zinaida Kuznetsova, Doctor of Education, Professor, Alexandre Kuznetsov, Doctor of Education, Professor, Marsel Khamitov, post graduate student"
"Nabereznochelninsky State Pedagogical University, Nabereznochelninsky State Pedagogical University, Nabereznochelninsky State Pedagogical University"
"RU, RU, RU"

“Background: The article contains the results of a study aimed at analysis of the All-Russian sports complex RLD (hereinafter - Ready for Labour and Defense (RLD)). Despite the fact that the RLD complex has been simplified in the implementation than in the Soviet Union, the complex steps remain unaffordable for many schoolchildren. Therefore, we developed a model of 13-15 years old boys training to pass stage IV RLD.

Research methods. Theoretical analysis and synthesis of the scientific literature, legal and education records, testing the level modeling method preparedness of school children.

Materials. This article describes a model developed for training school children to pass the stage IV RLD. The model is based on systematic use of the conjugate circuit training exercises method.

Results. Complex “Ready for work and defense” of the USSR, existed from 1931 to 1991 and is a program of sports training in general education, professional and sports organizations, covering the population aged 10 to 60 years. In 2014, Russian President Putin signed a decree on the return of the system “Ready for Labor and Defense”. The rules, as compared with the Soviet, have 300 changes, it was decided to establish 11 degrees from 6 to 70 years of age or older, three insignia - silver, gold and bronze. Development of the state physical demands to the population preparedness of the Russian Federation carried out in two phases: the first (2014) conducted research in 10 regions of Russia, aimed at justifying kinds of tests and regulations I-VI levels, for students aged 6 to 24 years. In the second (2015) similar studies in 21 regions of the country were carried out, according to the justification of VI-XI levels of the population 25-70 years of age and older. One of the main reasons for failure of the Complex to a mark of distinction is the fact that the proposed requirements to implement State RLD are not itemized in the program-methodical recommendations preparation for the implementation of these steps. Therefore, we developed a model of training school children to pass the stage IV RLD. Constructing the content of our model of impellent qualities by perfection circuit training method is based on well-defined conceptual framework, it is determined by the relevance of this model, its goals
and objectives, purpose, especially the contingent selected type of test (tests) for the session, selection of appropriate exercises, the main innovation, additions and the reasons causing these changes. The scientific significance of the work due to the fact that the scientific results of research will complement the theory and practice of physical education in terms of organization and methods of classes with school children on training and delivery standards of stage IV RLD.

**Conclusion.** At this time, under the phased implementation RLD we made the correction and approbation of the developed method training of 13-15 years old boys to pass stage IV RLD on a mark of distinction. It carries out scientific-methodical, legal, practice-tested and information and technological support of developed innovative provisions."
"SAMBO" – BODY PRACTICE OF THE GUARANI AND KAIOWÁ INDIGENOUS

Sport history
"Marina Vinha, Veronice Lovato Rossato"
"Federal University of Grande Dourados, State Department of Education"
"BR, BR"

"Background: Body practice Sambo [read sambô] is part of the intangible culture of the Guarani and Kaiowá indigenous inhabitants in Mato Grosso do Sul, Brazil. Sambo is a word that refers to quick movements in all directions, to act physically and mentally before a danger, or facing emergency situations, both requiring much skill. Sambo is a word that refers to quick movements in all directions, to act physically and mentally before a danger, or facing emergency situations, both requiring much skill.

Methods: The study aims to show the sambo styles coming from primary sources, obtained from practice, theory and illustration produced by the Indians themselves in their field of research in their villages, located in the south of that state region, and guided by the authors during course training of indigenous teachers. This material comes to the gym expecting to occupy the space of indigenous knowledge as legitimate knowledge, requiring its recovery, preservation and revitalization.

Results: The origin of the word comes from Paraguay, the Guarani language, and was adopted by the Paraguayan indigenous peoples in continuous transit from one country to another, for the territories of the current Mato Grosso do Sul and its border with Paraguay were not defined geographically as today. The term is used both by the Guarani Ñandeva (or just “Guarani”), but also by the Guarani Kaiowá [or just “Kaiowá”], both the linguistic trunk Tupi Guarani and inhabitants in that region. Although each nation has its own way of “defense” because the attacks could happen to attendance at anytime and anywhere, the Guarani and Kaiowá developed Sambo with ritualistic bonds, so they say, categorically, 'not a fight' because the practice promotes unintentional attacks from them.

Conclusions: Sambo, rari or jei haguã means shirk, as the linguistic tradition of this people. The practice of rari is aware of all the Guarani Kaiowá and and their learning takes place from 7 years old. These practices are taught only by the cacique or cacica (chanters), they only know the rules. For example, the teaching of this body practice opponent is instigated by chanters every moment, in different directions and with different intensities. Thus, we can understand the sambo as a body game, being considered by them one of the oldest practices of the Guarani and Kaiowá, even not registered in surveys conducted by scholars of this ethnic group."
Screeming for Risk of ACL Injuries in Professional Voleyball Male Players

Sport medicine and injury prevention

"Luciana Almeida Ottoni de Luna Freire, Diogo Carvalho Felício"

"Federal university of juiz de fora, Federal university of juiz de fora"

"BR, BR"

"Background: Volleyball is one of the most popular sports in the world. It is played by approximately 200 million players worldwide. Volleyball is a sport involving rapid and forceful movements of the body as a whole, both horizontally and vertically, and because of the large forces involved in such movements it is inevitable that injuries occur. A deficiency in the neuromuscular control of the hip has been identified as a key risk factor for noncontact ACL, this deficiency will often manifest itself as a medial collapse of the knee (“dynamic knee valgus”) during tasks involving hip and knee flexion. The aim of this study is screemring for ACL injuries risk in professional voleyball players with bidimentional motion analysis.

Methods: This study is an observational, cross-sectional study. Participants were taught how to perform the dropjump task. They were instructed to drop down onto the ground from a 31-cm box and to immediately perform a maximum vertical jump. They were to keep their arms in the “stop position” (shoulders abducted 45° and elbows flexed 90°) to reduce momentum from arm swing. To minimize learning effects, 1 practice trial of the drop-jump task were allowed. Following this, 3 consecutive drop-jump trials were conducted. The camera was set up on a tripod 150 cm off the ground and 330 cm forward of the jumping box. The landing phase was defined as the period from foot contact to toe-off and was manually selected. The guidelines were as follows: “If the patella moves inwards and ends up medial to the first toe, rate the individual as high risk,” or “If the patella lands in line with the first toe, rate the individual as low risk”.

Results: Developed with 11 professional athletes mean age of 24 (± 5, 5). From 11 participants 5 were identified as high risk for ACL injury, which means 45% of the team.

Conclusions: It is possible to conclude that screemring for ACL is important to develop a preventive training programme for those specific athletes, and in this way improve the performance of the individual and the team."

Governance and policy
"Ricardo demetrio de Souza Petersen, Amauri Aparecido Bassoli de Oliveira, Selda Engelman"
"Universidade federal do Rio Grande do Sul, Universidade Estadual de Maringá, Universidade Federal do Rio Grande do Sul"
"BR, BR, BR"

"Background: This presentation has the aim to discuss the Olympic Values that permeates the pedagogical principles of the Programa Segundo Tempo (PST) from the Ministério do Esporte (ME), configurating as a important instrument of the olympic education in Brazil. The Educational Sports offered by the PST of the ME aims to democratize access to the practice and culture of Sport in order to stimulate the development of children and adolescents as a factor of citizenship formation and improvement of the quality of life, primarily in areas of social vulnerability. The PST is offered to the municipality and/or states throughout agreements that last 24 months. Since 2007 the Sports Ministry through its National Educational Sport Secretariat (SNELIS), signed an agreement with the Universidade Federal do Rio Grande do Sul, in order to structure a sport educational proposal and to apply it to PST as well as maintain a process of continuing education to all professionals involved in the program. Besides, was structured a system to track the development of the actions throughout the country in the PST nuclei. The proposal focused on the principles of participation, torelance, adversity, fayrplay, enjoyment, mental well-being, interaction, social inclusion and the exercise of citizenship, if not all, but most of these in line with the principles proposed by the Olympic Education. This educational structure is the basis for the training of the Physical Education teachers who are the Nuclei and Pedagogical Coordinators. The pedagogica production is available to the entire population and holds 17 books with over 180.000 copies distributed throughout the country. All this material is available in the virtual system in the ME website. So far we have trained in presencial courses over twenty-nine thousand teachers. In the past two years, it was also introduced distance education training combined with presencional. In addition, the project follows up on site 20% of all agreements of all groups who develop the PST in the country. As a mean of continuous improvement of organized structures, the program maintains a process of pedagogical and administrative evaluation that subsidizes the ME and SNELIS about their weaknesses and strengths. In order to advance in the issue of social inclusion a new evaluative actions are being proposed and should be applied from 2016. Therefore, this Program is ment to be a legacy of the Olympic Games 2016 in Brazil."
POSTER PRESENTATION

Self-determination in Sport: a Study of Brazilian Rhythmic Gymnastics Athletes

Sport psychology
"Patrícia Silveira Fontana, Alberto Reinaldo Reppold Filho, Marcus Levi Lopes Barbosa, Marcos Alencar Abaide Balbinotti, Carlos Adelar Abaide Balbinotti"
"Federal University of Rio Grande do Sul, Federal University of Rio Grande do Sul, Feevale University, Trois-Rivières University, Federal University of Rio Grande do Sul"
"BR, BR, BR, CA, BR"

"Background:
The Self-Determination Theory states that self-determined athletes have higher intrinsic motivation, acting for the pleasure in the pursuit of their social, physical and psychological well-being. This study aimed to evaluate the self-determination levels in athletes of Rhythmic Gymnastics.

Methods:
The study included 47 athletes of Rhythmic Gymnastics, aged 13-16 years. For data collection, we used the “Inventory of Self-Determination for Practitioners of Physical Activity and Sports” (IAPAFE-25), which assesses 5 levels of self-determination, each with 5 items, answered in a Likert scale, graduated in 5 points. Data normality was verified using the Shapiro-Wilk test. The average comparison was carried out using the paired t test.

Results:
The descriptive analysis indicated that the mean ranged from 6.63 (amotivation) to 16.17 (Identified Regulation). The standard deviations associated ranged from 2.78 to 4.01 (so that they are suitable). Autonomy levels are distributed in three groups statistically different from each other (p <0.001): a) Intrinsic Motivation and Regulation Identified statistically undifferentiated averages (t = -1.63; p > 0.05); b) introjected regulation and external regulation formed a second group with statistically undifferentiated averages (t = -0.544; p > 0.05); c) amotivation, whose means were statistically lower than the others (p <0.001).

Conclusions:
The athletes evaluated presented, predominantly, more autonomous motivation levels, and significantly lower levels of amotivation. These levels are desirable in sports."
Shoulder and Trunk Muscles Activity in Experienced Archers

Elite performance

"Fernando Carvalheiro Reiser, Nadjila Tejo Machado, Marcelo Saldanha Aoki, Fernando Henrique Magalhães, Luis Mochizuki"

"Universidade of São Paulo, Universidade of São Paulo, Universidade of São Paulo, Universidade of São Paulo, Universidade of São Paulo"

"BR, BR, BR, BR, BR"

“Background:
Archery requires accuracy and precision to score as high as possible. Strength and endurance of the body, specially, shoulder and trunk muscles, are necessary to maintain the alignment of the bow/arrow system to the target in the draw position. Even experienced archers may not use the same muscle activation along several shots; however, it is unclear how muscle activation changes during an olympics round (72 shots). The aim of this study is to describe electrical activation of upper limbs and trunk muscles of experienced archers during an olympics round.

Methods:
Four elite archers (age 26.5±4.5 years old; with 13.5±4.5 years of training; and 1315.75±23.25 FITA points) participated into this study. Electrical activity of several muscles (m. pectoralis major, m. latissimus dorsi, m. upper trapezius, m. serratus anterior, m. rectus abdominis and m. lumbar multifidus) were recorded (2 kHz, bipolar, surface and disposable electrodes) during each shot. Archers should shot as accurate and precise as possible 72 arrows to a target 70 m away, as simulation on olympics competition.

Archers shot 18 arrows as warm-up; then, they have shot 72 arrows (12 ends of 6 arrows, divided into two groups, 3 minutes to walk 140 m to get the arrows and come back, and 20-minute interval between groups). Electromyography (EMG) data of all muscles was filtered, demeaned and rectified. Integral (epoch: 500ms prior and after the fall of the clicker) of EMG signal was calculated for all muscles and compared across 12 ends. Analysis of variance was run to evaluate the results. Significance level p<0.05.

Results:
Archer A display no difference in muscle activity between all shots. Archer B, showed differences in the muscle activity of Serratus Anterior (p=0.006), and the Lumbar Multifidus (p<0.001) between the ends. Archer C showed differences in the muscle activity of Serratus Anterior (p=0.01) and the Lumbar...
Multifidus ($p=0.04$) between the ends. D archer showed differences in the muscle activity of Rectus Abdominis ($p<0.001$), and the Lumbar Multifidus ($p<0.001$), between the ends. No differences for the Pectoralis Major Clavicular Head, Latissimus Dorsi and Upper Trapezius muscles were been found between all the archers.

**Conclusions:**

Elite archers presented different trunk and shoulder girdle muscle activations during 12 ends.
Simulation of two styles adaptive rower

Elite performance
"rachnavy pornthep, Khaothin Thawichai"
"Suranaree University of Technology, Suranaree University of Technology"
"TH, TH"

Background:
Adaptive rowing is a sport for people with physical abnormalities. At present there are many disability peoples interested in this sport. Since the competition in the world championships began in 2002 and Paralympic Games 2008 in Beijing. The competition is divided into three categories: LTA - Legs, Trunk, Arms by athletes can use legs, torso and arms, which is a group of athletes with visual problems or have impaired brain and the seats can slide like a regular athlete group, TA - Trunk and Arms is the only body and arm unable to use a sliding seat and the last group, AS - Arms and Shoulders this group body cannot use and unable to use a sliding seat the body will be strap to a seat at the chest level, arms and shoulders so that only use. The key to success in the race is to make the boat past the distance 1000 meter as fast as possible from the start to the finish line. For adaptive rowing, there are many factors that affect the rowing performance. For example, adjustments on oar angle will have effect on the boat velocity. Especially The changing style of rowing. Adaptive rowing is the sport which requires a high level of technical. There are several techniques that make the boat move faster through the water and who is a champion also used a different technique. In adaptive rowing the rowers should use techniques that are most effective. Therefore the purpose of this paper was to study the difference rowing style (the shape of the force curve) of AS adaptive rowing. Mathematical modeling and computer simulation of adaptive rowing were developed for study two styles of Thailand national adaptive rower.

Methods:
The mathematical model includes variables for moving boats such as rowing techniques (the shape of the force curve), boat weight, rower weight, oars angle, oar length, paddle size, and drag coefficient. The output of simulation is boat velocity.

Results:
The Simulation result indicated that when the rower use different style the boat velocity change.

Conclusions:
. It is confirmed that if rower use optimal style the boat will move faster."
SLEEP DEPRIVATION IN YOUNG ADULTS AFFECTS PERFORMANCE OF POSTURAL CONTROL FIXATING A TARGET AND PERFORMING SACCADIES

Methods:
Twenty-six Healthy young adults, Aged between 18 and 35 Years, were Divided into Two Groups: Sleep Deprivation (SD) and Control (CG). The Participants Underwent Two Evaluations, in Two Subsequent Days, between 8 to 10am. Prior to the First Evaluation, participants were Instructed to Sleep Normally and, After the Evaluation, to Carry out their Activities Throughout the Day. On the Same Day, the SD Returned to the Lab Around the 8 pm and Remained Awake all Night while Participants of CG Slept as Usual. On the Next Day, Participants from both Groups were Again Evaluated. In both Evaluations, Participants were Instructed to Maintain the Most Stable and Quiet Upright Stance Fixating a Target and Performing Saccades to a Target that was Presented in Two Distinct Locations (0.5 Hz). Each participant Performed 3 Trials in each Condition and each Trial Lasted 60. body Sway was Obtained Using an IRED Marker of a Motion Analysis System (OPTOTRAK Certus, NDI) Attached to the participant’s Back. Postural Control Performance was Assessed Obtaining Body Sway Mean Velocity for Medial-Lateral and Anterior-Posterior Directions.

Results:
MANOVA Indicated that, for both Fixation and Saccades Conditions, Participants from the CG Did not Show any Difference between Evaluations. Differently, Participants from the SD Did not Differ From the CG in the First Evaluation, However, Swayed with Higher Velocity after Sleep Deprivation.

**Conclusions:**
These Results Indicate that Sleep Deprivation Deteriorates the Performance of Postural Control in Young Adults in Performing both Fixation and Saccades Movements, Suggesting that Sleep Deprivation Might Deteriorate the Use of Visual Cues to Control Motor Skills."
POSTER PRESENTATION

Slow Speed Is Better than Fast Speed to Improve Hypertrophy and Muscle Strength in Well-Trained Adults.

Physical activity and health

"Paulo Eduardo de Assis Pereira, William Quinelato, Yuri Lopes Motoyama, Gilmar de Jesus Esteves, William Zardetto, Luciano Botter, Kelvin Hiroyuki Tanaka, Rafael Ishihara Figueirôa, Paulo Henrique Silva Marques de Azevedo"

"Federal University of São Paulo, Federal University of São Paulo, Federal University of São Paulo, Federal University of São Paulo, Federal University of São Paulo, Federal University of São Paulo, Federal University of São Paulo, Federal University of São Paulo, Federal University of São Paulo"

"BR, BR, BR, BR, BR, BR, BR, BR"

“Background: The resistance training promotes hypertrophy and muscular strength, from mechanical, metabolic and hormonal processes. The execution speed of movement during the resistance training is a variable that can influence the effectiveness of the training. However, it is not clear the effects of different speeds on the muscular strength and hypertrophy associated with isotonic resistance training. Therefore, the present study aimed to compare both fast and slow speed of isotonic resistance training on muscular strength and hypertrophy in subjects with experience in resistance training.

Methods: Twelve healthy adults were randomly divided into two groups, the Fast Speed (FS) or Slow Speed (SS) group. The FS group performed the resistance training performing the concentric and eccentric repetitions at a maximum speed, and the SS group performed the resistance training performing the repetitions at a controlled speed. Before the beginning of the resistance training all subjects performed an ultrasound examination of the biceps brachial to check the cross-sectional area and underwent tests of 1 repetition maximum (1RM). The training lasted 12 weeks of resistance training of Scott curl exercise and the subjects were told to perform 3 sets of 8 repetition maximum, totaling 6 series per week. After 12 weeks of training volunteers were again subjected to an ultrasound of the biceps brachial and remade the 1 RM tests. To check the possible differences in strength and hypertrophy among times and between the groups it was used two-way ANOVA for repeated measurements. The effect size (ES) was calculated for the 1RM test and cross-sectional area of the biceps brachial muscle.

Results: The General features of the FS and SS groups demonstrated no significant differences (P≥0.05) between groups before the start of training. When comparing the pre/post training times and between the groups, was verified in the SS group, significant difference between pre and post training
moments in the cross-sectional area (P=0.019) and muscular strength (P=0.021). The ES was greater for the SS group than FS group. The SS group presented great magnitude in the 1RM test (ES = 2.19) and moderate magnitude for the cross-sectional area (1.43).

**Conclusions:** In summary, no significant differences were found between the groups for hypertrophy and muscular strength. However, the effect size for the resistance training with SS is greater than the resistance training with FS, pointing to a possible greater effectiveness of slow muscular actions for the induction of muscular strength and hypertrophy. In future studies, it would be interesting to analyze the metabolic adaptations and degree of muscular activation promoted by different speeds of implementation of resistance training."
Background: The sport is present in our society as one of the great allies of the child and adolescent education. Through it can develop moral and ethical values among many other fundamental values for the integral formation of a citizen.

Soccer is part of Brazilian culture. This sport is very popular in our society and attracts people of different ages, allowing use it as a tool for the development of various content. For this it is essential that the teacher is always attentive so you can teach students soccer in its various aspects from motor skills to the sport relations in daily life the same. Starting from the idea of Freire (2006), we must start from three fundamental principles to teach soccer, namely: Teaching soccer to all, Teaching and soccer at all and teach more than soccer at all.

The Sports SESCSP program aims to enable children, youth and adults the systematic practice of sports through educational procedures that enhance the educational and training possibilities of the sport.

This report shares the experience of working with young people aged 13 to 15 years of unity SESC Belenzinho in São Paulo, SP. Through the lesson plan used in the classroom, we sought to develop not only content engines (technical and tactical aspects) of soccer but through them the various aspects that the sport provides with respect to the development of young people in society.

Methods: The lesson plan addressed the learning expectations, conceptual, procedural and attitudinal contents. Divided into monthly themes within the annual planning aimed through various pedagogies - Pedagogy of the Game, Teaching Games, Street Education - among others in which was based on the game, it was possible to develop elements for content such as respect for differences, women in soccer, violence, media influence, bulling, autonomy, importance of physical activity, teamwork etc.

Results: The results allow us to state that through this planning youth recognized the values about soccer and their influences on and off the field, in addition to attitudinal maturation of them in the classroom and in relationships with peers and teachers.

Conclusions: We conclude this way that soccer is a great tool for the development of students not only in the technical and tactical issues, but in the integral formation of the young front to society.
However this was only possible through awareness that the teacher was not just a referee of the games or coach to focus only on the technical and tactical elements but a mediator, allowing the construction of content within the classes in full through a vision interactional where the student becomes an active participant in the construction of knowledge and not just a mere spectator.”
Soccer Player Assessment Instrument (SPAI) Validation

Technology in sports

"Daniel Traina Gama, Márcio K. Kamimura, Cynthia Yukiko Hiraga, Paulo Ricardo Higassiaraguti Rocha"

"Universidade Federal da Grande Dourados, Universidade Estadual Paulista Campus de Rio Claro (UNESP/RC), Universidade Estadual Paulista Campus de Rio Claro (UNESP/RC), University of São Paulo"

"BR, BR, BR, BR"

"Background: Performance assessment of soccer player skills is not a trivial task. Several and unpredictable factors and events that occur during a match determine the manner in which a player decides and execute his actions. Instruments for skill performance assessment for soccer must take into account not only the ability of a player to execute technical skills but also how the player displays his skills to dispute against the opponent in an environment in constant changes. The aim of the present study is to propose an instrument that assesses soccer technical skills in a match context.

Methods: The instrument proposed in the present research is called Soccer Player Assessment Instrument (SPAI). The SPAI assesses soccer technical skills (passing for maintenance ball possession, offensive passing, reception, dribbling and shooting to goal) according to difficulty index (DI). The DI expresses the level of difficulty that a soccer technical skill was executed during the match. For instance, execution of a skill under pressure of an opponent represents a higher level of DI compared with no pressure of an opponent. Furthermore, if the skill is successfully executed it will be given a higher value than if the skill is not successful. The content validation of the instrument was done by five soccer experts using Likert scale with 1 to 5 response scale (1 = inadequate, 2 = little adequate, 3 = acceptable, 4 = good, 5 = very good). For validity purpose, it was only considered valid content that received a score >3. Three undergraduate students were invited to serve as examiners to estimate reliability of SPAI data. Inter-rater and test-retest reliability was estimated using Spearman’s correlation coefficient and weighted Kappa index. The examiners analyzed approximately 2110 soccer technical skills in two matches.

Results: The comparison between the raters indicated strong Spearman’s correlation coefficient (values above .60) and Kappa index of agreement ranged from good (.61 to .80) to excellent (.81 to 1.0) for soccer technical skills and DI. For test-retest reliability the results showed strong Spearman’s
correlation coefficient (values above .60) and excellent Kappa index of agreement (.81 to 1.0) for soccer technical skills and DI.

**Conclusions:** Although the use of SPAI is based upon human judgments that may be subjective, the results showed a good reliability. The SPAI was conceived to express the level in which a player applies his technical skills to be successful in every action during a match. Such instrument appears to assess satisfactorily its purpose."
Social Physique Anxiety and Body Image: Sex Difference and Relationship in College Students

Huihong Zhang, Qin Lai
Southeast University, Wayne State University
CN, US

Background: Both research literature and clinical survey has demonstrated that social physique anxiety is associated with mental health and psychological diseases. Recent studies suggested females more than men experienced a greater amount of social physique anxiety. However, the factors contributing to social physique anxiety were not well documented especially in Chinese population. Thus, the present study was to investigate the sex difference of social physique anxiety and multidimensional body image for college students in China. In addition, a multiple regression analysis was conducted to determine how social physique anxiety was related to body image components.

Methods: Participants (n=499, aged at 18-21) were randomly selected from three universities in an urban setting in China. A Chinese version of Social Physique Anxiety Scale (SPAS) was adopted to measure the anxiety level. A Chinese version of the Multidimensional Body-Self Relations Questionnaire (MBSRQ) was used to assess ten subsets of body image including appearance evaluation & orientation, fitness evaluation & orientation, health evaluation & orientation, illness orientation, body area satisfaction, overweight preoccupation, and self-classified weight.

Results: An independent t-test showed female students (M=2.92, SD=.51) had significantly greater on social physique anxiety relative to their male counterparts (M=2.76, SD=.46). The analysis of MBSRQ revealed females had significantly higher scores on overweight preoccupation and appearance orientation, but lower scores on appearance evaluation, fitness evaluation, and body area satisfaction. More importantly, A multiple linear regression showed that appearance evaluation and appearance orientation reliably predicted social physique anxiety in Chinese college students (p<.01).

Conclusions: The results showed sex differences on social physique anxiety, self-perception on appearance and fitness, and body satisfaction. These findings were generally consistent with the previous literature on sex differences in different cultural settings. But the regression only found lower appearance evaluation and higher appearance orientation contributed to social physique anxiety. Self-perceptions on fitness and health were not reliably predictors for the anxiety. It indicates Chinese college students are not associated their body satisfaction with their fitness and health. It also raises a
concern that an increasing physical fitness and physical activity level might not be an efficient tool to regulate social physique anxiety for college students in China."
SONAFE-Brazil Members’ Participation in Rio 2016 Olympic Games

Rehabilitation


“Instituto Federal de Educação, Ciência e Tecnologia do Rio de Janeiro (IFRJ), Universidade Federal dos Vales do Jequitinhonha e Mucuri (UFVJM), Universidade Estadual de Londrina (UEL), Sociedade Nacional de Fisioterapia Esportiva (SONAFE-Brasil), Sociedade Nacional de Fisioterapia Esportiva (SONAFE-Brasil), Sociedade Nacional de Fisioterapia Esportiva (SONAFE-Brasil)”

"BR, BR, BR, BR, BR, BR, BR, BR, BR, BR"

“Background: The Olympic Games is the major sport event in the world. Two-hundred and forty countries will participate in Rio 2016 Olympic Games and 10.500 athletes will compete. The Physical Therapy (PT) services had more than 5.000 athletes attended during London Olympic Games. Therefore, PT services will have a important role in Rio 2016 Olympic Games. The Brazilian National Society of Sports Physical Therapy (SONAFE-Brazil) is responsible for select specialist in Sports PT in the country and is engaged in prepare Brazilian physiotherapist in volunteer for Rio 2016. Nowadays, SONAFE-Brazil have 421 associates registered. The purpose of this study was identify the profile of SONAFE-Brazil members’ approved to work in PT services during Rio 2016 Olympic Games.

Methods: The scientific committee of SONAFE-Brazil asked to their associates who received the invited letter to Rio 2016 Olympic Games in their electronic address. The associate was free to respond and consent to participate in this data collection. Informations about their time of professional experience and academic degrees were collected from SONAFE-Brazil database, only if authorized by the associate. Moreover, the Rio 2016 Organizing Committee informed to SONAFE-Brazil the total number of volunteers allocated in PT services of Rio 2016 Olympic Games to allow the identification of SONAFE percentage of participation. Descriptive data analysis was performed using an excel sheet.

Results: Three-hundred and sixty-seven physiotherapists were allocated for PT services during Rio 2016 Olympic Games. One-hundred and twenty-seven SONAFE-Brazil members’ (34, 6%) were assigned to Rio 2016 Olympic Games. The mean time of professional experience of SONAFE-Brazil members’ was 12.4 years and 100 associates (78.74%) had academic degree (specialization, master, doctors).
**Conclusions:** The participation of 30.16% SONAFE-Brazil members’ in Rio 2016 Olympic Games will aggregate experience and expertise in PT services. The Brazilian Sports PT have an important challenge and a great opportunity to show their capability during this worldwide sport event.”
POSTER PRESENTATION

SPATIO-TEMPORAL PROFILE OF THE RUN-UP APPROACH FOR VAULT

Elite performance

"Franklin de Camargo-Junior, Ricardo Machado Leite de Barros, Júlio Cerca Serrão, Luis Mochizuki, Alberto Carlos Amadio"

"University of São Paulo, University of Campinas, University of São Paulo, University of São Paulo, University of São Paulo"

"BR, BR, BR, BR, BR"

"Background: The run-up affects the vault performance in the artistic gymnastics (Velickovic et al., 2011). Vault type, difficulty level, sex and gymnastic category are correlated to run-up velocity (Alt, 1992; Krug et al., 1998; Naundorf et al., 2008). Due to perception mechanisms, only the last three steps to springboard change (Heinen et al., 2011). Our aim was to identify spatio-temporal parameters (STP) of phases (initial and final) at run-up for vault in different gymnastic categories.

Methods: Ten male gymnasts (2 children, 4 juniors and 4 adults), included international ranking, participated in this study. The vaults (Über and Tsukahara) were filmed (60Hz, SX510 HS, Canon) and three successful trials were analyzed. The run-up approach was characterized by: mean velocity (v), mean step frequency (f) and mean step length (l):

\[ v = lf. \]

The analyses of STP were divided between: 1. from start of the run-up to three steps before springboard and 2. during the last three steps. The differences between SPT were verified by paired t-test and coefficient of variation (CV) for each vaults type and gymnasts category.

Results: The results indicate that the second phase of run is faster than the first phase for Über and Tsukahara. The increase of v between phases ranges from 31 to 84%. For Velickovic et al. (2011), acceleration during the run is typical in high level gymnasts. In our study, this difference was already found in childhood category. According to Brehmer e Naundorf (2011), adult gymnasts tend to show higher run-up v when compared to juniors. In this study, it was confirmed only for the second phase run-up to vaults.

The effect of f in velocity between phases occurred only in adults (> 24%). Even so, the increase of l (50 and 48%, Über and Tsukahara respectively) was the main strategy to improve v between the run-up phases in all categories.

The consistency of STP has been appointed in the artistic gymnastics as precision and performance indicators (Grassi et al. 2005; Hiley et al., 2013). Confirming others’ findings (Martin et al., 2004;
Camargo-Junior et al., 2015), in adults run, it was the most stable between STP (CVmax=2.60 and 1.97, Übel and Tsukahara respectively).

**Conclusions:** The difference between gymnastics category is established in the second phase at the run-up and it is vault-type independent. While children and juniors change the steps length to a fastest second phase, the adults have added the step frequency as an alternative strategy. This last gymnast’s category also shows the most consistent spatio-temporal parameters in the run to vault."
POSTER PRESENTATION

Sport in Full-Time Schools in Brazil: State-of-Art

Governance and policy

"Luiza Lana Gonçalves-Silva, Michele Viviene Carbinatto"

"Federal University of Mato Grosso do Sul, University of São Paulo"

"BR, BR"

"Background: In 2007, through the institution of the More Education Program, the Brazilian Government resumed Full-Time Schools proposals - FTS extends the day program from four to seven hours and therefore expand topics to be addressed in schools. In a mapping carried out by the federal government in 2008, it was found that the sport was used by 65% of FTS, in which it must be lined in an educational perspectives that provides critical and creativity skills within gymnastics, combat sports, martial arts, games, sports and yoga / meditation. In this sense, we were motivated to analyze the brazilian production of thesis in master and PhD degrees on sports / physical education in relation to FTS.

Methods: Withal, in methods, athwart bibliometric parameters, a descriptive and exploratory research was done in the Bank of Theses of Higher Education Coordination – CAPES, at the Brazilian Digital Library of Theses and Dissertations – BDTD and in the official pages of post-graduate programs in Education and Physical Education, from 2007 to 2015, using the following Keywords: sport / physical education / workshop; education in full-time programs; More Education Program and full-time school.

Results: We identified four studies that addressed the issues presenting realities of the southeast, north and south of Brazil. Results show homogeneity in relation to the findings, as follows: a. lack of didacticism and methodological direction of workshops by the funding agencies; b. lack of specific training of monitors-volunteers that works with the sport and, c. lack of infrastructure to the sports practices. In addition, besides the problems caused by the way the program hire the monitors - volunteers, the lack of knowledge of school management about the full-time education and sport leads to a reduction of the sports as a moment of recreation unrelated to the educational bias.

Conclusions: We conclude that the sport, although considered essential for human development and widely used to extend the school programs to millions of children in Brazil, needs to be structured in a way that contributes to building citizenship and social inclusion as idealizes the program. The restructuring of the failures identified is crucial to re-new the relationship between the sport and full-time schools. Thus, more research should be conducted so that the sport would not be considered as free-time occupation, but vector of integral human formation.”
POSTER PRESENTATION

Sport Injury in a 5-a-side Football: Types, Localization and Mechanism

Sport medicine and injury prevention

"Thálita Gonçalves Santos, Jalusa A. Storch, José Júlio Gavião, Edison Duarte"

"Physical Education - University of Campinas, Physical Education - University of Campinas, Physical Education - University of Campinas"

"BR, BR, BR, BR"

“Background: The 5-a-side Football sports practice can predispose to the development of lesions in their visually impaired athletes. Therefore, this study aimed to characterize the prevalence, verify the average injury and affected body segments, besides analyzing gravity and to demonstrate the main event which causes injuries in athletes with visual impairment who are members of the Brazilian Paralympic 5-a-side football team. This study is a descriptive research that the male participants are ranked on B1 class (for footballers who are completely blind) and athletes on a high performance level. As a main source of data acquirement an interview was conducted by the technical team.

Methods: The data collection instrument was a SIPPS - Sports Injury Protocol Paralympic SportWas applied. This data was analyzed quantitatively using descriptive statistics.

Results: The result showed all the lesions were mainly to the player’s lower leg segment (57.1 %) pubis (28.6%) and knee (14.3 %). Among the types of injuries that were found: two (28.6%) muscle stretches with recovery time exceeding 21 days, two (28.6%) pubalgys (recovery time exceeding 21 days) two (28.6%) periostitis of the tibialis without need of removing the athlete from his activity routine, and one (14.3%) injury, with removing the athlete for seven days. From the data, it was found that there was only one recurrence injury. Three (60%) out of five athletes (100%) were injured during the match at the ‘kick’ moment. Therefore, it was taken as the most evident mechanism of injury overload (57%).

We can say that the most severe injury was the pubalgus, since it has become an inflammation caused by overload and which requires resting periods up to 21 days.

Conclusions: It is believed that the rules of the 5-a-side Football, such as, the using of safety equipments (blindfolds, head protection, body protection like the use of leggings and anklets and a shield for the face region), the help and guidance of the leader of auditory perception training, caller and technical corroborate for the process of prevention of sports injuries in order to avoid direct trauma. Due to the sport evolution, the level of competitiveness and its popularity have been increased, this way, the athletes are subjected to rigorous training, which carries increased burden of demand and can raise the risk of injury mainly in competition periods. In order to identify overload indicators, it is critical
to have an evaluation, control process in place as well as monitoring (physiological, biochemical, immunological and psychological variables) periodically in order to identify and correct and readjust the training if necessary."
POSTER PRESENTATION

Sport practice level does not affect multidirectional limits of stability of wheelchair rugby athletes

Neuroscience and sport

"Paula Britto Rodrigues dos Santos, Thiago Lemos de Carvalho"

"Unisuam, Unisuam"

"BR, BR"

"Background: Wheelchair Rugby (WR) is a Paralympic modality created for individuals with tetraplegia or tetra-equivalent disabilities. Usually, WR athletes show a partial or complete loss of trunk function, affecting the seated postural stability. Being an important factor of the classification process of WR athletes, it is important to determine how sport practice level influence trunk function. Therefore, the aim of the present study was to evaluate the effect of sport practice level on trunk function of WR athletes.

Methods: Twenty-eight subjects were recruited from international (n=19) and national (n=9) level wheelchair rugby teams. Players of international team were younger and had in average 2.2 times more practice of WR and training volume than the national team players. Trunk function was assessed in terms of multidirectional limits of stability (MLS). Participants were asked to seat on a force platform placed upon a wooden block and to lean the body as far as possible in eight directions indicated on a computer screen. Center of pressure (COP) coordinates were calculated from the ground reaction forces acquired with the force platform. MLS were computed as the log-transformed area of 68% confidence ellipse adjusted to maximal COP excursion achieved for the eight directions.

Results: That was no difference in the MLS between international and national level players [2.4±0.9 a.u. vs. 2.6±1.0 a.u., respectively (mean±SD); p=0.617; Welch’s t-test for unequal sample size].

Conclusions: MLS are not affected by sports practice level. Our results highlight the utility of seated postural stability measures as a training resistant, valid measure of a specific impairment, potentially contributing for the development of an evidence-based wheelchair rugby classification."
POSTER PRESENTATION

Sports Culture Development Under The Vision of Globalization: Seek Common Points While Reserving Difference

Sport development
Yang Xiaosheng
South China Normal University
CN

“Background: With the trend of globalization of sports culture, the western sports culture entered strongly into the world, inevitably, with an intense feeling of national sports culture collision and impact. In the process of the development of sports culture, if you ignore the openness of the culture, blindly go as strong culture, then the mutual integration and communication between cultures will be lost, thus gradually results in conflict and contradiction between cultures. Based on review on the history of sports terrorist event, political opposition, cultural differences, ethnic conflicts, and religious differences are the main reasons for the sports terrorist incidents. The development of sports culture cannot ignore cultural diversity and cultural identity.

Methods: This research uses the method of documentation, logical analysis through the thought of “seeking common ground while putting aside differences” to awaken people for the reconsideration about their culture, in order to strengthen the appeal of cultural identity, as well as to realize the fusion between differed sports culture and draw lessons from it, so as to promote the mutual understanding between the people of the world, enhance the solidarity and friendship of all ethnic groups, and finally realize world peace.

Results: The Olympic movement is originated from the west, but belongs to the world, it is the diversity of the world sports culture as an objective fact, it is an inevitable trend of development of the future of the Olympic movement. On the way to the Olympic movement development we should avoid the Olympic culture of simplification, simplification will lead to cultural homogeneity, loss of culture and innovation, leading to extreme. Multicultural identity can be seen as the protection of human sports culture diversity, and the elimination of cultural hegemony, it has very important significance for the general progress of the world sports culture. But the diversity of the Olympic cultural identity is a slow process, needs to jointly work on eastern and western countries. We shall break the old thinking, learn from each other and draw lessons from their respective strengths, not blindly reject, eliminate the total westernization by Olympic culture blindly. Through multiple recognition, we can raise the cultural
power, strengthen the personality and advancement, so as to make more achievements for the Olympic cultural diversity and harmonious international relations.

**Conclusions:** Sports globalization is an unstoppable trend, but how to develop the sports globalization, is the problem we should think seriously about. In the process of the development of the Olympic movement, the idea of “seeking common ground while putting aside differences” enriches the connotation of the Olympic spirit in the formation of sports culture under the background of globalization, and diversified development pattern, it is not just about the sustainable development of world sports’ future, at the same time it is also crucial in creating a harmonious, fair and just international relations."
POSTER PRESENTATION

SPORTS TALENT: NEW SUGGESTIONS TO SPORT PERFORMANCE

Elite performance

"VINICIUS DENARDIN CARDOSO, ADROALDO CEZAR GAYA, ANELISE REIS GAYA, ALBERTO REINALDO REPPOLD FILHO"

"Federal University of Rio Grande do Sul, Federal University of Rio Grande do Sul, Federal University of Rio Grande do Sul, Federal University of Rio Grande do Sul"

"BR, BR, BR, BR"

“Background: Sporting talents are athletes who stand out for their performance. Those whose results are far beyond the average of the most high-performance athletes. They are “out of range”. But in the context of sports science which is a sports talent? Although small nuances, there is consensus. The term is generally used to denote something rare and valuable in the sports field. Methods: This study is a systematic review of literature on sports talent. Comes to designing state of the art and propose new syntheses and suggestions as it relates: (1) the definitions of sporting talent and; (2) the intervention models. Results: As a starting point, we recognize that although people have the opportunity to practice some sport in their leisure time, few are qualified to achieve high sports performance. Therefore, when setting a goal of achieving high sports performance, it seems logical to include precocious strategies for selecting future elite athletes. In fact, this is an economic requirement. Investing in highly efficient studies and programs that can identify and promote sports talents is achieved by the most prominent countries of elite athletes. This is an important part of conducting sports science research. Conclusions: However, we conclude this review of the literature, the sports talent identification models are inefficient. The intervention models fail to predict with the desired advance and efficiency required, who will be in the medium and long term, successful athletes. So there is an evident contradiction: the theories of sports talent, although logically well structured, however, are not supported on major sporting talent detection programs. This study intends suggest answers to the question, we must continue insisting on operating with definitions (theories) that although they can be formally coherent and consensual, do not have empirical validity?"
POSTER PRESENTATION

Sports Teaching Reform in Colleges and Universities from the Perspective of Life Education

Sport pedagogy
Lu Shuiping, Chenliang Deng
Sichuan University Jinjiang Colleg, University of Electronic Science and Technology of China CN, CN

“Background:
Based on the basis of life education, to investigate the relationship between the life education and the reform of sports teaching in colleges and universities, finds out the perspective of life education in colleges and universities sports teaching problems, and puts forward corresponding countermeasures. This study can be for college sports to provide academic thinking in the sports teaching how to practice the life education, and for related researchers to establish the corresponding theoretical basis in their future study.

Methods:
Literature materials, expert interviews and questionnaires are adopted to conduct a comprehensive research on the China's colleges and universities sports teaching reform.

Results:
Life education is the scientific basis and nature of the reform of college physical education teaching. Life education current situation is not optimistic in the universities sports teaching practice, because most of the teachers and students didn’t attaches great importance to the value of life and the naturalness of life, the direct consequence caused out of college physical education and life education, life education value is ignored in the process of sports teaching. It is not able to fully adapt to the inevitable developing trend of physical education in colleges and universities.

Conclusions:
In the process of P.E. teaching reform in colleges and universities, we should put the life education as the new task, and put it into colleges and universities sports teaching. At the same time, we should strengthen the teachers’ life education, and promote the organic integration of college physical education and life education. We hope this research can cause related researchers' academic resonance."
POSTER PRESENTATION

STATIC BALANCE CHANGES AMONG ATHLETES WITH VISUAL IMPAIRMENT AND ATHLETES-GUIDES IN PARALYMPIC TRACK AND FIELD

Elite performance

"Lais Mendes Roversi, Walkiria Gomes de Moares, Ciro Winckler"
"Federal University of São Paulo, Federal University of São Paulo, Federal University of São Paulo"
"BR, BR, BR"

“Background:
Paralympic Track and Field, differently from its conventional form, uses adaptations so that the objectives of each game can be achieved. This study focused on classes 11-13 of paralympic track and field, which include visual impairment (VI). The class 11 is the only one which compulsorily makes use of a guide, class 12 may or may not make use of one and class 13 does not make use of one. VI is characterized by parcial or complete loss of vision. Balance (BA) is defined as a combination of muscular actions with the purpose of supporting the body on a base and against gravity. BA is composed of three systems, being that the visual system is the one which mostly interferes in its maintenance, so that the BA of an athlete with VI tends to be more fragile than that of a person with regular vision. The objective of this study were to compare the static body balance among athletes with VI, among guides and intergroups.

Methods:
The volunteers were athletes of paralympic track and field, in the modalities of speed, from classes 11-13 along with their guides. Twenty-three evaluations were selected, 15 of them being from different athletes with VI and 8 from different guides. The evaluation protocol was the Postural Stability test, in which the subject stands on a scale trying to keep still as much as possible, through two attempts of 20 seconds with each foot, as well as with both feet. The selected statistic tests were: descriptive statistics, average of the variables, bivariate correlation and Wilcoxon’s nonparametric test. The software that was used for statistical analysis was SPSS 15.0 (SPSS, INC).

Results:
The intergroup variable that presented significant difference was the anterior-posterior score (p<0,05). The other variables did not show significant difference. In the quadrants (Q) 1 and 3, the guides achieved higher scores than the athletes with VI, while in Q2 and Q4 the athletes’ scores were higher. In the Q4 score, athletes showed significant difference when compared to anterior-posterior, overall score and left scores of the guides. The Q3 score of the athletes with VI obtained a significant
correlation with the Q2 score of the guides. In the intragroup variables, the relation between Q1-Q2 of the athletes with VI was significant.

**Conclusions:**

It is possible to conclude that however small the deficit in balance might be in athletes with VI, guides will suffer an interference in their own balance, which in turn may lead to changes in the sports practice, such as in trainings and competitions."
Background:
Chinese Basketball Association (CBA), the Chinese men’s professional basketball league, has been developed for 20 years since its establishment in 1995. This study reviewed the statistic data following CBA development process, and compared these data with world class league in order to scientifically examine CBA, improve the sport and promote basketball professionalization.

Methods:
Collect and process data of all teams participated in the CBA during 1995 and 2015, and data of all teams of the National Basketball Association (NBA) in 2014-2015. Based on the results, conduct comprehensive analysis, assessment and comparison.

Results:
There has been 20 seasons of CBA league since 1995. The number of participating teams has increased from 12 to 20. Each season had more than 400 Games while initially 154 games for the first season. Among which the number of games in regular season increase from 132 in 1995 to 380 in 2015. The number of foreign aid increased to more than 40 people from one. Three teams won 19 champion of 20 seasons since the league established. In NBA, few teams can retain the champions throughout the NBA league.

The overall average height and weight of CBA players have increased 4 cm and 5.5 kg respectively. The number of players whose height is more than 200 cm has increased to 147(account for 49% or more of total number) from 43 (account for 27.0% of total number). Number of players whose height is more than 205 cm has increased from 17 (account for 10.7% of total players) to 92(account for nearly 31% of total number), Number of players whose height is more than 210 cm has increased to 32(account for nearly 10.8% of total number) from 10 (account for 6.3% of total players).

The average score of CBA was about 102 points per game in past 10 years. Among them, 2-Pt Shooting, 3-Pt Shooting and free-throw shooting are about 30 of 56, 9 of 25 and 19 of 25 respectively. Besides, there are more than 41 rebounds (the offensive rebounds about 13, defensive rebounds about
28), 3 dunks, 3 blocks, nearly 16 assists, about 10 steals, 15 turnovers and 23 fouls, etc. From the change point of view, 2-Pt marks and attempts showed a downward trend, replaced by 3-Pt showed an upward trend. Compared with the NBA, there are too few 2-Pt shooting and too many 3-Pt shooting in CBA.

Conclusions and recommendations
The CBA has achieved remarkable success after 20 years of development since inception. But there is a big gap of strength between teams. In order to promote the game more exciting, the differences in capacities between participating teams should be minimized.

The teams and players’ height, weight, the proportion of tall players have dramatically increased. The changes are consistent with the characteristics of the modern world basketball development.

A number of indicators such as 2-Pt marks and attempts, 3-Pt marks and attempts, dunks, blocks, assists showed an upward trend. This showed poor defensive, less threatening pass and penetration. This reflected the “strong attacking, week defence” of CBA league and should be corrected.”
Strategies on Developing Martial Arts in Confucious Institute Overseas

Sport development
"zhang, Weiying"
Chengdu Sport University
CN

“Background:
With the rapid development of the economy, China holds more communication with western countries. Martial arts as quintessence of Chinese culture are stepping onto international stage, which show their unique characteristics and cultural heritage and attract many foreign friends. To popularize traditional Martial arts, Chinese government has sent many Martial arts teams and coaches to other countries for teaching and communicating. And the construction of Martial arts course in Confucious Institute overseas is a much better way for those foreigners understanding Chinese culture. Martial arts, originating from theories of Laotzu and Confucius, are not only a sport event but a representation of Chinese identities. Therefore, the development of Martial arts is to carry forward the tradition of China. Presently, compared with the popularization of karate, taekwondo and boxing in western countries, the development of Martial arts is facing a lot of problems. How to spread Martial arts and offer the course in Confucious Institute overseas have become the focus of many scholars and educators.

Methods:
Based on extensive document analysis and data collected from a number of sources including documents, news media, and a series of interviews with related officials, the article compared Martial arts with Japanese karate and Korean taekwondo to demonstrate strategies on offering and developing Martial arts course in Confucious Institute overseas.

Results:
1. The first problem to construct and promote Martial arts course is language. The quality of the course depends on the teacher’s language level
2. The content of the course is hard to define, different people has different preference for the course, which requires standard professional Martial arts textbooks.
3. The purpose of Martial arts course is for physical fitness, and understanding Chinese culture, rather than fighting showed in the Gongfu movies
4. There are many Martial arts routines, requiring long time practice, which might be different from foreigners’ expectation of immediate effects.
Conclusions:
1. Qualification certificate and assessment system should be constructed to train qualified martial arts teachers with high skills, so as to regulate international market of Martial arts.
2. Modern media and icons should be appropriately used to increase people’s attention, such as Gongfu movies, Jackie Chan etc. Information base should be constructed to publish and spread related news.
3. Competition rules of martial arts should use western competitive ideas as reference, highlighting effectiveness and attack, so as to attract more western friends. This is the key to promote martial arts.
4. Need analysis is a must before designing the course, techniques and spirits are two essences of martial arts, which are equally important to popularize the real martial arts around the world.
STRENGTHENING EXERCISES USING THE SWISS BALL FOR PATIENTS WITH FIBROMYALGIA: A RANDOMIZED CONTROLLED TRIAL

Rehabilitation

"Josiander Spolidoro Arakaki, Fábio Jennings, Germana Queiroga Estrela, Vaneska da Graça Cruz, Jamil Natour"

"Unifesp, Unifesp, Unifesp, Unifesp, Unifesp"

"BR, BR, BR, BR, BR"

**Background:** Evaluate the effectiveness of strengthening exercises using the Swiss ball in patients with fibromyalgia (FM).

**Methods:** A randomized controlled trial with sixty FM patients was done. Patients were randomized into two groups: intervention group (IG), in which patients performed muscle strength exercises using the Swiss ball or a stretching group (SG) in which patients performed stretching exercises. All patients participated in 40-minute training sessions 3 times per week for 12 weeks. The IG performed the following strengthening exercises using a Swiss ball: lateral rise, simultaneous biceps curl, squat, two arms triceps extension, abdominal, one arm dumbbell row, reverse crucifix and crucifix. The SG performed stretching exercises for the same muscle groups. Outcome measures were: pain using the visual analogue scale (VAS); muscle strength (1 repetition maximum test); disease impact (fibromyalgia impact questionnaire - FIQ); quality of life (SF-36). All participants underwent an evaluation at baseline, at 6 weeks and at 12 weeks of training. The assessor was blind to patient allocation.

**Results:** The two groups were homogeneous regarding clinical and demographic characteristics at baseline. The IG showed statistically significant improvement in VAS and FIQ compared with the SG. The IG also showed greater muscle strength through loads compared to the SG over time. Both groups improved overall quality of life. No adverse events were reported.

**Conclusions:** Strengthening exercises using the Swiss ball demonstrated improvements in pain, health related quality of life and muscle strength in patients with FM compared to stretching exercises."
Background: Training programs of athletes for high level competitive sport may cause physical and emotional stress with deleterious effects on cognitive, behavioral, and physiological aspects, thus impairing athlete’s performance. Therefore, monitoring the stress markers during training enables to have a better control of the training workload, in order to reach the maximum performance in the competitive periods. Heart rate variability (HRV), creatine kinase (CK) and cortisol concentrations, and mood state are the most used stress biomarkers. The goal of this study was to determine and to analyze the correlation among HRV, CK, salivary cortisol (SC) and mood state during the preseason training of professional female soccer athletes.

Methods: 27 female, 18-30 year-old, professional soccer players of the national first division team were evaluated. HRV indices were calculated based on the RR intervals in the electrocardiogram, that was recorded with the athlete in the supine position, using Polar® RS800CX. CK activity was evaluated in a blood sample using the Reflotron Analyser®. Cortisol was analyzed by Elisa in saliva samples collected immediately after awakening (CD) and at night (CN). The mood state was estimated using the Brunel Mood Scale (BRUMS). Data are presented as means ± standart deviation. Spearman correlation among variables was also determined and the significance level was set at 5%.

Results: The BRUMS vigor index of 8.8±3.5 indicates a positive mood, featuring energy states, animation and activity, essential for an athlete proper performance of an athlete. CK plasma concentration (105±75.8 U/L), CD (7.44±3.0 nmol/L) and CN (1.65±2.0 nmol/L) were within the normal range for female athletes in the age group of this study. HRV indices were as follows: RR (1070±160.0 ms), RMSSD (80.0±40.4 ms) and pNN50% (47.1±18.9) in time domain; LF (1479.9±1121.5 ms²), HF (1869.3±1628.5 ms²), and LF / HF (0.80±0.61) in the frequency domain; SD1 (54.3±23.2 ms) and SD2 (95.5±43.8 ms) for the Poincaré plot. No significant correlations were found between CK and the other physiological and psychological markers. There were moderates correlations between CN and RR (r =
0.66); CN and anger (r = -0.51); SD2 and mood state mental confusion (r = 0.42) and between SD2; mood state vigor (r = 0.43).

**Conclusions:** CK concentration, SC and mood state indicate that the athletes are in good physical and psychological conditions to start the training season. The correlation between SC, HRV and mood states, namely anger, vigor and mental confusion, can be used to continuously evaluate the periodization program, reducing stress, and thus contributing for the athlete’s general health and performance.
**POSTER PRESENTATION**

**Stress Markers in Athletes after Biofeedback Training**

Sport psychology

"Andre Luis de Sá Rolim, Marcia Carvalho Garcia, Regina Celia Spadari"

"Universidade Federal de Sao Paulo, Universidade Federal de Sao Paulo, Universidade Federal de Sao Paulo"

"BR, BR, BR"

**Background:** There is consensus about the important influence of psychological aspects on athlete`s physical performance. Therefore, stress has been studied under the perspective that its management may be used to improve performance, both in physical and psychological aspects. Peripheral mechanisms of the stress response include the activation of the hypothalamic-pituitary-adrenal axis (HPA) and the sympathetic nervous system (SNS). The HPA axis activity can be estimated by the salivary cortisol concentration (SCC). The SNS activity can be assessed through the heart rate variability (HRV), which is the result of the balanced actions of both divisions of the autonomic nervous system (ANS), the sympathetic and the parasympathetic systems. Biofeedback technique has been used as a potential training for stress management in sport. However, its effectiveness has not been evaluated yet. **Objective:** The aim of this study was to evaluate the effect of biofeedback on HRV and SCC in athletes.

**Methods:** Volunteers, professional athletes practicing futsal or volleyball were randomly distributed into two groups (control and intervention). Individuals in the intervention group attended 15 sessions of biofeedback, 30 minutes each, three times/week. SCC and the perceived stress index (PSI), quality of life (QOL SF-36), trait and state anxiety (IDATE) as well as performance were determined before and after the intervention period. HRV was evaluated after the intervention.

**Results:** The athletes submitted to the biofeedback training program (n = 11) showed a reduction in anxiety state (48.0 ± 1.2 vs. 41.0 ± 1.8) without altering anxiety trace (46.0 ± 1.6), PSI (0.29 ± 0.04 vs. 0.33 ± 1.9), QOL domains, or any of the HRV indexes (RR mean interval, SDNN, RMSSD, pNN50, LF, HF, DS1, SD2, α1 or α2). CAR and the area under the curve of cortisol were also reduced. Performance, indicated by the score get by the athlete and the number of mistakes he made, was improved since after the feedback training they were able to get more points and presented lower number of mistakes.
**Conclusions:** biofeedback training reduced anxiety and SCC in volleyball and futsal athletes in the day of competition, probably contributing to improve athletic performance, without altering the ANS activity as measured through the HRV. Financial support: CAPES."
Stressful and Recovery Indicators in Trail Runners

Sport medicine and injury prevention


“Universidade Federal do Triângulo Mineiro - UFTM, Universidade Federal de São Carlos - Ufscar, Centro Universitário do Cerrado de Patrocínio - Unicerp, Centro Universitário do Cerrado de Patrocínio - Unicerp, Tendência Outdoor Assessoria Esportiva, Centro Universitário do Cerrado de Patrocínio - Unicerp, Universidade Federal do Triângulo Mineiro - UFTM”

"BR, BR, BR, BR, BR, BR, BR"

“Background: Sports practice leads athletes to various musculoskeletal and psychosocial alterations, often unidentifiable. Thus, this study sought to identify the levels of stress and recovery that affect trail runner athletes in competitive training period.

Methods: Transversal study, the sample consisted of 45 trail runner athletes (34.0 ± 9.2 years) from the city of Uberlândia, Minas Gerais, with 29 men (33.5 ± 8.2 years) and 16 women (34.9 ± 10.9 years). Stress and recovery processes of athletes were evaluated from the stress and recovery variables contained in the REST-Q Sport questionnaire that present qualitative and quantitative characteristics.

Results: In the variable Stress, the highest frequency of responses were in the ratings Desirable (46.7%) and Satisfactory (31.1%) in General Stress dimension; Satisfactory (35.6%) and Desirable (31.1%) in Emotional Stress dimension; Desirable (42.2%) and Satisfactory (35.6%) in Social Stress dimension; Tolerable (33.3%) and Satisfactory, Desirable and Worrying (17.8%) in Conflicts / Pressure dimension; Satisfactory (31.1%) and Tolerable (28.9%) in Fatigue dimension; Satisfactory (35.6%) and Desirable (33.3%) in Energy Loss dimension; Satisfactory (31.1%) and Critical (28.9%) in Physical Complaints dimension. In the variable Recovery, all dimensions had higher frequency responses in the Satisfactory rating: 80.0% in Success, 71.1% in Social Recovery, 86.7% in Physical Recovery, 73.3% in General Wellbeing and 91.1% in Sleep Quality.

Conclusions: In the variable Stress the athletes indicated acceptable levels when confronted with current literature in the dimensions General Stress, Emotional Stress, Social Stress, Fatigue and Energy Loss, but in Physical Complaints they presented rates that can characterize and supposedly evidence the influence of indirect markers of musculoskeletal alterations having indicatives of other stressful variables. In the Recovery variable in all dimensions the athletes presented rates of acceptable answers, but adjacent to behaviors that favor a good recovery from the sport.”
Study on Race walking violate Rule Kinetics technique of Liu Hong by the gold medal winning procedure at the 2015 World Athletics Championships

Elite performance

"Li Houlin, Gao Chong, Yang Yang, Ma Junchi, Geng Xinwei, Guo Xiaodong"
"Capital University of physical education and sports, xi’an physical education university, Capital University of physical education and sports, xi’an physical education university, Capital University of physical education and sports, Capital University of physical education and sports"
"CN, CN, CN, CN, CN, CN"

**Background:** Liu Hong, who won gold medal in the women 20 kilometer Race walking event at the 2015 World Athletics Championships in Beijing with the time of 1:27:45, received 5 yellow paddles for loss of contact. Lu Xiuzhi, the silver medal winner with the same time, received 4 yellow paddles and 1 Red Card for loss of contact. Lyudmyla Olyanovska won the Bronze Medal with time of 1:28:13 without any of yellow paddles or red Cards.

**Methods:** The circuit is 1km. the video was recorded by two high speed digital cameras CASIO EX-FH25 in National Stadium. The data was measured at the height of 1m and distance of 12m. The main axis angle between the two aircraft is nearly 60 ° and the frequency is120 frames/sec. Data was analyzed by APAS kinematics system and smoothed with a 7Hz digital filter.

**Results:** Liu Hong received the first yellow paddle on the seventh kilometer, the medalist competitor make a progression acceleration steps of speed on the former 6 kilometer. The lap time is 4:18 first shorter than the average lap time at sixth kilometer (4:23). By four of five yellow paddles, the race walking speed (4:21, 4:23, 4:12 and 4:19) of Liu Hong is faster than average speed (4:23). These demonstrated that high Competitive speed is factory leading to violate Rule for loss of contact.

The index of Liu Hong is positive correlation before 7th kilometers. Speed of Liu Hong was increased from 4:34 of first kilometer to 4:18 of sixth kilometer. By this procedure her stride length was increased from 1.06 m to 1.09 m. by the yellow paddles this correlation was unrhymed, especially on the final 5th kilometers the speed is 4:11, but the stride length is only 1.08 m. The average stride length of Liu Hong is 1.08 m, which is shorter than Lu Xiuzhi (1.09 m) and Lyudmyla Olyanovska (1.12 m), although the height of Lu Xiuzhi (1.54 m) is 0.02 m shorter than Liu Hong (1.56 m). Liu Hong’ stride length by three yellow paddles is 1.07 m. It is obviously that her stride length is too shorter to complying with the definition of Race Walking under IAAF Rule.
The stride length of Liu Hong by two yellow paddles is 1.09 m, which was her minimum (101.7°) and Vice-minimum (103.9°) Knee Angle on Vertical upright position. Her leg so unloosened that her Knee Angle is too small.

Head Fluctuation Length of Liu Hong is 0.12 m, which was longer than Lu Xiuzhi (0.10 m). Although Head Fluctuation Length of Lyudmyla Olyanovska was 0.12 m, the same as Liu Hong, but her height (1.66 m) is 0.10 m higher and her stride length is 0.04 m longer than Liu Hong. By four of Liu Hong’ five yellow paddles, the race walking Head Fluctuation Length is 0.13 m, which is equal to Lu Xiuzhi’ Maximum Head Fluctuation Length, by this length Lu Xiuzhi was showed one yellow paddle, too. one of Liu Hong yellow paddles race walking Head Fluctuation Length is 0.14 m, The Head Fluctuation Length of Liu Hong is too lager to complying with Race Walking definition

Conclusions: Short stride length by high speed is factory leading to violate Rule for loss of contact of Liu Hong.

Small Angle Knee on Vertical upright position and lager Head Fluctuation Length of Liu Hong was easy to be disqualified athlete."
Study on the Change Rules of Blood Biochemical Indexes of Exercise-Caused Fatigue with the Name of “Kidney Qi Deficiency Syndrome” in Traditional Chinese Medicine

Sport medicine and injury prevention

"XUE Liang, LI Yue, SHI Jia Hui"

"Zhejiang Institute of Sports Science, Zhejiang Institute of Sports Science, Zhejiang Institute of Sports Science"

“CN, CN, CN”

“Background: To discuss the relationship between exercise-caused fatigue called kidney qi deficiency and change rules of part of blood biochemical indexes.

Methods: Taking eighty rowing and canoeing athletes of Zhejiang province of China as research subjects in high intensity training before competition. All subjects firstly divided to two groups of male and female. Then, in each gender group, there are three kind of group including kidney Yang deficiency, kidney Yin deficiency and control. In the control group, twenty-one athletes comprising nine males and twelve females who only took low intensity training of adaptive training were included. In the kidney Yang deficiency group, there are twelve athletes comprised of seven male and five female. In the kidney Yin deficiency group, there are seven athletes with four male and three female. There were significantly not any difference of age, height, weight and professional training years among three groups. No western medicine or traditional Chinese medicine aiming at improving performance or anti-fatigue was used during research. After preliminary screening, forty athletes were concluded in the final experiment. Basic methods including questionnaire investigation and exercise-caused fatigue mode construction were applied. Clinical manifestation of exercise-caused kidney qi deficiency syndromes of traditional Chinese medicine and blood biochemical indexes including blood uria nitrogen (BUN), serum creatinine (Scr), serum testosterone (T) were collected to investigate the relationship between exercise-caused fatigue called kidney qi deficiency and change rules of part of blood biochemical indexes after large intensity training of pre-competition. Test data were processed through SPSS 15.0 and showed as Mean±SD. In each gender, χ² test were applied among the three groups and p < 0.05 was taken as threshold of significantly different.

Results: After pre-competition high intensity training, nineteen athletes showed kidney qi deficiency syndrome, including eleven female and eight female, which formed 23.8% of all subjects. Both male and female kidney Yin deficiency group showed significantly higher BUN level. For serum testosterone level, gender differences existed between two groups and control group. For female, both groups
showed significantly higher level than control group. Moreover, the level of Kidney Yang group was higher than Kidney Yin deficiency group. For male, both groups showed lower level than control group and Kidney Yang deficiency group was a little lower than Kidney Yin deficiency group.

**Conclusions:** This research showed 23.8% kidney qi deficiency syndrome after pre-competition high intensity training. Sex factors should be considered in this research, both BUN and T level can supply objective basis for microcosmic syndrome differentiation of character of Yin and Yan for kidney Qi deficiency syndrome of exercise-caused fatigue. Furthermore, it might support for giving athletes nutrition programme and Chinese medicinal formulae suggestions for kidney Qi deficiency syndrome of exercise-caused fatigue."
POSTER PRESENTATION

Study on the characteristics of 3-week and 8-week altitude training in Elite Rowing Athletes

Elite performance

"WU HAO, LI JIANBING, Zhenxing Lei"

"Capital Institute of Physical Education and Sports, Capital Institute of Physical Education and Sports, Capital Institute of Physical Education and Sports"

"CN, CN, CN"

"Background:

Objective of Chinese National Rowing Team athletes before 2012 London Olympic Games, a total of four altitude training sessions, we had observed and compared both eight and three weeks altitude training from 2010 to 2012. This study focus on these two models of high altitude training programs of elite rowing athletes in the body physiological functions and training results. With practical research and analysis, to enrich understandings of the altitude training models, for a better theoretical understanding of rowing altitude training before the 2016 Rio Olympic Games.

Methods:

The study on the 33 elite scull rowers of Chinese National Rowing Team in 3-week and 8-week altitude training. During the two different altitude training mode, comparison examination including the athletes' hemoglobin, cell backlog, blood, urine, acid kinase; testosterone, Cortex, blood alcohol 5 elements to poor single factor analysis and matching T examination of the dynamometer test at the level of lactic acid more Yee-Power curve, lactic acid-heart rate curves and oxygen threshold power and lactic acid threshold power altitude training effectiveness analysis before and after altitude training.

Results:

1. The highest value of Hb was found in the rowers of all classes in the third week during the altitude training for three weeks. Male and female open weight rowers are 16.67g/dl, 14.44g/dl, respectively. Male and female light weight rowers are 16.67g/dl, 14.44g/dl, respectively. The highest value of Hb was found in the rowers of all classes in the 5th week or 6th week during the altitude training for eight weeks;
2. BUN and CK in 8-week altitude training were both higher than 3-week training; 3. The testosterone and cortisol were both decrease and the ratio of them were increase. After 8-week altitude training, the reaction of body function of rowers were fine; 4. Five metal elements in blood were easy to lose during altitude training, copper, calcium and magnesium especially.

Conclusions:
Both 3-week altitude training and 8-week altitude training would increase the maximum endurance capacity of the rowers. The performance of male and female light weight rowers after 3-week altitude training were better than themselves after 8-week training. It was obvious increase of the maximum endurance capacity for high level rowers after 8-week altitude training, and for lower level rowers, it was a significant increase of the maximum endurance capacity after 3-week altitude training program."
Support Post-Career for Aquatics Athletes

The athlete’s career

"Maressa D’Paula Gonçalves Rosa Nogueira, Ana Lúcia Padrão dos Santos, Luciana Perez Bojikian, Maria Tereza Silveira Böhme"

"University Santa Cecilia, University of São Paulo, Paulista University, University of São Paulo"

"BR, BR, BR, BR"

"Background: Many countries seek international sporting success. For this reason, some studies have tried to explain the factors that determine success in sports (Santos et al., 2016). Among these factors, the support, during and post-career is highlighted (De Bosscher et al., 2009; McArdle et al., 2014) in the sense that sports institutions offer support for the development of the athlete in a balanced manner enabling better performances, extended sports careers and smoother transitions to the end of the athletic career (IOC, 2002). Thus, the purpose of this study was to investigate the support post-career services available in the perception of aquatics athletes.

Methods: The participants were 47 athletes (26 men and 21 women) with average ages of 26 years linked to the Brazilian Confederation of Aquatic Sports and/or approved by the national financial support program to the athlete. The model developed by De Bosscher et al. (2009) and translated by Böhme and Bastos (in press) was adopted and all international ethical research standards were met. The answers ranged from: strongly agree, agree, neither agree/nor disagree, disagree, strongly disagree and I don’t know. The results were presented according to the frequency of responses.

Results: Regarding the use of some type of support services that could help the athlete at the end of his sports career, 17.0% did not use it, 21.3% did not know it, and 61.7% said they used it. However, only 10.6% reported having used specific preparation programs for the end of the career; 10.6% used the sport psychologist for the same purpose; 10.6% mentioned the development of a social network of friends; 6.4% claimed having developed a professional network of labor relations; 8.5% said they used career advice; 8.5% indicated the financial support and 6.4% referred to financial advice. In addition, 72.3% of the athletes were not well informed about the services available for the post-career and professional future; 80.9% said the support post-career is not well developed in Brazil; 59.6% were concerned about post-career future; 42.6% were negatively affected by concerns about the prospects out of the sport; 74.5% stated that post-career prospects are a serious problem in Brazil and 83.0% expect to find a job which is in accordance with their education and interests in a short time.
**Conclusions:** The existing conditions do not seem to meet in an adequate manner the needs of athletes for the transition and support post-career. Thus, a wider involvement of sports institutions at different levels of organization is necessary to assist athletes in the various changes and adjustments, so that it becomes possible to accomplish a positive adaptation decreasing the difficulties found in building a new career."
Support Services During Sports Careers Overview of Managers, Coaches and Athletes in Brazil.

The athlete’s career

"Rosiane Raduan Alexandrino, Maressa D’Paula Gonçalves Rosa Nogueira, Ana Lúcia Padrão dos Santos, Maria Tereza Silveira Böhme, Flávia da Cunha Bastos"

"University of São Paulo, University Santa Cecilia, University of São Paulo, University of São Paulo, University of São Paulo"

"BR, BR, BR, BR, BR"

“Background: For achieving success in the sporting environment and reach a career with excellence, athletes should have necessary conditions and support. The support during sports career is one of the factors that can contribute to this success (De Bosscher et al., 2009). However in Brazil there is no further information about this subject. The aim of this study was to investigate the support services offered and received by highperformance athletes during sports career according to view of managers, coaches and athletes.

Methods: The survey method was used, with the participation of 7 (9.5%) managers, 10 (8.4%) coaches and 191 (8.2%) athletes with a mean age of 42.6, 40.1 and 26.1 years, respectively; all linked to the modalities present in Brazil Plan Medals 2016 (Brasil, 2012), a support program for individual sports with real chances of medals at the Olympic Games in 2016 and that represented the states or cities (capital cities) with greater Olympic participation, budgetary and in the Brazilian GDP. The questionnaires used belong to the model developed by De Bosscher et al. (2009) and translated by Böhme and Bastos (in press). All standards of research ethics were observed. The data were analyzed by the calculation of the responses percentage.

Results: Regarding sports science services (massage therapists, physical therapists and specialist doctors), managers, coaches and athletes have similar views as to the access to massage therapists (50%, 40% and 50% respectively); however coaches report lower levels of access to physical therapists (67%, 30% and 63% respectively) and specialist doctors (50%, 20% and 42%). About the support services during the sporting life (legal advice, media relations, financial advice and career advice) the opinions of managers and athletes are the same as legal advice, financial advice (17%, 10% and 17% respectively), but differ between the groups for career advice (17%, 30% and 21% respectively) and media relations (33%, 40% and 25% respectively) where the coaches are more optimistic.
Conclusions: It is possible to identify a discrepancy between the views of managers, coaches and athletes in addition to the insufficient availability of support services offered and received during the sporting life for high performance sports athletes in Brazil.”
Swapping swimming for Water Practices: Application program for practitioners over twelve years

Sport pedagogy

"Andreza Gonçalves, Diego Fernadez"

"Sesc São Paulo, Sesc São Paulo"

"BR, BR"

Background: When we think about swimming we should reflect that it is the bearing capacity and displacement of the water by its own momentum, so through this understanding swim goes beyond the styles crawl, backstroke, breaststroke and butterfly.

Miranda (2000) argues that the aquatic community from different countries got used to the four births and its variations. However we must ask: Why only four? If we want to develop our athlete or student, it is advisable to provide the notion of his arm, for example, as an intelligent member capable of gestures aware of what an arm that carries only one type of movement.

If we think of developing individuals whatever their age group in the liquid medium, it is very important that we start to create possibilities for the expansion of its motor repertoire in the aquatic environment through body awareness, understanding your body in the water, among other elements which facilitate the gestures of births without this need to maintain a repetition sequence generating boredom class and possible dropouts.

In the search for a program by which contemplate the SESCSP expectations with respect to this understanding of swimming, the SESCSP structured its Water Practices program whose proposal the learning and practice of swimming, improved physical fitness and technical as well as activities as water polo experiences, diving, synchronized swimming and more, from 3 years old.

Methods: This report aims to share the experiences of the work with the students of the Water Practice course for practitioners over twelve years SESC Belenzinho (São Paulo-SP), during the year 2015.

The annual planning had as proposal work with bimonthly issues such as Balance, Security and Rescue, Multi swimming Olympic swimming and paralympic swimming, Caiaque, Biribol, Triathlon, Water Polo and others and through them enabling activities for the development of aquatic skills of the students.

Results: The results of this study indicate that most students understand better the four births, increasing their technical exploitation. It was also perceived increased autonomy of students for aquatic activity practices, including attending events inside and outside the unit SESC Belenzinho. The group,
through the new proposal, obtained a number of enrolled at full capacity (20 students) and with few dropouts during the year.

**Conclusions:** We conclude that, with the application of planning focused on the new proposal of the Program of Water Activities SESCSP, the teacher has to have a more effective role, trying all the time to take the students out of balance. It was also possible to create new stimuli for the development and expansion of students' motor repertoire, valuing all employment opportunities in the liquid medium and not just the traditional births brought the motivating aspect for students through the various trials and challenges making the same not only a movement player."
POSTER PRESENTATION

Swimming Classes With Playful Activities and the Development of Moral Values on Children

Sport pedagogy

"Ester Francisca Mendes, William Urizzi de Lima, Adriano Oliveira Gomes, Ricardo Alexandre Maia de Lima, Ana Maria Gaino Pinheiro, Cesar Eduardo Jerusevicius, Simone Gomes de Sousa, Marcio Ricardo Equi, Thiago Munhoz Flose, Rodrigo Daniel Bardi Alves, Almir Constanzo Marchetti"


"BR, BR, BR, BR, BR, BR, BR, BR, BR, BR, BR"

"Background: According to Piaget, the development of moral judgment occurs in relationships with other individuals in a set of rules. From this perspective, the stories, the “make-believe” and fairy tales are strategies that allow the development of symbolic reasoning and help the child make sense in your life through its identification with the plot, the characters and their attitudes. Within the pedagogical proposal of Gustavo Borges Methodology (GBM), teaching of aquatic skills takes place through activities that stimulate children's imagination, promotes integration and foster the creation of emotional bonds. Between the months April and June 2015, was held the thematic project (commercially called campaign) "Discovering the 7 seas", in which nine virtual values were worked out, represented by trading cards, stamps, coins and tazos conquered by the child as she played activities and meet established rules. The aim of this study was to evaluate children comprehension about these virtuous values.

Methods: The counsel of the MGB contacted the coordinators of gyms that had long accreditation and greater adherence to the quarterly campaigns. The academies who agreed to participate, the recruitment of participants was through explaining the research procedures and verbal invitation to parents of students with higher school attendance. Parents who authorized the participation of their (s) child (ren) in the research signed the consent form in two ways. The final sample of this study was 277 children aged between 4 and 8 years old, in various regions of Brazil. After the data collection, all academies sent a duplicate of TCLEs for the MGB office in São Paulo via mail. The instruments used in this research were: a) a tale adaptation “The Frog Prince” authored by the Brothers Grimm; b) a questionnaire specifically designed for this research, based on Piaget's theory of the development of the notion of moral and study Ferraz (1997) on the development of the concept of rules in the child.
The questionnaire contains four closed and two open questions, which include all moral values developed during the campaign seven seas. In this paper, we present the results related to question number 3, related to the development of value “disposition” (If the princess was her best friend and you were very tired (a), after a full day full of activities, you would do if she asked you to help her find the ball? “).

Results: Participated 277 children of both sexes, with the following distribution by age: 4 years = 32; 5 years = 71; 6 years = 62; 7 years = 58; 8 years = 53. The responses to the question analyzed indicate that in all age groups, children were willing to help the princess, giving preference to teamwork (4 years = 81.25%; 5y = 63.38%; 6 y = 66.67%; 7 y = 68.97; 8 y = 64.15%). In addition to the value of “available”, you can check the behavior of “companionship”. The percentage of children who help lonely princess came second (4y=9, 38; 5y=28, 17; 6y= 28, 57; 7y = 29, 31; 8y=33, 96). The results of this study suggest that it is possible to associate swimming classes to development of important moral values for a harmonious social life."
POSTER PRESENTATION

SWIMMING KINEMATICS DURING A SPRINT INTERVAL TRAINING SET IN SWIMMING

Elite performance

INDYANARA CRISTINA RIBEIRO
Universidade Federal de São Paulo
BR

“Background:
Repeated sprint exercise has been used as a training method [usually referred as sprint interval training (SIT)], as it is time-efficient and capable of inducing similar or even superior adaptations on the cardiorespiratory system than continuous endurance training. Furthermore, SIT involves powerful muscle contractions, approximating competitive tasks of many athletes, such as short-distance swimmers, which may be an important factor to elicit neuromuscular adaptations. Of note, physical performance progressively decreases during a SIT set. Thus, it is possible that fatigue during a SIT set changes the swimming kinematics, which remains unknown. Accordingly, the aim of this study was to describe the swimming kinematics during a SIT set in swimming.

Methods:
Twenty-two (6 females and 16 males) short-distance university swimmers were enrolled. They had been training in the same team, for at least 5 years. The protocol encompassed 2 visits per subject. The first visit was used to measure the time to complete a single 50-m maximal effort from a push start. The repeated sprint swimming task was performed in an indoor pool, 50-m long. Subjects performed 15 min of warm-up. Then, performed a SIT task that consisted of 6 sprints of 50 m at maximal effort repeated every 3 min. Sprints started from a push start, to avoid technical variations involved in jumping off the start block. Subjects were instructed to swim as fast as possible throughout the set, since the beginning of each sprint. To avoid a “pace” strategy during the set, the first sprint had to be within at least 95% of the time achieved during the familiarization visit. The following parameters were obtained from the set: rate of perceived exertion (RPE), sprints time [best time (BT; i.e., lowest sprint time, which was always the first sprint), total time (TT; time sum of six sprints), and percent decrement (%DC)]. Swimming kinematics consisted of assessing stroke rate (SR), percent decrement of the stroke rate (%SR), best stroke rate (BSR) and stroke length (SL) at the middle of the pool, as well as the total number of breaths (NB) and swimming velocity (SV).

Results:
Sprints time, NB and RPE increased over the sprints (P < 0.05). SR decreased in the 2nd and 3rd sprints (P < 0.05 vs. 1st sprint) and then was maintained until the last sprint. SV decreased over the sprints (P < 0.05). SL were similar among the sprints (P = 0.25). There was a large correlation between BT and BSR (r = -0.5; P = 0.01), and a very large correlation between %DC and %FB (r = -0.7; P = 0.01).

**Conclusions:**

In Conclusion, this study showed that the fatigue gradually increases during a SIT, which reflect in the increase of the NB and in the decrease of the SR. Thereby, the increase in sprints time was associated with the increase in SR.”
POSTER PRESENTATION

SWIMMING STROKE OF OPEN WATER ATHLETES: CHARACTERISTICS OF PERFORMANCE AND TEMPORAL ORGANIZATION OF THE STROKE

Elite performance

"Fabrício Madureira, Claudio Scorcine, Rodrigo Pereira, Cassia Campi, Andrea Michele Freudenheim"
"Universidade de São Paulo, Universidade Metropolitana de Santos, Universidade Metropolitana de Santos, Universidade Metropolitana de Santos, Universidade de São Paulo"
"BR, BR, BR, BR, BR"

Background: Open water swimming has had an increasing number of competitions and participants worldwide. However, only a few studies have focused on the behavioral analysis, particularly those based on real distance and environment (sea) situations. This study aims to investigate the characteristics of performance and temporal organization of the stroke of open water swimmers. More specifically, to find out which resources open water athletes can draw on to achieve their goal of swimming their way through a sea race as fast as possible.

Methods: The sample consisted of 23 athletes, with a mean age of 26.4 (± 3.2) years. Their task was to swim a 1.5-kilometer open water circuit. A GPS (Garmin Fenix 3) was used to collect performance-related variables. Images describing the temporal organization of the stroke were captured at three different time-points: beginning (B) -20-40 meters, middle (M) - 800-820 meters and end (E) -1450-1470 meters of the course. Dependent variables related to performance (time, speed, total distance completed, as well as the stroke rates in each of the three time-points in the course); variant aspects of swimming strokes (total time of cycle, total time of strokes, recovery [out of water] and pull-through [in the water] phases) and non-variant aspects of the swimming stroke (relative timing of recovery and pull-through phases and its variability) were considered. Repeated measures analysis of variance was used to compare the three time-points of the race (B, M and E) for all variables. Pearson correlation was used to assess the magnitude of the relationship between performance variables, while Student’s t test for paired samples was used to compare the possible differences between the right and left arms at each time-point at α≤0.05.

Results: As for performance, the results indicated that swimmers made use of stroke rate (Sr) for the three different time-points, which were higher during B compared to M and E, and during M, lower than B and E; these changes were followed by adjustments in the variant aspects such as the total time of cycle, stroke and recovery and pull-through phases. In addition, at the three time-points of collection swimmers had a temporal symmetry between the strokes of both arms, even though differences were
observed between the phases of the stroke when arms were compared against each other. Regarding the non-variant aspects, a change in pattern was detected between B towards M and E of the race, while at M and E time-points athletes used the same temporal structure. Regarding the variability between variant and non-variant aspects for strokes and stroke phases, there was a decrease in magnitude through the race course. The left arm showed greater variability at the three time-points compared to the right arm.

Conclusions: Therefore, in view of the results, it can be concluded that the resources used by skilled swimmers when swimming in an unstable environment, real conditions of distance and environment (sea) comprise change in performance (Sf) associated with adjustments to variant aspects and of non-variant aspects of the stroke, simultaneously, depending on the moment of the race."
Symmetrical Characteristic of Sport Life-Span for World-Class Elite Swimmers

Elite performance
"Yu-Peng Shen, Mu-Wei Bai, Timon Cheng-Yi Liu"
"South China Normal University, Guangdong Pharmaceutical University, South China Normal University"
"CN, CN, CN"

Background:
Existing studies of athletic career mainly focused on analyzing the age of peak competitive performance for elite swimmers (Pyne et al., 2004; Sian et al. 2014&2015). However, Liu et al. (2014) and Li (2015) have studied the whole athletic career. In their framework, the first medal age, $\beta$, was defined as the age when winning first medal in the international sports games, which was marked as the starting point of best performance; the peak age, $h_0$, was defined as the age when showing the peak performance during athletic career; the retirement age, $y_0$, was defined as the age when announcing the retirement officially, which was marked as endpoint of maintaining best performance period; the sport life-span was defined as the period from the first medal age to the retirement age; the rising period, $h_0 - \beta$, was defined as the period from the first medal age to the peak age, which was also called best performance period; and the declining period, $y_0 - h_0$, was defined as the period from the peak age to the retirement age, which was also called best-performance-maintaining period. The rising and declining periods were supposed to be symmetrical with each other so that they had the formula of athletic career, $y_0 = 2 h_0 - \beta$. Whether the formula held for world-class elite swimmers was studied in this paper.

Methods:
104 medalists who have participated in individual swimming events of the Olympic Games between 2000 and 2012 who have officially retired were studied. Athletic career formula was verified by the correlation and the significant difference between rising and declining periods which was tested by Pearson Correlation Coefficient and Paired Sample T Test.

Results:
The rising ($5.0 \pm 3.5$ years) and declining ($5.0 \pm 2.6$ years) periods of World-Class Elite Swimmers were significantly correlative with the sport lifespan at $R = 0.752$ ($P < 0.01$) and $R=0.574$ ($P < 0.01$) respectively.
The ratio of raising and declining periods to the sport lifespan was 51% and 49% ($P > 0.05$).
The peak (23.0 ± 3.5 years) and retirement (28.0 ± 3.8 years) ages were significantly correlated with the calculated ones (23.0 ± 2.5 and 29.0 ± 6.6 years) at R=0.753 and R=0.708 according to athletic career formula (P<0.01).

According to K-Mean Cluster Analysis based on the ratio of the raising and declining periods to the sport lifespan, the 104 swimmers were divided into three groups, 56 % in the ideal career group (49 to 51%), 23 % in the too-early retirement group (81 to 19%) and 21 % in the too-lately retirement group (21 to 79%). By Fisher Discriminant, the classification accuracy for all the swimmers, and the ideal career, too-early and too-lately retirement group was 94%, 93%, 91% and 100%, respectively.

Conclusions:
The formula of athletic career may hold for world-class elite swimmers.
The sport lifespan for world-class elite swimmers may be of symmetrical characteristic. The rising and declining periods may be symmetric with each other.
The ratio of rising and declining periods may be used to evaluate and classify the development of swimmer career.
SYMMETRY OF LOWER LIMBS IN PRACTITIONERS AQUAROBICS BEGINNERS

Physical activity and health

"GIULIANO MADUREIRA BARBOSA, CARLA NOGUEIRA, CAMILA DUARTE, STEFANIE VERISSIMO, FABRICIO MADUREIRA"

"FACULDADE DE EDUCAÇÃO FÍSICA DE SANTOS, FACULDADE DE EDUCAÇÃO FÍSICA DE SANTOS, FACULDADE DE EDUCAÇÃO FÍSICA DE SANTOS, FACULDADE DE EDUCAÇÃO FÍSICA DE SANTOS, FACULDADE DE EDUCAÇÃO FÍSICA DE SANTOS"

"BR, BR, BR, BR, BR"

Background: The water activities have been indicated by health professionals increasingly with intention of enhance benefits such as weight loss, improvement of the different systems of the body particularly muscle system, however, initial tests should be encouraged in the aquatic environment in order to detect possible force discrepancies between unilateral segments, thus favoring the planning of individualized and specific loads, especially in situations imbalances. As such, the aim of this study was to analyze the symmetry of unilateral lower limb strength in novice individuals in a aquarobics program.

Methods: Thirty-one individuals of mean age of 65, 5 years, 8 male and 23 female, all of those individuals are beginners in a aquarobics program. For the comparison of the unilateral symmetry we used the exercise with the burden of action for hip flexion, concomitant knee extension, with the performer to keep the ankle in plantar flexion, as recovery for a new load of action occurred with contrary movements in the three joints. The task began with the right leg and had duration of 30 seconds in order to perform the greatest possible number of repetitions and with maximum intensity, after 5 minutes was carried out with the left leg. To analyze the data after the confirmation of normality used the Student's test to compare segments of the group and the descriptive analysis for exploitation of individual data.

Results: For the number of the maximum repetitions in 30 seconds for the action of hip flexion and knee extension (FQEJ) on the right and left sides of beginners individuals in water aerobics. The absolute difference (ΔAbsol.) and the relative difference (Δ%) in the lower limbs. Resulting in FQEJ-D 21,63 (4,88), FQEJ-E 21,40 (4,71), ΔAbsol -0,23 (2,13) and Δ% 0,47 (9,95). Data are presented as mean and standard deviation. Review 02, features the absolute and relative frequency of individuals with different magnitudes at maximum repetitions in 30 seconds for hip flexion and knee extension action (FQEJ) on the right and left sides. As the frequency percentage, 0% 7 subjects (22,58), 8
subjects 1% to 5% (25,80), 6 of 6% to 10% (19,35), 5 of 11% to 15% (16,12), 2 of 16% to 20% (6,45) and 2 21% 25% (6,45).

**Conclusions:** Analysis of the data indicated no statistical difference (p = 0.27) in the comparison of the lower limbs, however, the individual observation indicated that 29% of the sample presented discrepancy in the top sides 11% which potentially features power asymmetry between segments need a hard control strategies to quantifying unilateral and individual loads."
POSTER PRESENTATION

Technical actions of a professional goalkeeper during the soccer championship in Brazil

Elite performance

"Vinicius Nagy Soares, Jordano Tramontina Bergonsi, João Guilherme Cren Chiminazzo, Paula Teixeira Fernandes"

"Unicamp, Unicamp, Unicamp, Unicamp"

"BR, BR, BR, BR"

"Background: Although notable advances in exercise physiology, medicine, sports psychology and related areas, there are still issues to be improved, especially regarding the goalkeeper’s athletic preparation. The scarcity of experimental studies focused on the analysis of a trader during the game, which makes the training, often are not guided by scientific References. In order to contribute in a qualitative way with this issue, this study aimed to quantify the technical actions expressed by a goalkeeper during a competition, comparing the situations of home and visitor.

Methods: 20 games of one team of São Paulo, SP, Brazil, were analyzed and data were collect to a specific worksheet: all defensive and offensive techniques actions, correlating them with the exact set time in which they occurred.

Results: It showed 650 technical actions, of which 385 were offensive; from the defensive technical, there was a higher incidence of ‘anticipations’ and defenses of ‘crossovers’, while in the offensive part, the prevalence was actions taken with the feet; it was observed that the final ten matches goalkeeper had higher amount of technical activities (344 to 306) and that the home situation, there was a higher incidence of offensive technical activities (203 home and 182 visitors) while when visiting the predominance was defensive technical actions (141 visitors and 124 home).

Conclusions: was concluded that the circumstantial features and feature sets, so there is great variability as regards the amount and type of technical actions. The goalkeeper is more required in the final minutes of the game and, in view of the divergence between what is seen in training and the specific nature of the game, you should rethink the contents of the training in order to bring them closer to the requirements of the game. Finally, he raised the hypothesis that the analysis of the techniques of the goalkeeper actions can serve as a parameter for the analysis of team play model, improving the knowledge and the actions in all areas of sport training: physical, psychological, tactical and technical."
Techniques and Tactics Features Analysis of Small-scale Elite Women’s Taekwondo Athletes in China

Elite performance
"Gao Ping, Yu Yin, Hu Yihai"
"Wuhan Sports University, Wuhan Sports University, Wuhan Sports University"
"CN, CN, CN"

Background:
Small-scale women taekwondo is an advantageous sport in China as China won the gold medal in both 2008 and 2012 Olympic Games. A study on the techniques and tactics features of small-scale elite women taekwondo athletes can provide certain theoretical References for the training of this sport.

Methods:
Through the methods of expert interview, video analysis and mathematical statistics, this paper will make a research on the features of creating opportunity, techniques application, tactics application and attacking position in competitions of small-scale elite women taekwondo athletes in China.

Results:
Small-scale elite women taekwondo athletes in China are good at creating opportunities actively in the competition, mainly based on forward sliding step, side sliding step, knee-up sliding step and other step movements, plus sudden attack by turning kick of foreleg, turning kick or downward kick after raising a knee as an inducement.

They are capable of recognizing and capturing attacking opportunity. The main techniques applied are foreleg turning kick, rear leg turning kick, pushing kick, foreleg downward kick, rear leg downward kick, hook kick and back kick, whose application rate are 36%, 34%, 14%, 9%, 4%, 3% and 2% respectively. Among them, the success rate of foreleg turning kick, foreleg downward kick, back kick and pushing kick are higher, which are 25%, 46%, 25% and 32% respectively. Blocking and pasting are the main defense techniques, while straight fist, twisting kick and crescent kick are applied in the process of pasting. Moreover, flexible step movement is also a key technique for attack and defense.

Small-scale elite athletes mainly adopt storm attack, accounting for 53% of the total attack tactics, facing attack accounting for 24%, counterattack 14% and induced attack 9%. Among them, counterattack tactics has the highest success rate of 38%, while storm attack and induced attack gain a lower success rate.
For small-scale elite athletes, 18% of the total attacking positions are on head with a success rate of 63%, 53% on abdomen with a success rate of 32%, and 29% on ribs with a success rate of 7%. It's evidently higher than those of common athletes on the awareness of high-position attack, technique reserve, and application quantity and success rate, which are the key to win a match. Although head attack has a high success rate, fewer attack times lead to few points in the match. Although the success rate for abdomen and rib attack is lower, more kick times get more points.

**Conclusions:**
Small-scale elite women taekwondo athletes in China are good at creating opportunities to attack by using step movement and mutative techniques and tactics. Foreleg turning kick, foreleg downward kick, pushing kick and back kick are major attack techniques to gain points. Head attack is the key to win a match. Application of tactics is diversified but predominated by initiative attack, and the success rate of counterattack tactics is the highest."
POSTER PRESENTATION

Temporal and Techniques Characteristics in ParaBadminton International Matches

Elite performance
"João Guilherme CrenChiminazzo2, Julia Barreira, Aline Miranda Strapasson, Edison Duarte, Paula Teixeira Fernandes"
"Unicamp, Unicamp, Unicamp, Unicamp, Unicamp"
"BR, BR, BR, BR, BR"

“Background: The ParaBadminton (PBd) is an adapted and Paralympic sport with debut scheduled for the year 2020, the Paralympic Games Tóquio. It is played by people with physical disabilities, separate by six classes (two for wheelchair users - WH and four for not WH). The aim of this research was to characterize PBd international games in relation to temporal and technical aspects of the sport.

Methods: We analyzed six games of the categories of WH during the 10th World PBd Championship, England 2015. Three matches of WH1 class and three WH2, both single and male. Regarding the temporal aspects collected the duration of the rallies, the pause time and the number of strokes per rally. Through technical scout the occurrence quantified the main fundamentals of the game, starting: looting or services, clear, drop, drive, netshot, lob and smash and also the amount of winners resulting from technical actions. The collected data was performed by the same examiner from recordings in full games. Descriptive statistics by mean ± standard deviation, was used to characterize the temporal and technical actions matches. The relative frequencies were used to analyze the efficiency of the technical actions to promote winners.

Results: After analysis of the temporal characteristics of the game, it is the average length of 10.8 ± 9.2 seconds in the rallies, 9.4 ± 8.4 seconds during the pauses, creating a working 1.14 density (not scaled variable). Also noted was an instance of 9.9 ± 8.6 strokes per rally and at a frequency of 0.91 strokes / second during the rally. Regarding the technical actions, in decreasing order, noticed - dry the clear (191.7 ± 99.9) was the most frequent action in the matches, followed by lobular (95.2 ± 61.0), drop (73.5 ± 53.0), service (60.7 ± 9.8) and netshot (55.5 ± 43.7). Analyzing the efficiency of action, it was found that the smash was the most effective in promoting action winners (14%). The second most efficient action was the drop, with 9%. As for the withdrawal of shares and clear, although quite frequent, were inefficient, with only 2% of these shares were converted into winners.

Conclusions: The matches analyzed showed up intense, with very high job density - average time of greatest rally that break time and frequency of approximately one blow / second. Analysis of temporal and technical aspects of PBd games, is fundamental to understanding the dynamics of the game and the competitiveness of the matches.
can be helpful in building a proper training program as well as the orientation of appropriate tactics during games. It is hoped that this study will contribute to the development of PBd, helping professionals working in this area in the planning and implementation of increasingly appropriate training.”
Test adaptation Ergometric Rowing Analysis for the Power Aerobic in mode Rafting Sports


"Universidade Federal de São Carlos, Universidade Estadual de Roraima, Universidade Federal de São Carlos, Universidade Federal de São Carlos, Universidade Federal de São Carlos, Universidade Federal de São Carlos, Universidade Federal de São Carlos" "BR, BR, BR, BR, BR, BR, BR"

Background: Aerobic component is essential for providing energy to individuals performing efforts over an extended period of time. The combinations of aerobic and anaerobic component determine a higher probability of success in sports or win competitions in the fighting line. The maximum oxygen uptake (VO2max) is widely used for assessment of cardiopulmonary function and maximum functional reserve and subsequent screening of long term methods athletes. Thus, it is important to have an evaluation of the functional ability of the athlete that most closely matches the motor gesture, leading to a better fit training. The practice of rafting, sport descent of rivers in inflatable boats, where members of the vessel paddle under the command of an instructor responsible for guiding the group, is a high-intensity effort activity, but also featured long term. Despite the extensive literature on the physiological characteristics of athletes of different modalities, little is known about the performance prediction parameters in Rafting athletes. Therefore, this study aimed to present an evaluation of proposed protocol VO2max and other ventilatory variables, adapted rowing exercise that meets the peculiarities of rafting athletes

Methods: Participants were seven male athletes with 20.7 ± 3.7 years of age on the world four-times champion team Rafting. It was performed cardiopulmonary exercise test with rowing ergometer (Concept II - VT, USA) following a protocol adapted with gas analyzer MedGraphics (VO2000 ™). The protocol consists of an initial load of 30 watts and 10 watts increments every 2 minutes. The adequacy of the ergometer was made as angulation of the lower limbs and positioning of the athletes in the boat (right or left), where the ergometer drive belt was attached to the proximal half of cable from an aluminum paddle to give real mechanical conditions of movement. We used descriptive statistics show the results
Results: There was the average of the following variables: body weight 72.6 ± 6.3 kg, height 176.6 ± 7.7 cm, maximum ventilatory volume (VEmax) 96.4 ± 2.5 l/min, maximum consumption oxygen uptake (VO2max) 65.4 ± 2.4 ml/kg/min, maximum carbon dioxide production (VCO2max) 78.8 ± 2.74 ml/kg/min and respiratory quotient fatigue (QR) 1.2.

Conclusions: We conclude that the adjustments made in the mechanics of movement and used loads meet the specific mode, thus enabling the determination of a cardiorespiratory profile world four-times champion team Rafting.”
The Examination of the concept of competitive state evolution in the New Perspective

Sport development

"Weng Yanghui, Tan Xiongying, Li Zhiwei"

"China University of Petroleum (Hua Dong), Table tennis club of Qingdao, Sichuan Techology and Business Univeristy"

"CN, CN, CN"

Abstract: Nowadays, There has been controversy over the concept of competitive condition. In order to have a better understanding of the concept and also define a clear logic starting point for competitive condition research, this thesis apply methods of Documentation and Logical Analysis to have a statement on the typical research achievements at home and abroad. At the same time, having analyses of the time order of the development of the concept of competitive condition and polysemy from logic viewpoint, it puts forward that competitive condition is a comprehensive ability to be in ready condition before the competition and to bring it into play in the competition. This preparation state, shaped by practice, can be influenced by kinds of factors and is adjustable and controllable. According to the research results, the comprehensive ability can be shown at the beginning of the game, during the game and after the game.

1. Early in the game, athletes need to adjust their mechanisms in many aspects to get involved in the competition atmosphere as soon as possible, thus being ahead of the curve and in active position.

2. Middle in the game, this period is the longest one for athletes from the time dimension. At this moment, the volatile situation and the colorful tactical activities requires tenacious athletes with good psychological quality and hard spirit. They can flexibly use the tactics to make themselves initiative as the actual situation may require and have confidence in winning the game, stepping into the latter stages of the race that they can fully mastered.

3. The moment in the closing minutes is usually heart-thrilling, disturbing and extremely tense. In many case, the results of the competition and rankings often is determined by this short moment near the end. Therefore, short as it is, athletes still need to make persistent efforts to strive to win tenaciously with abundant energy until the game end."
POSTER PRESENTATION

The Analysis of Winter Training Features of Chinese Men Canoe Team

Elite performance
"Yu Yin, Jia Haozhe, Gao Ping, Gao Weifeng, Gao Tongyang"
"Wuhan Sports University, Wuhan Sports University, Wuhan Sports University, Wuhan Sports University, Wuhan Sports University"
"CN, CN, CN, CN, CN"

“Background:
Men canoe team which has won two Olympic gold medals has been the advantage of Chinese Canoe Team. The Rio Olympics Games is about to begin, the study analyzed the winter training load features and effect of Chinese Men Canoe Team in 2015, to reveal the training arrangement features, and summarized the experience for Chinese canoe project's improving.

Methods:
The methods of observation, tracking test, mathematical statistics were mainly used.

Results:
(1) The total training amount features of winter training
In the whole winter, the water training accounted for 60.81%, the land training accounted for 39.19%. The weekly average training volume of three stages showed that the total training amount of each week presented a trend of increasing firstly and then decreasing. However, in each stage, the proportion of water training gradually increased, and the land training gradually decreased.

(2) Features of water training
The water-training was divided into 4 kinds of training purposes, such as the abilities of aerobic, mixed aerobic, acid-resisting and speed. The data displayed that the training of aerobic ability accounted for 81.25%, the mixed aerobic ability accounted for 11.75%, the acid-resisting ability accounted for 4.12%, the speed ability accounted for 2.88%. The aerobic trainings were all above 75% in each stage and presented a certain decline trend. The mixed aerobic in each stage ranked second, and appeared a certain upward. The acid-resisting ability was mainly arranged in the 2nd and 3rd stages and increased gradually. The speed training although was the least in winter but arranged in every week.

(3) Features of land training
In land training, the maximum strength training was the largest (57.65%), the endurance strength ranked second (22.79%), the oxygen ability ranked 3rd (12.94%), the coordination was minimum (6.62%). It showed that the key tasks of land training in winter were maximum and endurance strength.
The training process reflected that the maximum strength was mainly arranged in the 1st and 2nd stage, the endurance strength is mainly improved in the 3rd stage.

(4) The test of training effect
The testing results showed that the 5km paddle increased 51.1s, the 12km paddle increased 63.3s, the maximum strength increased 10.3kg (press) and 13.3kg (pull), the endurance strength increased 20.5 (press) and 14.6 (pull) time, which reflected that the winter training in 2015 was effective.

Conclusions:
(1) It appears that in the winter training the total training amount of each week increases firstly and decreases after; the water training of each stage gradually increased, the land training gradually decreased.

(2) It seems that in every stage in winter training, the aerobic training is the main task, the mixed aerobic training ranks 2nd; the acid-resisting ability is mainly arranged in the 2nd and 3rd stages; the speed training is the least, but arranged in every week.

(3) The key tasks of land training are likely maximum and endurance strength. The maximum strength was mainly arranged in the 1st and 2nd stage, the endurance strength is mainly improved in the 3rd stage."
The Analysis on College Teachers and Students’ Cognition for Introducing Outdoor Training to College’s Physical Education in Beijing

Sport sociology

JIN YAN

Beijing Sport University

CN

“Background:

With the increasing development of the society, the disadvantages of traditional physical education in teaching contents and methods have surfaced gradually. A series of problems have been emerging, such as the loss of interest in P.E class, students’ poor physique and psychological enduring capacity, and the lack of intercourse skills. In college’s teaching reform of P.E class, it’s a new trend to combine P.E with natural environment so as to address the lagging teaching contents and methods of P.E class.

Methods:

1 Literature consulting

By consulting such electronic libraries as CNKI (Chinese National Knowledge Infrastructure), Chinese Excellent Theses of Masters and Doctors, and Wanfang Data, I collected and arranged related literatures. Focusing on the abundant journal articles, academic papers, and books on introducing outdoor training to college’s physical education published since 2007, I analyzed and arranged systematically the concepts of outdoor training and the studies at home and abroad to provide References for my study in theory and approach.

2 Questionnaire survey

Questionnaire survey was done among P.E teachers of five colleges. Besides, undergraduates of non-P.E major were chosen from the five colleges by stratified random sampling.

3 Mathematical statistics

Statistic analysis was done for the acquired data through EXCEL to analyze the feasibility and strategy of introducing outdoor training to college’s physical education.

Results:

1. As the survey shows, it’s feasible to introduce outdoor training to college’s physical education, which has been specifically reflected in teachers and students’ participation, comprehension, and interest, and their willing to set outdoor training as well as teachers and experts’ prospect forecast for outdoor training curriculum.
2. As regards teachers and students’ participation degree in outdoor training, most students took part in outdoor training and had an understanding of its organizing forms and methods, and some teachers also had such experience.

3. As regards teachers and students’ interest in outdoor training, many teachers and students thought that outdoor training was a novel sport and was more interesting than traditional sports. Meanwhile, a number of teachers held keen interest in outdoor training and showed that they were willing to introduce outdoor training to their P.E class.

Conclusions:
1. Outdoor training curriculum should stress its effects on healthy psychology and social adaptability as it seeks to improve students’ psychological health and social adaptability efficiently.
2. As outdoor training curriculum boasts its numerous sports and colorful forms, we should take objective constraints (such as environment, climate, and site facilities) into consideration on the basis of college’s P.E objectives and students’ demands for development when choosing teaching contents of outdoor training.
3. College’s outdoor training curriculum should apply random assortment with high flexibility and variability in whole school. This form can meet students’ demand to expand their interpersonal communication and promote their mental quality."
POSTER PRESENTATION

The analysis on the technique and tactics of Ma long in the men’s singles final of 53th world table tennis Championships

Elite performance

Liu Jie

Physical Education College of Zhengzhou University

CN

“Background:

The research is going to get the advantages and weaknesses of technique and tactics which Ma long has used in the match. It is not only to work for the Rio 2016, but also to provide reference to further improve and consummate open-grip player technique and tactics system.

Methods:

Applying the research methods of documentary, video observation, three-phase method, statistics and others to summarize and analyze the technique and tactics of Ma long in the men’s singles final of 53th Su Zhou world table tennis Championships.

Results:

(1) His serve has a strong rotation and usually works well. The serve mode which he likes better is chop and side spin pendulum with forehand in sideways. The routes and drop points of middle?short serve change uncertain, so it’s hard to receive for the opponents. His serve can not only score directly, but also provide a better score chance for the third bat;

(2) He showed excellent performances in serve-then-aggress part and got a high scoring percentage & usage percentage. He is good at scoring and positive in receive-then-agress part. And scoring rate is great; the usage rate is at normal level. The scoring ability in stalemate segment is relative shortage. The scoring percentage & usage percentage is poor;

(3) His attacking consciousness is not enough and he always uses drop shot and rubs a long as control techniques when he receives. It’s lack of threat for the opponents because Ma long’s negative. Backhand twist and forehand flick are the useful techniques when he receives;

(4) He has a strong attacking consciousness and strives for the ball cruelly in the third bat. His scoring ability is really good in the attacking, and he plays the ball smart in diversity technique and tactics. Forehand drive and sideways forehand drive are his main attacking methods. The slash strike path is beautiful and useful. The drop points primarily locate at backhands of opponents;
(5) He also has a good offensive consciousness in stalemate segment. He strikes positively but achieves poor scoring effect. If he can change the strike path and use the forehand strike, it will get a varied drop points and takes more difficulty to opponents.

**Conclusions:**

We put forward the following suggestions on the results of the above study:

1. Ma long should keep the following advantages, such as: ① the excellence attacking consciousness; ② the strong rotation and useful serve; ③ the accurate and faster attacking third bat etc.

2. He should enhance the attacking practice when he receives. He also should employ more twist and flick and combine the Hi-Q drop shot and long rubs when he deals with the short balls. He can boldly use sway skimming technology to add more difficulty to opponents;

3. He should strengthen the strength and rotation training in middle & long drive on the basis of strong attacking consciousness and active direction changes in stalemate segment. He also should reinforce the variation of opposite-strike pace and path. He should enhance the forehand ability after sideways strike."
The Association between Genu Valgus and Physical Activity Level, Adjusted to the Chronological Age in Brazilian Females Adolescent Students

Physical activity and health
"Andrea Cassimiro, Victor Matsudo, Rafael Benito Mancini, João Pedro da Silva Junior, Timóteo Leandro Araújo, Luis Carlos de Oliveira"
"CELAFISCS, CELAFISCS, CELAFISCS, CELAFISCS, CELAFISCS, CELAFISCS"  
"BR, BR, BR, BR, BR, BR"

Background:
The malalignment of the lower limbs could offer discomfort during physical activity, which may be a negative factor for an active lifestyle.

Objective: To analyze the association between the genu valgus and the level of physical activity level (PAL), categorized in: total, light, moderate, vigorous and moderate to vigorous, adjusted to the chronological age in female students.

Methods:
sample comprised 270 female students, 30 girls in each age group, aged 10-18 years (14.9 ± 1.63), intermalleolar distance IM:(3.17 ± 1.79) cm and living in the city of Ilhabela, Brazil. The genu valgus was evaluated using a goniometer, measuring the intermalleolar distance (cm). Physical activity behavior in different intensities (minutes per week) were assessed by the International Physical Activity Questionnaire (IPAQ). Statistical analysis has used multiple linear regression adjusted to the chronological age, and it was taken a significance level of p< 0.05.

Results:
The association between genu valgus and physical activity level, adjusted to the chronological age in Brazilian females adolescent students. Total PA (min/week) β -6.771, Light PA (min/week) β: 4.938, Moderate PA (min/week) β: -10.848* (p< .05), Vigorous PA (min/week) β: -.557 and moderate to vigorous PA (min/week) β: -11.405* (p< .05). There was an association between intermalleolar distance and level of moderate and moderate to vigorous physical activity. There wasn't association between intermalleolar distance and level of total, light and vigorous physical activity.

Conclusions:
Genu valgus interferes negatively in physical activities of moderate and moderate to vigorous among females adolescent students."
POSTER PRESENTATION

The Body Image and Depression in Women Physically Active

Physical activity and health

HELENA BRANDÃO VIANA

UNASP - HT

BR

“Background: Body dissatisfaction is very present today, because of ideal standard requirements imposed by society, and this dissatisfaction can lead people to take actions harmful to health. Depression is a disease that mainly women, can acquire due to body dissatisfaction and preventive factors that may be useful is physical activity. This study aimed to assess whether differences in the level of depression in women who are more physically active.

Methods: Three questionnaires were applied: International Physical Activity Questionnaire - short version (IPAQ), the Depression Scale (EADS) and the Silhouettes Scale for assessment of body image in 33 women who attend two university extension projects.

Results: Women practitioners slimming project showed slightly higher levels of depression and body dissatisfaction than women group aerobics group.

Conclusions: This showed the relationship between body dissatisfaction with depressive states. There was no positive correlation between levels of physical activity and depressive states or body dissatisfaction.”
POSTER PRESENTATION

The Body Reorganization for Sporting Gesture
Sport and quality of life for adolescence and aging
"Lara Dias, Artur Luis da Silva, Flávia Cristina Toscano"
"Sesc São Paulo, Sesc São Paulo, Sesc São Paulo"
"BR, BR, BR"

“Background: Project presentation of “Ensaio para um gesto orientado e qualidade de vida” that took place in Sesc São Paulo, in Vila Mariana unit, in the second semester of 2015. The intention was to experience a structured body to expand the participant’s movements repertory and afford a daily improvement with an alert body, breaking previous social behaviors imposed by society.

Methods: Sesc is a referenced institution in promoting sport, culture, leisure and quality of life with several cultural centers located in São Paulo state. It proposes several social-educative practices which the physical-sporting with a holistic view integrality is an outstanding topic. Having this proposal, it led to a work with Movement School headed by Ivaldo Bertazzo, who acts in a gesture reform since 70’s. He has other projects developed in partnership with Sesc among them, the graduating the physical educators in the Bertazzo Reeducação do Movimento method and Gesto Orientado, a book published by Sesc, which was the base for the project taught by Ivaldo Bertazzo and his team with collaboration with Sesc physical educators.

Results: This course lasted 5 months, with 2 hours and a half classes twice a week, when 100 participants from several different ages presenting diverse motor experiences. In the beginning the purpose was reorganize body structures, followed by choreographed sequences with rhythmic and coordinative elements, resulting in an entertainment that linked sport and art.

Conclusions: The developing Project included the course and the entertainment revealed a social behavior change, covering the psychomotor design as a civilized process. The exercises experience bought up a movement unit in the human environment diversity, highlighting body balance, overcoming and a mindful and conscious body, elements that call up an arouse of a alive and sensitive body."
The Career Assistance Program for Handball Athletes

The athlete’s career

"Ana Lúcia Padrão dos Santos, Maressa D’Paula Gonçalves Rosa Nogueira, Luciana Perez Bojikian, Maria Tereza Silveira Böhme"

"University of São Paulo, University Santa Cecilia, Paulista University, University of São Paulo"

"BR, BR, BR, BR"

**Background:** The sports support programs are necessary to the development of performance athlete’s career. The athlete should harmonize aspects of the sport environment, educational, personal and familiar in order to promote, sustain and optimize their performance and their integral well-being (Wylleman & Reints, 2010). The studies emphasize the importance of the holistic approach to the complete athlete’s potential development (Henriksen, Stambulova, & Roessler, 2010). Thus, the support structure should be implemented to meet such demands. This study aims to identify the perception of handball players on the support services used in the sporting career.

**Methods:** The study included 39 athletes, with a mean age of 25, registered in the Brazilian Handball Confederation and/or benefited from the athletes financial support federal program. This study met all international standards of ethics in research. The **Methodology** integrates the theory elaborated by Bosscher et al. (2009), and it was translated by Böhme and Bastos (in press). Among the sports aspects proposed by this theoretical model, it is included in the questionnaire items like “access and quality of support services offered to athletes”. The range of responses on the quality varies among: very high, high, moderate, low and very low. The frequency of responses was used to evaluate the results.

**Results:** The data show the clustering of responses expressing the perception of most athletes. It was found that with regard to performance analysis, 48.7% received moderate to high-quality services; physical preparation was high to very high-quality for 65.8%; nutrition 57.9% received from low-quality to moderate services; in physiology 37.8% received moderate to high-quality services; in psychology 47.4% received moderate to high-quality services. To 34.2%, the massage services were low to moderate quality; 64.1% received moderate to high-quality services in physiotherapy; 53.8% received moderate to high-quality sports medicine services. It calls the attention the fact that 66.7% did not receive advice on career management; 69.2% did not get legal or financial advice, and 46.2% did not have media training services. Overall, 64.1% considered support services as reasonable or inadequate.

**Conclusions:** Evidence revealed that the connection with the confederation and monetary support has not fully embraced the athletes demands. Besides financial resources, it is important to expand the...
approach to support services, which assure assistance in different aspects of life for handball players, and not only restricted to athletic development."
POSTER PRESENTATION

The Causes and Treatment of Public Sports Service Policy Implementation Obstacles

Governance and policy
"Sun Yan, Wang Liping"
"Shandong Sports University, Shandong Sports University"
"CN, CN"

“Background:
Policy implementation plays an important role in the whole policy process (agenda setting, formulation, implementation, evaluation, revise, termination), and it also means administration of the law in which various sectors, organizations, and procedures work together to make adopted policy into effect in order to achieve the policy goals. However, according to the investigation, there are some obstacle phenomenon and to varying degrees to affect the process of public sports service policy implementation. Because of policy obstacles, the policy implementation results deviate from goals, affected public sports service quality and benefit.

Methods:
Three methods were utilized to accomplish the objectives of this study: reviewing literatures, social investigation and interview people who working or doing research job in sports industry and government.

Results:
How to overcome these obstacle phenomenon, we should make a concrete analysis of each specific question.

1 Authority of public sports service policy main body is not enough.
The current situation of Chinese public sports service policy is laws and regulations are less, articles of association and normalization documents are more. That resulted majority of policy implementation cannot play strength dominating role. In general, the higher the policy authority, the more conducive to the implementation of policy, or vice versa. Thus, optimize the structure of public sports service policy and promote policy authority are necessary.

2 Conflicts among stakeholders of public sports service.
In terms of the implementation of public sports service policy, there are two major aspects of the conflict. One is the conflict of interest between the central and local. Second, the conflict of interest between departments. So, identify the relationship between the local and global, and improve the mechanism of public sports service interests balance are very important.
3 Public sports service policy implementation regulation not well.
In China, the administrative system exists disadvantages: government department is a provider of
public sports service, and also is policy implementation supervisor. That leads to lack of policy
regulation and implementation inefficiency. Therefore, we need strengthen the supervision of public
sports service policy implementation, and improve the mechanism of responsibility.

Conclusions:
This study has explained why public sports service policy could be blocked during its implementation.
To eliminate public sports service policy implementation obstacles, improve policy implementation
environment and facilitate policy implementation, government should do some works. That is,
policymakers and managers should be able to use the knowledge generated from the investigation to
design or redesign policies so that policy implementation is more useful to Chinese sports industry
development."
The Competitive Motivation of Judo Veterans Athletes in the Rio de Janeiro State

Sport psychology
Rodrigo Vianna Mulatinho
Universidade Tras-os-Montes e Alto Douros
PT

“Background: Judo is the only martial art designed with educational purposes; however, it is not exempt of the competitive behavior among their athletes searching for the best result. This scenario puts young athletes, who are in search for fame and personal achievement, in great evidence. In order to accomplish their goal, they struggle with physical, social and emotional efforts. The present work aims to understand why athletes from the veterans category still expose themselves to the same sacrifices as the younger athletes, who are representing their teams in official national and international events.

Methods: This research is characterized by a qualitative and descriptive method, using the Participation Motivation Questionnaire (PMQ de Gill; Gross e Huddleston (1983) translated to Portuguese Language by Sergio & Farias (1996) as Questionário de Motivação para Atividades Desportivas (QMAD) and a personalized Sports Identification Form. We analyzed 20 seniors’ athletes, 18 male and 02 female, and the median age was 48.2 years. The median time of their Judo experience was 28.6 years being all 1st Dan (1st degree black belt level), recognized by the Brazilian Judo Confederation (CBJ).

Results: The frequency of training was at least 02 times per week through 17.8 years competing continuously. Out of 30 questions of QMAD, six (06) have had relevant indexes as very important and important: 1. To improve my techniques (n=10), 2. To make friendship (n=12), 3. To learn techniques (n=12), 4. to be on shape (n=12), 5. To work out (n=8), 6. Teamwork and (n=10). On the other hand, two aspects such as not important and insignificant were relevant in 02 questions: 1. To be recognized (n=8) and 2. Not stay at home (n=8). The largest score obtained (n=13) was the question of “have something to do” considered as important. The questions concerned about health life style 11 responses appears as significant, followed by Judo passion (09) and achievement of new friendships (06). The aspect of competition was left as the last motivational factor.

Conclusions: In this study was observed that the motivation for practicing Judo gained relevance in the psychological, technical and physical aspects presenting with great variability. Although, the social issues can’t be excluded. We agree that more studies like that, which focus on the differential
motivational process among Judo Veterans, should be performed in order to understand the competitive behavior among those athletes.”
The Connection of Sport Mega Events and Military Management in Brazil

"Fabio de Souza Carneiro, Andressa Fontes Guimaraes-Mataruna, Leonardo Mataruna-Dos-Santos"
"Coventry University, Coventry University, Coventry University"
"BR, BR, BR"

"Background: This study aims to analyze the relationship between the Brazilian Armed Forces (FFAA) in military management process for receiving mega sporting events in Brazil. According to the Brazilian Federal Constitution of 1988 and the Statute of the military, the FFAA are for the defense of the country, the guarantee of the constitutional powers and, at the initiative of any of these, of law and order. But the FFAA has been used in security for major sporting events in Brazil as a way to facilitate the implementation of these activities, even when private events linked to FIFA, IOC and ODEPA. The aim of this study was to survey the sports mega-events that happened in Brazil in the last decade (2006-2016) and identify which made use of the FFAA as a key element to provide public security and the realization of events.

Methods: The Methodology used was the scenario analysis employed by Mataruna (2006) as a way to assess the environment, the time and the employment situation of crisis management.

Results: As a result met the 2007 Pan American Games as the precursor to the use of the FFAA acting together with the auxiliary forces and the newly created National Force. During the 5th Military World Games in 2010, the FFAA were employed in full security, as well as aid to intelligence, with the creation of the Center for Integrated Command and Control (CICC), which was a legacy for the later events such as Cup World Soccer and the Olympic and Paralympic Games. The Navy acted protecting the coast and seas; The Brazilian Air Force in the control and protection of airspace; and the army, control and protection of land borders and also in security areas close to stadiums. Through Intelligence Center, the auxiliary forces had all the support for the security implementation in these mega events by the FFAA. The President of Brazil called the FFAA to act in the security of the Olympic and Paralympic Games Rio 2016 as a way to ensure the event. The armed forces will act directly on the convoy batsmen, safety and protection authorities, and VIP delegations, as well as stadiums, airports and within the city.

Conclusions: The use of troops has given more frequently due to avoid problems related to safety and possible inconvenience caused by strike movements of private security companies, as happened in 2010 in South Africa and in 2012 in London in which the FFAA of the respective countries were started.
up emergency plans. It was also concluded that the Brazilian Armed Forces have important role beyond the defense of the national territory for the realization of sporting events. It was necessary to create language and specific management mechanisms that meet the reality of policy institutions, in this case the IOC and FIFA, the reality of the country and above all, to guarantee a reduction in costs for the organization of the event."
POSTER PRESENTATION

The Construction of 3 Event-group Excellent Athletes’ Psychological Skill Evaluation Model

Elite performance

JIN YAN

Beijing Sport University
CN

“Background:

Athlete’s psychological skill, which refers to athlete’s individual mental characteristics related to training and competition, and the ability to adjust and grasp psychological process considering the needs of training and competition, is an important part of athlete’s competitive ability. So far, researches related to sports psychological skill have achieved a lot of theoretical results, and some scholars have researched athletes’ sport-psychological skills in different events. Purpose: probe the classification of sports psychological skill for different event-group athletes. Method: select athletes of 3 items respectively representing skill-dominant group (martial art), tactic-dominant group (basketball), physic-dominant group (speed skating).

Methods:

1. Questionnaire survey

The questionnaire adopts Sports Psychological Skill Inventory Scale (PSIS) revised by Mahoney in 1989. This scale is of good reliability and validity after detection of subsequent related scholars. It contains 6 aspects: anxiety control (AX), concentration (CC), confidence (CF), mental preparation (MP), motivation (MV), and team orientation (TM).

2. Mathematical statistics

SPSS17.0 is adopted to process all data, do correspondent discriminant analysis, and construct corresponding discriminant analysis model.

Results:

1. The three different event-group excellent athletes have significant differences in sports psychological skills. In the aspect of anxiety control, speed skating’s score is apparently lower than basketball and martial art. In the aspects of concentration, confidence, motivation and team orientation, basketball concentration gets the highest score. There is little gap among the 3 items in the aspect of mental preparation.
2 The construction of different event-group athletes’ sports psychological skill evaluation model can effectively instruct different event-group athlete’s daily mental training, and can be used to judge the psychological skill of different event-groups.

**Discussion:**

1 Theoretical research related to sports psychological skill

In the 1970s, some foreign scholars came up with “mental ability theory”, which is the prototype of “athletes’ psychological skill theory”. Sports psychological intelligence refers to athletes’ necessary mental ability in competitive context, which influences athletes’ performance in competition. In today’s training, mental ability training attaches equal importance to physical and skill training. One of the hot problems of current research is how to improve athletes’ psychological skill, to show the training results in normal times, and even to do better, so that they can turn failure to success when facing stress.

2 Enlightenment of sports psychological skill to daily psychological training

Research indicates that targeted sports psychological skill training can effectively improve the grades of gymnasts and basketball players. But as a significant factor to constitute psychological quality, psychological skill provides useful basis of training theory, and chooses different special training to athletes of different items.”
The core elements of Chinese elite sports value with diversified development under the background of “National strategy”

Sport development

"Hu Yihai, yongfeng zhong"
"Wuhan institute of PE, Wuhan institute of PE"
"CN, CN"

"Background: The Chinese State Council issued the “Decision on Accelerating the development of sports industry to promote sports consumption” in 2014. National strategy aimed at the development of the sports industry to promote sports consumption. In this background, the value of elite spots changes inevitable, This paper attempts to study elements of Chinese sports core value of diversification using a variety of methods.

Methods: This study collected more than 30 papers on value of sports-related thesis, and consulted experts to review the questionnaire, with validity 0.873. In this paper, a nationwide sample survey centralized 6 round” Elite Sports values questionnaire” with 341 copies, of which 324 valid, and efficiency is95.1%, reliability of the questionnaire were tested using the Cologne Bach coefficient methods, and reliability is 0.916. Respondents come form 35 provinces and municipalities, and therefore have better Representative effects. AHP (Analytic Hierarchy Process) is scientific evaluation system to determine the importance of each level. We use Principal component analysis methods to analyze the fourth level of value structure, and the three elements of most indicators are simplified as several major indicators.

Results: Value analysis based on Principal component analysis and AHP . The four core values of present elite sports are educational value (B2), spiritual values (B1), motion value (B3) and cultural values (B4), Wherein the importance of the education value is relatively higher. The educational value of the cumulative percentage found that the core elements of the educational value are will educational value (D2) (58.352%), competitive educational value (D6) (72.667%), and skills education value (D8) (81.029%).

Conclusions: The results indicates that dimensional change of Sports Core Value occurs under the background of national strategy. China is experiencing a shift from traditional agricultural society to modern industrial society and transition. China got the first place in Beijing Olympic gold medal total, and elite sports’ “glory property” is being weakened. China's elite sports “educational property” are being
further strengthened, and therefore need to pay much attention to educational value and spiritual and cultural fields reflecting its demonstration effect.”
POSTER PRESENTATION

The correlation between “Timed up and go” Test to Age and Functional Exercise Capacity in Asymptomatic Women

Physical activity and health

"Thatiane Lopes Valentim Di Paschoale Ostolin, Wesley de Oliveira Vieira, Mateus Ferreira, Evandro Fornias Sperandio, Victor Zuniga Dourado"

"Unifesp, Unifesp, Unifesp, Unifesp, Unifesp"

"BR, BR, BR, BR, BR"

“Background: The “Timed up and go” test (TUG) is operationally simple and is associated with increased gait speed, balance, functional indices, overall declining health, and the ability in activities of daily living. Although it fits in the evaluation of patients with chronic diseases, it is rarely applied in asymptomatic individuals. The aim of the study was to evaluate the reliability of modified TUG to detect the decline of physical mobility related to advancing age of middle-aged women and asymptomatic elderly. Secondarily, we evaluated the correlation between TUG and functional exercise capacity (FEC) obtained in Incremental Shuttle Walk Test (ISWT).

Methods: The sample of ninety-eight women (57 ± 10 years) was stratified into age range groups (e.g., 40-49, 50-59, 60-69 and ≥ 70 years). The exclusion criteria were a previous medical diagnosis of heart disease, lung disease and/or musculoskeletal problems. Participants performed three TUG tests, two ISWT, three 10m walk tests, and tasks of the Berg Balance Scale (BBS). We subject to analysis the best time of the three TUG tests, the distance in meters achieved in the second ISWT and the average of three 10m walk tests in consecutive m/s. The only modification of the original TUG was the instruction to the participants, “as soon as possible”. We assess age-related changes in the TUG by one-way ANOVA analysis with the test Tukey post hoc to identify differences in the mean values of the TUG between age groups. The reliability of TUG was evaluated by intraclass correlation coefficient (ICC) and its confidence interval of 95% (CI95%). In the subgroup, we evaluated the correlations between the TUG, the 10m speed, BBS, and ISWT by using the Pearson correlation coefficient. We performed multiple linear regression to assess the ability of TUG to predict the FEC (e.g., ISWT). The probability of alpha error was set at 5%.

Results: Participants aged ≥ 70 performed worse in the TUG when compared to participants of 40-49 and 50-59 years. The test modification can justify the difference in performance between individuals of the same age from ours and other studies, as the performance of our participants was better. Regarding the use of the modified test, we observed a decline in performance in the TUG with advancing age, as
aforesaid. The ICC obtained was excellent between the 1st and 2nd TUG and between 2nd and 3rd, demonstrating the excellent reliability of TUG in this age group. In the subgroup, TUG correlated significantly (p < 0.05) with ISWT (r = -0.72), the 10m speed (r = -0.54) and BBS (r = -0.58). Multiple linear regression analysis showed the TUG (R2 = 0.517) and the 10m speed (R2 = 0.083) as determinants of FEC. Although the reduction of muscle strength and function occurs simultaneously as a result of the aging process, reduced functional capacity can be detected before, which confirms the clinical relevance of the use of field tests for this purpose.

**Conclusions:** The modified TUG to asymptomatic women is reliable. Thus, it is able to assess the decline of physical mobility with advancing age."
The Educational Sport and World Cup in Brazil: Case Report of Project Experience “O Futebol de Todos”

Sport pedagogy

"FELIPE DEL MANDO LUCCHESI, JOHN KOUMANTAREAS"
"SESC SAO PAULO, SESC SAO PAULO"
"BR, BR"

“Background: The Educational Sport has as its Guiding Principles the Integral Formation of the Individual and the Acquisition of Assets for the Construction of Citizenship. Among these Constituent Guidelines: Cooperation with Joint Efforts, Development of Joint Actions, Solidarity, Understanding and Acceptance of one Another; Participation of Interference in Reality, Transforming Action of Social Actors, Commitment, Rights and Responsibilities; Coeducation with Reciprocity in Learning, Relevance of Content Already Known Culturally, Reflexive Action and Heterogeneity; Emancipation for Action in Autonomy, Creativity, Freedom and Critical Discernment, all in Pursuit of Unity, Feelings, Emotions, Intuition, Self-Awareness, Challenge Yourself, to Separate what is Common or Diverse, beyond the Regionalism that Seeks the Formation of Cultural Citizen on their Identity, the Collective Construction, the Rescue and Preservation. Non-Formal Education Permeates this Work by Making Use of its Extensive and Flexible Configuration, through Different Methodologies and Guided by the Systemic Playfulness, not Plastered on Predetermined Content, but in its Collective and Multiple Languages Construction.

Methods: The Project “O Futebol De Todos” Took Place in the First Half of 2014 on the Sesc Curumim Program that Serves 7 To 12 Years Old Children and was Held in the City of Santos-SP. The Educational Actions Left Issues such as: What is the Game? It is for Everyone? You Can Recreate your Rules? There is Respect and Diversity for this to Occur? Is it for Boys and Girls? Skilled and Unskilled do not Have the Same Space? What is your Relationship with Other Areas such as Arts, Music And Literature? Such Issues Contributes with Gender Discussion, Heightened Competition, Concepts such as Fair Play and Others who Were Instrumental to Contextualize the Work and Agenda under the Bias of Inclusion. Various Educational Methodologies were Used: Group Discussion on the Subject, Digital Research and Curiosities of the Sport, Presentation of Different Sports in Some Places of the World Like the Amazon Ethnicity Enawene Nawe and Chinlone in Southeast Asia, Creation of Teams and Art Workshops with Development of Mascots and Shirts Production, Personalized Trading Cards with Images of Children, Choir with Songs that Recall the National Football Team, Diverse Ways
of Practicing Sports such as Cooperative Soccer, Meeting Parents and Children of the Program to Perform Theme Experiences, Production of a Video Discussion with the Children Partaker of the Project as Protagonists. Thus as the Project Closure a Non-Competitive Festival Involving the Two Period Groups (morning and Afternoon).

**Results:**

**Conclusions:** The Actions Sought to Resignify the Sport Mega-Event Held in the Country and Bring it under New Perspectives that Deviate Considerably from Sport-Show or Performance – Producers in Some Cases of Discriminatory and Exclusionary Situations – Aiming the Construction and/or Reconstruction in Social Actors a Sense of Identity with the Most Played Sport in the World."
The Effect of Acute Dark Chocolate Consumption and Physical Exercise on Cardiometabolic Factors in Prehypertension Subjects

Sport nutrition

"Leticia Andrade Cerrone, Radamés Maciel Vítor Medeiros, Ricardo Badan Sanches, João Pedro Novo Fidalgo, Maythe Amaral Nascimento, Ronaldo Vagner Thomatieli dos Santos"

"Federal University of São Paulo, Federal University of São Paulo, Federal University of São Paulo, Federal University of São Paulo, Federal University of São Paulo, Federal University of São Paulo"

"BR, BR, BR, BR, BR, BR"

Background: The dark chocolate (DC) is abundant in flavanols that exert benefits to cardiovascular system is well known to anti degenerative and antithrombotic actions. Complementarily the physical exercise has been shown to mobilization substrates with decrease the cardiometabolic risk in prehypertension subjects. However, the impact of DC consumption associated of physical exercise in cardiometabolic factors is uncertain. Therefore, the aim of this study was to compare the effect of chocolate with 85% cocoa add to acute physical exercise on cardiometabolic parameters of prehypertension subjects.

Methods: Eight male volunteers prehypertension (age 31, 8 ± 5.6 years; body mass 87, 5 ± 17.0 kg) participated of 3 phases of the study. In the first phase the volunteers received all information about study, exercise electrocardiography with ergoespirometry to determine the threshold 1, 2 and maximal oxygen uptake. In the Phases 2 and 3 was collected blood before and immediately after the exercise protocol. In these phases the volunteers was carried out the Treadmill Exercise Protocol (starting at 5 km/h increased by 1 km/h every 3 minutes) with DC supplementation (Phase 3) and without (Phase 2). Statistical analysis was performed using independent t-test for normal distribution data and Wilcoxon test for not normal distribution data. ANOVA two-way and post-hoc Bonferroni was used to compare the differences between groups with the level of significance of 5%.

Results: DC supplementation significantly decreased the energy expenditure, especially in the ventilatory threshold 1 when compared with Control Group (CG) (P = 0.03). However in maximal uptake phase the DC significantly increased the energy expenditure compared to the CG (P = 0.03). Similarly it happened with exercise time increased in DC group compared to the CG (P = 0.02). Only with DC supplementation significantly increased Creatine Kinase (CK) (P = 0, 036) and lactate dehydrogenase (LDH) (P = 0.012).
**Conclusions:** The protocol improve the performance of physical exercise decreasing the energy expenditure and increasing the all time for effort. The DC supplementation associated with acute physical exercise increased the cell injury biomarker CK and LDH in prehypertension subjects."
The Effect of Color and Object Perception on Green Exercise Benefits

Sport psychology

"Danxuan Zhang, Yahong Jin, Shuzhi Chang, Hui Li, Jiaxin Yao, Qun Dai"

"Tianjin University of Sport, Tianjin University of Sport, Tianjin University of Sport, Tianjin University of Sport, Tianjin University of Sport"

"CN, CN, CN, CN, CN"

"Background:
There appears to be synergistic benefits in adopting physical exercises while exposed to nature. This is called ‘green exercise’. It has been found that green exercises improved mood and self-esteem, as well as decreased anxiety and blood pressure. The mechanism of green exercise benefits is not clear. A study showed that the benefits might be due to the color green, because it can make people calm. However, human perception is a whole, that is, the shape and color are synthetically together when people see a tree in the natural environments. Does the shape of tree (object perception) also play a role on the benefits of green exercise? Therefore, this study attempts to explore the effect of color and object perception on green exercise benefits.

Methods:
This study is a 2*2 between-subject experimental design. Independent variables are color (green versus gray) and object perception (with tree versus without tree). Dependent variables are blood pressure, self-esteem, mood and cognition function. Seventy-six healthy participants were divided into four groups: Green-tree (color and object perception), Gray-tree (Object perception), Green (only color perception) and Gray (control condition). Participants were required to do incremental cycling meanwhile watching a picture of green-tree, gray-tree, color green on the curtain, or watching a blank curtain. All dependent variables were tested before and after cycling. According to World Health Organization training program, the incremental cycling test began at an intensity of 25 watt and increased at 2 watt every two minutes, until reached level 12 (Fairly) of RPE (Rating of Perceived Exertion), and kept the intensity for 20 minutes. The whole test was about 30 minutes. Multivariate analysis of variance (MANOVA) was performed to identify differences between groups, and main effect or/ simple effect analysis were performed when necessary.

Results:
The results showed: (a) There were no significant differences among groups in blood pressure (F3, 72=1.290, p=0.285 for systolic blood pressure, F3, 72=0.996, p=0.400 for diastolic blood pressure). (b)
There were main effects of object perception on tension (F1, 72=4.334, p=0.041), vigor (F1, 72=4.109, p=0.046), self-esteem (F1, 72=6.426, p=0.013), total mood disturbance (TMD) (F1, 72=5.651, p=0.020) and choice RT (F1, 72=5.538, p=0.021). Compared to no tree condition, the object perception (Green-tree and Gray-tree) groups were higher in vigor (p=0.044) and self-esteem (p=0.012), lower in tension (p=0.041), TMD (p=0.021) and choice RT (p=0.020). (c) There were main effects of color perception on anger (F1, 72=4.897, p=0.030). Green (Green-tree and Green) groups have lower anger than gray (Gray-tree and Gray) groups (p=0.033). (d) There was significant interaction between color and object perception on selective attention score (F1, 72=5.288, p=0.024). Green-tree group was better in selective attention score than Green group (F1, 72=5.56, p=0.021).

**Conclusions:**

The results indicated that the object perception of nature might be one of the potential reasons for green exercise benefits."
POSTER PRESENTATION

The Effect of Concurrent Training on Functional Fitness, Strength and Body Composition of Elderly Women

Physical activity and health

"Bruno Villela Pinheiro Lima da Costa, André Maciel, Marina Ramos Domingos, Carlos André Barros de Souza, Renata Botelho, Victor Zuniga Dourado, Rafael Eduardo Eustórgio Pinheiro Chagas Miranda, Ricardo Luís Fernandes Guerra"

"Federal University of São Paulo – Santos, Federal University of São Paulo – Santos, Federal University of São Paulo – Santos, Federal University of São Paulo – Santos, Federal University of São Paulo – Santos, Federal University of São Paulo – Santos, Federal University of São Paulo – Santos"

"BR, BR, BR, BR, BR, BR, BR"

“Background: In Brazil people are living longer and in 2050 there will be an excess of about seven million women with respect to men of sixty years of age. The sedentary lifestyle and obesity are the major concern in this age range and global interventions are necessary to minimize changes of aging. In this context, the aim of this study was evaluate the effects of concurrent training (CT) associated with interdisciplinary interventions and on the other hand only interdisciplinary interventions (Control) in functional fitness, strength and body composition of elderly women.

Methods: Physically active elderly women performed CT (CTG, n=6) or Control (CG, n=6) during twelve weeks, three times a week for sixty minutes each session. Aerobic and strength training was performed in the same session. Fortnightly the volunteers had class about nutrition and psychology in group. Endurance (by walking) and strength training (by bench press, lat pull down, leg press, triceps and biceps) were evaluated by functional fitness test of American Alliance for Health, Physical Education, Recreation and Dance (AAHPERD), and the prediction of 1-Repetition Maximum. Body composition was evaluated by bioelectrical impedance. Complementarily instruments used for classify the volunteers were International of Physical Activity Questionnaire-8 (Long Version), Depression Inventory and Beck Anxiety and Quality of Life-Short Form (SF-36). Initially the sample size was calculated and after the program it was analyzed the normality of datas. In a third moment was analyzed the differences between pre and post-intervention and between the groups. The results were analyzed by means of the program Statistical Package for the Social Sciences-Version 21.

Results: As result after twelve weeks, there was a significant decrease in time to perform the Agility test in CTG. As regard the body composition, between groups there was difference in the post time in
body mass, lean mass and basal metabolic rate. In strength parameters, there was significant increase of muscle strength in the bench press in CTG group and a significant percentage variation in bench and leg press in CTG compared to the CG.

**Conclusions:** These results showed that CT at three times a week can improve and maintain aspects of functional fitness, strength and body composition of active elderly women."
POSTER PRESENTATION

THE EFFECT OF EXERGAMING ON CARDIOVASCULAR RISK FACTORS IN WOMEN

Sport medicine and injury prevention

"Maria Guadalupe Soares de Amorim, Elaine Hatanaka, Maurício Dias Oliveira"

"Universidade Cruzeiro do Sul, Universidade Cruzeiro do Sul, Universidade Cruzeiro do Sul"

"BR, BR, BR"

"Background: The static entertainment contributes to obesity, dyslipidemia and cardiovascular diseases. The imbalance in the concentration of adipokines, as well as insulin resistance and increased concentrations of C-reactive protein (CRP), triglycerides, total cholesterol and LDL cholesterol are found in obesity. AIMS. The aim of this study was to evaluate the effect of the practice of the Xbox 360 Kinect game in women by measuring glucose, CRP and lipid profile (triglycerides, total cholesterol and fractions) and anthropometric parameters. These markers were assessed before and 1 month of weekly exergaming practice (2 times a week, for 1 hour).

Methods: The study comprised 12 young adult women classified according to BMI (24.9 ± 1.5), with mean age 35 ± 2 years, sedentary and showed no chronic inflammatory disease. Total cholesterol and fractions (HDL, LDL), CRP, pro inflammatory cytokines and anthropometric parameters were measured before and 1 month after the training period.

Results: We observed that the game practice was able to reduce the lipid profile of the volunteers. The total cholesterol, triglycerides, HDL and LDL reduced, by 24% (p = 0.06) 23% (p = 0.07) 19% (p = 0.002) and 20% (p = 0.001), respectively.

Conclusions: Regular practice of the Xbox 360 Kinect game improves risk factors for cardiovascular disease in women."
The effect of TGT&Jigsaw cooperative learning on college students' Taichi study and social mental quality

Sport pedagogy

"Hongchang Yang, Hongchang Yang"

"Shanghai University of Sport, Shanghai University of Sport"

"CN, CN"

Background: Cooperative learning (CL) has been well received in all levels of teaching and subjects all over the world. The purpose of this paper was to investigate whether the two methods of cooperative learning (TGT & Jigsaw) was superior to traditional teaching (TT) in developing students' self-efficacy, Taichi performance and lowering social anxiety when they were studying 24-style Simplified Taichi

Methods:

literature, experimental method, questionnaire survey and mathematical statistics were utilized in this paper, and the data acquired were calculated by SPSS 19.0. Participants: 3 classes (96 individuals in all) composed of male freshmen of different majors took part in this experiment. 33 students in TGT class, 31 in Jigsaw class and 32 in TT class. Procedure Pretest: self-efficacy and social anxiety were tested before intervention at the beginning of the first session. Group division: in TGT and Jigsaw class participants were randomly divided into 6 groups according to their academic score of P.E. of previous semester, and each group comprised one high-, three or medium-, and one low-academic performance student. Intervention and duration: in 3 classes TGT, Jigsaw and TT were applied, the intervention lasting for 14 sessions (14 weeks). Posttest: in the last session, self-efficacy, social anxiety and Taichi performance were examined. Measuring tools: Taiji performance was assessed according to the examination standard by another teacher who hadn't participate in the experiment; Social anxiety was surveyed with Interaction Anxiousness Scale (IAS) made by Leary in 1983; Self-efficacy was investigated with General Self-efficacy Scale (GSES) by Schwarzer in 1981.

Results:

The post-test of Taichi performances were significantly different (F=34.234**, P = .000), multiple comparisons showing both of the CL methods (TGT-P = .000; Jigsaw-P = .000) were superior to TT, and that there was no difference between TGT and Jigsaw; In light of self-efficacy, there was no significant difference among the 3 classes in the pre-test of self-efficacy, whereas in the pro-test there was a significant difference among the 3 classes (F=34.217**, P = .000), multiple comparisons indicating TGT
teaching class (P=.000) and Jigsaw (P=.000) were significantly better than TT and that meanwhile Jigsaw was better than TGT (P=.005). Paired sample T test found the difference between pretest and protest in three classes were all significant; as for social anxiety, there was no significant difference among the 3 classes in the pre-test of social anxiety, while in the pro-test there existed a significant difference among the 3 classes (F=60.972**, P=.000), multiple comparisons suggesting TGT (P=.000) and Jigsaw (P=.000) were significantly better than TT. Paired sample T test showed the differences between pretest and protest in two classes (TGT & Jigsaw) were significant (TGT-T=9.68**, P=.000; Jigsaw-T=10.178**, P=.000) and that there was no significant difference in TT (T=.780; P=.441).

Conclusion

CL was an effective way to boost students’ Taiji performance, self efficacy and lowering social anxiety compared to TT, but there was difference among varied CL methods too.”
The effectiveness of a Physical Education intervention programme on physical fitness levels of Grade 6 schoolboys in Tianjin, China

Physical activity and health
"Jian Wang, Haili Tian, Abel Toriola, Yan Tao, Qingwei Jin"
"Tianjin University of Sport, Tianjin University of Sport, Tshwane University of Technology, Tianjin University of Sport, Tianjin University of Sport"
"CN, CN, ZA, CN, CN"

“Background:
An increase in physically inactive lifestyle among Chinese adolescents has attracted national public health concern. Physical inactivity is widely associated with the health burden of non-communicable diseases like obesity, hypertension and type 2 diabetes. However, limited information regarding the effectiveness of an intervention programme on physical fitness of primary school learners in Tianjin, China is available. The purpose of the study was to evaluate the effectiveness of a Physical Education (PE) intervention programme on physical fitness levels of Grade 6 schoolboys in Tianjin, China.

Methods:
A total of 100 schoolboys aged 11-13 years old in Grade 6 (experimental groups, n = 50; control groups, n = 50) who were randomly selected from two primary schools in Tianjin, took part in the study. Using a pre- and post-test, control group design, they participated in a 6-week PE intervention programme presented thrice a week (60 mins per session). The learners’ physical fitness levels were measured using the Eurofit test battery.

Results:
Compared to controls, schoolboys in the intervention group had substantial improvements in shuttle run test for aerobic fitness, body weight, balance, sit and reach, and waist circumference (p< 0.05).

Conclusions:
It was concluded that the PE intervention programme effectively increased physical fitness levels of Chinese primary schoolchildren. Further research is necessary using larger samples in order to validate the present findings."
POSTER PRESENTATION

The effectiveness of Pilates on psychobiological aspects of hypertensive women

Physical activity and health

"Daniele Tavares Martins-Meneses, Hanna Karen Moreira Antunes, Nara Rejane Cruz de Oliveira, Ricardo da Costa Padovani, Alessandra Medeiros"

"Federal University of São Paulo, Federal University of São Paulo, Federal University of São Paulo, Federal University of São Paulo, Federal University of São Paulo"

"BR, BR, BR, BR, BR"

"Background: The sharp growth of the hypertensive population is a worrying fact. This increase is due in part to new living standards in contemporary society, which has left the susceptible human to various risk factors such as poor eating habits, obesity and overweight, physical inactivity and psychobiological aspects. Objective: The objective of this study was to evaluate the effect of Mat Pilates training (MP) on the psychobiological aspects of medicated hypertensive women.

Methods: A total of 44 hypertensive women, medicated, not practitioners of physical exercise, mean age 50.5 ± 6.3 years, were divided into two groups: training group (TG) and control group (CG). TG performed 60-minute sessions of MP, twice a week for 16 weeks. CG was requested to maintain daily activities without exercise training at the same period. We evaluated the psychobiological aspects such as: level of anxiety, stress, depression, quality and perception of sleep and degree of sleepiness, as well as quality of life before and after experimental period by questionnaires.

Results: Statistically significant improvements were observed (p < 0.05) in the TG compared the pre and post experimental period for the following variables: stress (0.5 ± 0.1 vs. 0.4 ± 0.1 score); depression (12.1 ± 8.8 vs. 6.8 ± 7.3 score); quality of sleep (7.5 ± 3.2 vs. 5.3 ± 2.4 score); perception of sleep (35.7 ± 8.1 vs. 28.6 ± 8.5 score) and quality of life (70.5 ± 11.1 vs. 78.4 ± 12.8 score). The other variables in TG, and all variables in the CG showed no significant changes.

Conclusions: Mat Pilates training was able to bring about significant improvements in the level of stress, depression, quality and perception of sleep and quality of life of medicated hypertensive women."
POSTER PRESENTATION

The effects of low level laser therapy on the fatigue levels in male soccer players

Sport medicine and injury prevention

“Felipe Guilherme Leite de Campos, Ana Claudia Muniz Renno, Maira Cursino, Juliana Lôbo Froio, Eduardo Federighi Baisi Chagas, Renata Lumena Altruda Pucci, Cristiane Rodrigues Pedroni”

“State University of São Paulo, Federal University of São Paulo, State University of São Paulo, State University of São Paulo, University of Marilia, State University of São Paulo, State University of São Paulo”

"BR, BR, BR, BR, BR, BR, BR"

“Background: Investigate the acute effect of low level laser therapy in strength and muscle fatigue in men’s soccer athletes. Methods: Participated 21 athletes, divided into 2 groups: group treated with placebo laser irradiation (n = 9) and group treated with active laser irradiation (n = 11). For the analysis of muscle fatigue surface electromyography (EMG) of the rectus femoris muscle was performed, during two maximal voluntary isometric contractions (MVIC) with a load cell coupled to leg extension. After, the athletes performed a fatigue protocol, followed by laser application. Finally, participants were again subjected to the same initial tests. The paired t test and Wilcoxon test was used to verify the effect of laser therapy, and ANOVA for repeated measures to observe the behavior of the median frequency.

Results: There was a significant decrease in muscle strength in the placebo group (p=0.04) during MVIC 30 seconds after irradiation; significant increase in the MF in the group irradiated during the MVIC 5 seconds after application (p=0.02). Analyzing MF in the 30 seconds MVIC, higher values were observed in the irradiated group, with significant difference (p<0.05) between values of the second and third window pre and post-irradiation, with a less marked increase compared to the placebo group.

Conclusions: The low level laser therapy attenuated the decrease in muscle strength and reduce fatigue process due to the effort."
The Effects of Nano Rhodiola Supplements on the Sports Fatigue of Rats

Background: The aim is to explore the effects of rhodiola formulations on the release, absorption and utilization of its active ingredients by comparing the effects of nano rhodiola and common rhodiola on the sports fatigue of rats.

Methods: 36 SPF male rats aged 8 weeks were randomly divided into 3 groups (n=12), namely the nano rhodiola group (266.1nm), common rhodiola group and control group. The rats were separately fed 0.5ml nano rhodiola solution (0.01mg/ml), common rhodiola solution (0.01mg/ml) and distilled water once a day. All rats were required to take moderate intensity treadmill training (refered to Bedford's classical exercise load model) every day. 4 week later, all rats were forced to take exhaustive swimming and the duration were recorded. After exhaustive swimming, the plasmas, livers and quadriceps were taken as samples to measure the activity of super oxide dismutase (SOD), glutathione peroxidase (GSH-Px), total antioxygen capability (T-AOC) and malonaldehyde (MDA).

Results: The mean duration time of nano rhodiola group is longer than the common rhodiola group but without statistical significance; MDA in plasma of the nano rhodiola group is lower than that of the control group (P<0.05); T-AOC activity in plasma of the nano rhodiola group is higher than that of the common rhodiola group, and T-AOC activity in plasma of both the nano and common rhodiola groups are higher than that of the control group (P<0.05); SOD activity in quadriceps femoris of the Nano rhodiola group is higher than that of the common rhodiola group, and SOD activity in quadriceps femoris of both the Nano and common rhodiola groups are higher than that of the control group (P< 0.05).

Conclusions: The rhodiola supplements improved the SOD activity in quadriceps femoris, the T-AOC activity in plasma, and reduced the MDA content in plasma of rats. The effects of nano rhodiola supplements on the T-AOC activity, MDA content in plasma and the SOD activity in quadriceps femoris were more significant than that of common Rhodiola supplements, it suggested that the rhodiola particle size might be one important factor which influence its effect on sports fatigue.
The Empirical Analysis on the Influence Factors of Competition in Traditional Olympic Countries

Governance and policy

HU Haixu
Nanjing University of Aeronautics and Astronautics CN

Background:
Chinese sports face a new transformation after the 2008 Beijing Olympic Games, the Olympic Strategy gradually out of the mainstream and come into the big era in sports, which to choose more social effect sports of the sports for all . However, under the new situation, how to implement the new Olympic Strategy more effectively and to improve the overall level of competitive sports become an important issue.

Methods:
Put the traditional Olympic country(TOC) defined as the country that win the medals over 17 times in the modern summer Olympic Games among 28 countries, whose Olympic Games’ road maybe a teacher to guid China or other countries under new situation, combining the history thought and statistics method. 1)In order to discuss and selectthe influence factors of competition in TOC, using factor analysisto classified the present influence factors, and extract the main factors as the independent variable of competition ability, see (table 1,table2, omit) : 2)using multiple regression equation to parse the extractive main factor and political background variables that how do theyspecifically affect competition ability , see two models for the standardization of multivariate linear regression equation : $C1=-0.634X1-0.018X2+0.027X3+0.541C8 \ln (C1 )=-0.811X1-0.035X2-0.043X3+0.501C8 \quad (x1, x2, x3$ are factor score of three principal factor, $C1$ is competition ability, $C8$ is political background)

Results:
Results through the system study of TOC : the factors affect Olympic competition ability are medals of three big ball, fundamental items, times of hosting Olympic Games, GDP, and they are constitute the national sports ability factor, and one party or the socialist regime is more efficient in the political
background. However, the national sports ability factor has greater influence than the latter.

**Conclusions:**

three big ball and the Chinese Olympic system are parallel to each other, the big era in sports of three big ball, fundamental items and powerful Olympic country are integrated. Actually, these results certificates the coupling of school PE and competitive sports under chinese new situation, and put more clear to several contents and developing direction of Olympic’s general plan.”
POSTER PRESENTATION

The Evolution and Development Recommendations of Policy for Stadiums Industry in China

Sport sociology
"Zhang Rui, Zhang Bing"
"peking university, peking university"
"CN, CN"

“Background: Stadiums are not only hardwares of sport events, but also carriers of healthy life style. There are also some problems faced by the stadiums: the development of stadiums could not meet consumers’ growing demand; the relevant policies and regulations are incomplete or are not fully implemented; corporations are in rapid development but weak in the industry’s self-government. By analyzing stadiums industry related policies and regulations in our country, the article divides policies and regulations into three classes: programmatic, guiding and industrial; and analyzes the pros and cons of the three classes. Meanwhile, drawing on the concept of stadiums industry overseas as well as the experience of the reform of cultural industry in china through comparative study, the article focuses on the need of the policies and legal protection for the stadium industry development in China.

Methods: 1. Literature review method. 2. Historical analysis method. 3. Comparative research method.

Results:
1. Foreign advanced ideas about the stadium industry development: Firstly, the planning of whole industrial chain of stadium industry. Secondly, the industry autonomy of stadium industry. Some foreign governments rarely exercise their management function for the stadium industry, but the management is undertaken by various profitable and non-profitable sports organizations, and self management of the industry is implemented.
2. Characteristics of Stadium Industry in China: Firstly, wide levels and various types of industrial entities. Secondly, strong consistency and great dependency of industrial activities. Thirdly, difference in the professional degree and scale effect of institutions.
3. Policy Evolvement of Chinese Stadium Industry: The relevant policies and regulations of China about the stadium industry are mainly in three categories: firstly, the guideline policies and regulations issued by the State Council or relevant ministries and commissions; secondly, the guiding policies and regulations implemented by various ministries and commissions and local governments; thirdly, the standards, conventions and other technology and management regulations required by the industrial development. Overall speaking, the characteristics are as follows: firstly, the intensively released new
policies, compared to the early published sports laws, are more pertinent and efficient, and point directly to the pains of sports industry development. Secondly, seeing from the time course, the national policies and regulations tend to promote the public stadiums gradually increase the openness degree and utilization rate. Thirdly, the country encourages the market-oriented management of stadiums, but the guarantee policies in terms of tax and security are insufficient.

**Conclusions:**

Policy suggestions on the stadium industry: 1. Promote the systematization and scientization of stadium construction and management. 2. Implement the tax preferential policies and create the favorable market environment. 3. Innovate the stadium management system and encourage multiple subjects to participate in industry autonomy."
The Exercise Order of Elbow Extensors Decrease the Performance and it does Not Affect the Muscle Activity

Neuroscience and sport

"Enrico Gori Soares, Daniel Alves Corrêa, Willy Andrade Gomes, Josinaldo Jarbas da Silva, Guanis de Barros Vilela Júnior, Charles Ricardo Lopes, Paulo Henrique Marchetti"

"Methodist University of Piracicaba (UNIMEP), Methodist University of Piracicaba (UNIMEP), Methodist University of Piracicaba (UNIMEP), Methodist University of Piracicaba (UNIMEP), Methodist University of Piracicaba (UNIMEP), Methodist University of Piracicaba (UNIMEP), Methodist University of Piracicaba (UNIMEP)"

"BR, BR, BR, BR, BR, BR, BR"

"Background: Different exercise orders have shown to affect the acute neuromuscular performance during a resistance training session. Additionally, some studies observed an increase in triceps brachii muscle activity during the bench press, when the pectoralis major is pre-fatigued. However, the effect of pre-fatigue on triceps brachii, and the effect of the opposite order during the bench press neuromuscular performance has never been investigated. Therefore, the purpose of this study was to investigate the effect of the exercise order (pre-exhaustion [PRE]: triceps pushdown + bench press; and Traditional [TRAD]: bench press + triceps pushdown) on the performance and muscle activity of pectoralis major (PM) and triceps brachii (TB).

Methods: Fourteen trained-men with at least one year’s training experience volunteered to participate in the study (age: 25±4 years, height: 175±4 cm, weight: 80±11 kg). The experiment was performed in two sessions. In the first session, the evaluation of ten maximum repetitions test (10RM) was performed for each exercise, separately. The second session was divided in two phases. During the first phase, both exercises were evaluated separately, called control condition (CON). And then, in the second phase, two different exercise orders were evaluated (PRE and TRAD sequences). The performance was defined by the maximum number of repetitions performed in each exercise, and the muscle activity of PM and TB were measured by the integrated electromyography (IEMG) during the second and the last repetition of each exercise. ANOVA (2x3) with repeated measures was used to compare the maximum number of repetitions performed and IEMG.

Results: The performance was reduced during the exercise executed at last when compared to the control and the other condition (P<0.05). For IEMG results, there were observed significant differences between repetitions, but there were not significant differences between conditions (P>0.05).

Conclusions: It was concluded that in both orders (PRE and TRAD), the maximum number of
repetitions performed at last was reduced, however, any muscle activity effect was observed in all experimental conditions.”
POSTER PRESENTATION


Sport pedagogy
Paulo Henrique de Souza Cavalcante
Sesc SP - Serviço Social do Comércio
BR

"Background: The Club of Volley is an activity aimed for adults of 16 to 59 years, and composes the Program of the Sports in the SESC SP. In this paper, I report the experience of learning development about the gaming systems (GS) in the Club of Volley classes on SESC Belenzinho. For students at different times of conversations, the principal request of learning is the 5x1, which is the GS that it was considered better by them for to be played. For organization and systematization of the content in the classes of volleyball GS, I used three References: the intention to learn of the students; structured in a teaching unit that details the learning objectives and contents to be taught in the dimensions of concepts, facts and attitudes; and the pedagogy sport, from by three pillars that hold: the technical and tactical, the socio-educational and cultural-historical. The GS in volleyball is a tactical element of the team, which distributes the six players on the court in functions and number of attackers and setters that can be learned in order to develop the technic and tactic, favor inclusion and development skill of each player, allowing cohesion among all in the court. It is identified for two numbers, in which the first number represents the attackers and the second the setters. We have the systems: 6x0; 3x3; 4x2; 6x2; and 5x1. In this paper, two problems are raised: how to teach the GS; and how to enable students to feel safe and autonomous to choose and adapt GS as of their experiences in their practices.

Methods: For this process, we used a learning cycle that went through four parts: theoretical moments, theoretical activities, practice-learning and practice-game. After the game be structured and the students demonstrate safety and dominion over the GS used, a new system is introduced and the cycle begin again. This teaching-learning cycle, was been thinking and schematized as from: diversification of pedagogic strategies of analytical and synchronized exercises, games, pre-sports games, game situations and formal game; and feedbacks that proves to be a differentiating instructional strategy of teaching effectiveness.

Results: For evaluation of learning in sport, there are no instruments that make it possible to measure it. For this, used were filming and student reports at different times. The learning was effective when: the autonomy in teaching new members arriving in the group without going through the process
described above; report the identification of GS when students watched televised games or in person; ability to adapt and change the playing system; analysis of opponents systems championships; and fluency of the game.

**Conclusions:** We must respect the learning time, understanding the stages of complexity and differences of a GS to another, enabling the contact with several ways to view the rotation situations and practice of systems, playing. This paper is the beginning of an investigation that points out the need to think the systematization of GS in volleyball and yours complexity, and the need for assessment tools for sports initiation, either in childhood or adulthood."
POSTER PRESENTATION

The features and training of Compulsory Exercise of Martial Arts

Sport pedagogy
"Chen Feng, Guo Qiong-zhu"
"Fujian Research Institute of Sports Science, Xiamen University"
"CN, CN"

"Background: The compulsory exercises are the main part of the series of skills and tricks in Martial Arts, therefore, it plays an important role during a competition. The compulsory exercise have strict demands on the physical stamina, skill and will of athletes during the process of competition. At present even the most athletic competitors have a low success rate during the competition. Therefore, to raise the success rate is the key factor that decide the results, and it's also the focal point and most difficult aspect during training.

Methods: We recorded 59 male and female athletes, scoring and deduction of the final and preliminary rounds of Martial Arts in the National Games. After such we carried out an observation, and statistical analyze of the data. We used the three-dimensional space recorder's analyze, Polar heart rate monitor, Japanese blood lactic acid test instrument, and other's to analyze the data. This allowed us to set up an ideal technical movements model and exercise intensity model of the Martial Arts competition, to practice the compulsory exercise under the conditions of mock competitions' exercise intensity. In the end we were hoping to compare the success rate.

Results: (1) The success rate of compulsory exercise in the National Games' Martial Arts 's final and preliminary rounds are lower than 7%. The statistics indicates that those who got good marks had fewer deductions, and those who got bad marks had more deductions. The accomplishment quality of compulsory exercise is the focal factor to decide the result of competition, under the condition that the athletes' training level is almost same. (2) The compulsory exercise have got a strict quantitative deduction standard in the categories of the take-off posture, the height of leg sway, turning angle of degree, the posture of landing etc. It is quite common that the athletes jump or sway when they land, or the motionless time doesn't meet the demands. (3) This study set up the kinematics index diagnosis modal and image diagnosis modal for the compulsory exercise, takes this as the monitoring index of technical training, puts forward three kinds of main monitoring index of training methods, determines the individual warming-up reference modal and provides the reference to the training before competition.
Conclusions: (1) The technical combination of compulsory exercise is complicated. It’s the weak link of the outstanding athletes nowadays. Attach great importance to the training of compulsory exercise, to raise the success rate is the key factor to raise the competition’s score. (2) It is an effective measures for raising the compulsory exercise success rate to train the athletes scientifically, through setting up the evaluated index of special courses quality, technical diagnosis model and the monitoring index of exercise intensity. (3) It is the focal point of the training of compulsory exercise before competition to train the athletes under the condition of a mock competition, and ask the athletes try to succeed in the actual combatant training of compulsory exercise at one time.”
The FIFA 11+ program on injury prevention and improvement of performance on the players from the soccer team Meninos da Vila

Sport medicine and injury prevention

"Jéssyka Pessoa de Almeida, Márcio de Paula e Oliveira"

"UniCeub, UniCeub"

"BR, BR"

**Background:** Injuries have negative consequences on the physical, psychological and socio economic levels being important to invest in preventing. So we evaluate the effect of the FIFA 11+ program on improvement of performance and injuries reduction on young soccer players.

**Methods:** There were taken 20 soccer players from the soccer team Meninos da Vila divided by randomization in 2 groups: CG (control) e IG (intervention). FIFA 11+ injury prevention program was conducted with the IG for 12 weeks before the training sessions, twice a week while the CG did the conventional warm up instructed by the team's coach. The performance was evaluated by the tests: side stabilization, single leg balance and isokinetic evaluation all done before and after the 12 weeks.

**Results:** In the end of the research 8 players stayed, 2 from GC and 6 from GI. Statistical analysis was done using SPSS 22. Where it was found a significant result in injuries rate with a reduction of 100%, p <0.05, however, there was no improvement in performance with the FIFA 11+ all tests p> 0.05.

**Conclusions:** Through the evaluation of the results we can conclude that the program was effective in reducing injuries but not improved the performance of the players."
POSTER PRESENTATION

The Government supply. Public demands analysis and satisfaction survey of Public Sports Information Service in China

Sport sociology
Qing Ding
Suzhou University
CN

“Background:
Public sports information service is an important part of public sports services, which led to the government by providing information on various forms of public sports events, sports related information of public services to convey to the public, making public service information to share public sports resources to satisfy the information needs of the public. Research Public Sports information services can enrich public sports service in the field of information theory and practice content, enhance the level of public sports service and its capability.

Methods:
This paper use literature, interviews and questionnaires to research public sports information service in china. Based on the theoretical research, we investigated and analyzed the current situation of government supply and the public's demand of public sports information service. Under a comprehensive grasp and understanding of the status of public sports information service, we proposed the development of countermeasures against the real problems that exist in the process of information services.

Results:
The development of public sports information service is still in its infancy; website and mobile information dissemination channels are public access to public sports information services are most needed, information publishing sites most in need of public services; mainly through non-public paper-based information media to accept public sports information service. At the same time, the study also explored the main factors that influence the public to the overall satisfaction include 5 aspects.

Conclusions:
1.Public sports information service is builded and maintained mainly by sports administration departments : Secretary of mass sports, Mass sports office, Information center and Office.
2. Sports administration portal is the main communication channel for public sports information services, website information services function primarily for information dissemination, information retrieval, information interaction and supervision of feedback information.

3. Improve public sports service system will promote public sports information service capacity and to enhance the overall level of service system innovation can improve the service resource utilization, improve service quality, and enhance public confidence in the service, visibility and reputation.

4. Study fitness knowledge, understanding sports information and Recreation are main purpose for the public to receive public sports information service. Websites and mobile phones are most in need of public information dissemination channels, the information publishing sites most in need of public services. According to demographic features, provide targeted public sports information services can improve the quality of service to some extent, and get better results.

5. The reliability of the information content, information disclosure transparency, ease of access to information, feedback channel patency, the effectiveness of the methods of supervision information are public information services determinants of overall satisfaction. The Evaluation model based on these factors can be established to evaluate it objectively.
The Immediate Effects of Proprioceptive Neuromuscular Facilitation(PNF) Relaxing Activity on Female Students’ Flexibility in Yoga Course of University

Sport pedagogy
"Yongsheng Dai, Lina Luo, Sitong Yang"
"HUBEI University of Technology, HUBEI University of Technology, HUBEI University of Technology"
"CN, CN, CN"

“Background:
Yoga is very popular for almost students in school PE course, and flexibility is not only an important factor of learning Yoga but also one of the main resistances for their practices. PNF method is characterized by increasing the flexibility of muscles without obvious pain, which has immediate and long-term practice effect. This study thinking about rational composed of Yoga course for university’s normal students by understanding the PNF Yoga relaxing exercise effect, to provide theoretical and practical basis for having better yoga classes.

Methods:
Divided into 2 groups according to their PE class, each group is 50 university’s female students without excessive flexibility. No significant difference in their primary indicators measuring. At the end of 16 weeks Yoga course, Which is once a week Yoga elective courses include 20 minutes warming up, 55-minute Asana, 15 minutes relaxing activities, Control group(C) ‘s relaxation activities still using supine relaxation but PNF groups’ relaxing activity using a hold-relax-antagonist contraction PNF method to girls’ shoulder muscles and hip-muscle. Gripping stick test shoulders’ flexibility and Sitting forward bend test hamstring muscle flexibility.

Results:
Using Paired sample t-test, the Results showed both groups’ hamstring muscle flexibility improved through 16-week Yoga course (P < 0.01), while shoulders’ flexibility without significant increase (P>0.05) compared with that 16-week before. Maybe the reason is students’ hip muscles were given more stimulus intensity by Yoga Asana movements in PE course. After different relaxing, PNF groups’ values of gripping stick reduced 5.98cm, significantly improves shoulder flexibility (P<0.01), values of sitting forward bend increased 1.03cm and improves the hamstring flexibility compared with that before relaxing (P<0.05).

Using independent sample t-test compared PNF and C group after last relaxing at the end of 16 weeks Yoga course, the Results showed PNF groups’ values of gripping stick reduced 4.71cm, PNF groups’
shoulder flexibility was obviously better, but hamstring flexibility without different (P > 0.05). It's consistency with the results before, it can explain due to 16 weeks Yoga Asana movements also increases flexibility, especially hamstring flexibility, so comparison of PNF group and C group, the former improved their shoulders' flexibility more obviously.

**Conclusions:**
The PNF method applied to yoga relaxation activities can improve students' flexibility immediately; studies may continue to investigate long-term flexibility of PNF relaxation activities for students in future. Yoga Asana is also increasing their flexibility, so local flexibility increase after PNF is not obvious. In yoga teaching in the future, the teacher should consider the reasonable arrangement of integrated action, that is doing more comprehensive exercise of main joints and muscle group."
POSTER PRESENTATION

The Impact of Different Types of Physical Activity on Bone Mineral Density & Body Composition in Elite Basketball & Rowing Athletes

Sport medicine and injury prevention

"JIAN LIANG, XUANMING HAO"

"SOUTH CHINA NORMAL UNIVERSITY, SOUTH CHINA NORMAL UNIVERSITY"

"CN, CN"

"Background:
Different types and intensities of the exercises have different influences on bone mineral density (BMD) and body composition (BC). Objective: To investigate the impact of the basketball and rowing on BMD and BC in male athletes. Subjects: 26 male elite rowing athletes (20.33±0.92y) and 13 male elite basketball athletes (21.00±1.34y) participated in the study. They had more than six years training history. 25 male university students (20.64±0.76y), who didn’t major in P.E, were assigned to the control group.

Methods:
BMD of lumbar spine (L2-4), right proximal femur region were evaluated by dual-energy x-ray absorptionometry (GE Lunar, USA). Adopted the body composition analyzer (Inbody3.0, Biospace) to measure the physical fitness index, including weight, body mass index (BMI), soft lean mass (SLM), body fat mass (FM), percentage of soft lean mass (%SLM) and fat mass (%FM), waist hip rate (WHR) etc.

Results:
（1）Significant higher BMD values in lumbar spine and total femur of rowers and basketball athletes than controls (p<0.01). We observed that higher BMD values at all evaluated sites of basketball athletes than rowers. (2) Basketball and rowing athletes had higher values in height, weight, BMI, SLM and %SLM than in controls. Whereas, rowers had lower %FM and WHR values than basketball athletes (p<0.01), which were both lower than in controls (p<0.01).

Conclusions:
Chronic participation in basketball and rowing enhance BMD in lumbar spine and proximal femur region. BMD values in the proximal femur region of basketball athletes were significant higher than rowing athletes, but slight difference in lumbar spine. It may possibly be explained by basketball requires a
combination of fast movements, body impact and jump. Thus high-impact sports have higher BMD and BMI values in males."
The Impact of the Sport Environment on Food Choices of Male Olympic Gymnastics Athletes

Sport psychology

"Anna Vitoria Rodrigues Renaux de Oliveira, Ricardo da Costa Padovani, Claudia Ridel Juzwiak"

"Federal University of São Paulo, Federal University of São Paulo, Federal University of São Paulo"

"BR, BR, BR"

Background: In the context of high performance sports, the eating behavior of athletes can be affected by several factors: culture, family, media, coach, demand for better results, strict weight control, and the sport discipline’s characteristics. Athletes in sports, which overvalue aesthetics and low body weight have a higher incidence of risky eating behavior, as well as eating disorders. Due to the lack of research analyzing the sport environment and the food intake of male gymnasts, the aim of this study was to identify the impact of the sport environment on food choices of male Olympic gymnastics athletes.

Methods: In this cross-sectional study with intentional sampling four adult male Olympic gymnastics athletes of the city of Santos, were interviewed using a qualitative narrative approach. Data obtained from the interviews were analyzed through the Content Analysis method.

Results: The results suggest two main thematic nuclei composed of thematic categories. The thematic nucleus denominated “training and competitions” is characterized by self-rules, external control, sacrifices and concern with body image and aesthetics, while the thematic nucleus “weekends, post-competition and vacations” is characterized by food reward and food choices without rules.

Conclusions: Our findings indicate that athletes’ food choices in the competitive period are devoid of pleasure and guided by their concern with body image and the strict weight control exercised by themselves and by the coach. On the other hand, when these gymnasts are not under the control of the competitive context, as it happens in the periods of post-competition, weekends and vacations, with decreased training load, food choices are associated to pleasure, without controlling rules and the food is considered as a reward. In both situations, male Olympic gymnastics athletes show vulnerability to inadequate and unhealthy food choices."
THE IMPORTANCE OF FUNCTIONAL TRAINING IN STRENGTHENING THE “CORE” IN THE IMPROVEMENT OF FUNCTIONAL CAPABILITIES OF ELDERLY

Physical activity and health
Diego Lucas da Silva
Centro Universitário Claretiano
BR
"SILVA, D.R1; ARANHA, J.L2; ZANELA, C.A.B3; VERRI, E.D4; FIOCO, E.M5
1- Student of Health Project, Education and Quality of Life of the Claretiano - University Center of Batatais.
2- Student of Health Project, Education and Quality of Life of the Claretiano - University Center of Batatais.
3- Docent of Health Project, Education and Quality of Life of the Claretiano - University Center of Batatais.
4- Docent of Health Project, Education and Quality of Life of the Claretiano - University Center of Batatais.
5- Docent of Health Project, Education and Quality of Life of the Claretiano - University Center of Batatais.

With the arrival of the third age, the bodies of the elderly suffer several changes that degrade, such as loss of muscle tone, wear in the joints and that lead to lack of coordination, balance and strength, thus hindering their daily activities, and may be injured and traumas lack these physical abilities. The “core” consists of approximately twenty-nine muscles, regions of the hip, abdomen and lower back. These sets of muscles have important functions in support of charges and also of paramount importance in body stability. As its name suggests, functional training makes use of simple movements and using as overload the body weight of the individual, such movements are similar to the movements of the elderly in their day to day, and for that reason the practice functional training, the elderly will be better able to perform more safely and dexterity their daily business. Also it has an excellent state of health biopsychosocial that the practice of any exercise can provide. The aim of this study was to verify the importance of functional training to strengthen the “core” and improving the functional capacity of the elderly. This study was conducted through literature reviews and scientific articles related to the benefits of functional training for seniors, importance of strengthening the “core, “ the importance of functional training benefit balance and posture, and prevent possible injuries sustained by poor execution and
possible falls. Specialized sites were used for academic research as Google Scholar and Scielo. The descriptors were used: functional training, the elderly, postural balance and preventing falls. This topic related to functional training is coming to the rise because it is derived from the old methods of military training is always evolving and adapting. The seven scientific articles were selected that best are suited to the theme. It comes to a Conclusion that for older people to grow old with health and delaying the harm it brings, they have to be performed in its independence in basic activities of daily life (BADL), always have to keep moving and exercising regularly and are well socially, carried out and with some prominence and social evidence and that leave more excited and hopeful to face aging with health, independence in BADL and willingness to exercise regularly, if the elderly grow old physically independent, psychologically and socially, the difficulties will be smaller in their day to day."
THE IMPORTANCE OF THE BIKE FIT (BF) IN PROMOTING HEALTH OF A GROUP OF CYCLISTS

VOTUPORANGA-SP

Physical activity and health


"University Center of Votuporanga – SP, University Center of Votuporanga – SP, State University of Roraima – RR., University Center of Votuporanga – SP, University Center of Votuporanga"

"BR, BR, BR, BR, BR"

Introduction: Currently cycling has called the attention of people of different ages in the northwest region of São Paulo, generating economic growth in direct trade sales of bicycles and accessories related to the practice of cycling, be it facing competitive purposes or recreational. For the individual practice mode, you need to have not only the bike and your security components, but also guidance on the appropriate size of the bicycle as well as the necessary adjustments so that during this practice the individual may have and achieve benefits in their training (ROBERTSON, et al., 2005).

Objectives: Based on this assumption, the present study objective was to gather information regarding the interest and knowledge of a group of cyclists in the city of Votuporanga, and thus promote a proposal for evaluation by the Bike Fit (BF) in order to guide and prevent these individuals the benefits of BF, and the prevention of possible harm that could be exposed during use and improper posture of the bike during practice.

Methodology: Information was collected regarding the practice of cycling experience with the sport, practice goals, and history of joint pain. They met Term of Free and Informed agreeing to participate.

Results: The study included 59 men, with standard deviation and average age of 39.4 ± 7.3 years in the number of weekly training sessions, 84.7% (50) of the participants pedal three times a week for 50 minutes (session), 88.1% (52) practice cycling for over two years, in relation to the history of joint pain, 71% claim to suffer pain in the lower back after the ride, which according Priego Quesada et al (2016), may indicate a misfit on bike saddle height damaging the cyclist during cycling. Regarding BF, none of the participants claimed to have participated in this type of assessment which explains the lack of group evaluated for proper positioning of the cyclist during cycling.

Conclusion: According to the reports, it was concluded that the research participants, have good adhesion to cycling both the practice time and the number of weekly training sessions, however the application of BF in participating population may favor the improvement of quality ride, inhibiting the
incidence of pain and other discomforts that can directly reach the performance and quality of practice. Remember that the studies are not conclusive, and several researchers inserted in the field recommend more research relating to the subject.

**Keywords:** Bike Fit. Cycling. Health promotion.
The influence of a taekwondo training on blood pressure in hypertensive individuals of children. Physical activity and health

"Daniele Tavares Martins-Meneses, Pamela Simões, Bruno Simões, Daniele Penteado"

"Federal University of São Paulo, University Santa Cecília, University Santa Cecilia, University Santa Cecília"

"BR, BR, BR, BR"

"Background: A risk factor for hypertension is genetic. Genetics can raise the blood pressure of the individual 15-60%. Exercise is indicated as treatment, control and prevention, especially by the hypotensive effect it provides these individuals. However, there is need for studies that verify which methods provide this hypotensive effect. The objective of this study was to evaluate the behavior of blood pressure after a single session in Taekwondo adult children of hypertensive.

Methods: The sample consisted of 14 individuals, they 10 females and 4 males, mean age 22.6 ± 3. The individuals were not hypertensive but all were children of hypertensive. The volunteers underwent two sessions, a 60-minute Taekwondo, where was the PA and HR measured before and after the session, and another control where the volunteers did not exercise and were measured the same variables. Following the guidelines of the VI DBH (2010) we use the semi-automatic device (Microlife-BP3BT0-A) to measure the PA, and to assess the FC use the frequency meter (Polar), data were analyzed using ANOVA two-way with measures repeated and post hoc Newman-Keuls.

Results: The results showed no significant difference when compared sessions (Taekwondo and Control), and compared the times (pre and post), but showed that the method is safe for this group evaluated. PAS had a significant reduction in only 15 minutes, but the other minutes had no significant difference even when compared times, or with the sessions. The PAD had a significant reduction to the 20 minutes in the pre moment, but the other minutes had no significant difference even when compared times, or with the sessions.

Conclusions: We conclude that a Taekwondo exercise session did not provide hypotensive effect for the children of hypertensive patients, probably by the same present a PA classified as good. However, the method proved to be safe for this population and although there is need for further study, it is believed that it may be safe also for hypertensive patients, however, the further studies to verify is required if the mode is safe for hypertensive patients and it provides hypotensive effect for these individuals."
The Influence of Intermittent Hypoxia and Exercise on Serum’s TNF-α and Adiponectin in the Rats of Insulin Resistance

Physical activity and health

"Jin-Qin FAN, Wen-Tao LIN"

"Shaoguan University, Guangzhou Sports University"

"CN, CN"

**Background:** Insulin resistance is the common basis of chronic noncommunicable diseases. Tumor necrosis factor-alpha (TNF-α) and adiponectin are two important factors which secreted by adipose cell, and their level are related with the body composition. The imbalance of body composition caused by hyperliposis is a risk factor for insulin resistance. TNF-α and adiponectin also change, so as to regulate the body's health when we are insulin resistance. Recent studies have pointed that hypoxic stimulus had good effect to regulate fat metabolism. Exercise had been proved to have the same effect, too. However, what would happen in TNF-α, adiponectin and body composition when we are intermittent with breathing hypoxia and exercising for a long time, especially in insulin resistance? Maybe, it would be a new method for improving or treating insulin resistance.

**Methods:** Animals: The insulin resistance rats model succeed by high fat diet feeding 6 weeks through the glucose tolerance test and fasting insulin judging. Later, the 48 male SD rats were divided into four groups: high fat-diet normoxic control group (HNC, n=12), high fat-diet hyperoxic control group (HHC, n=12), high fat-diet normoxic exercise group (HNE, n=12), high fat-diet hyperoxic exercise group (HHE, n=12). Exercise protocol: treadmill running, 25m/min, 60min/d, 5d/w, 4weeks. Intermittent hypoxia protocol: O2% is 14.5%, 4hs/d, 7d/w, 4weeks. Samples and testing: After administered for 4weeks consecutively, all the rats were sacrificed and got the blood. Weighted and record the rats’ body weight, epididymis fat pad weight, kidney fat pad weight, quadriceps wight and gastrocnemius wight, calculated the fat/muscle ratio then. Elisa kits were used to detect TNF-α and adiponectin in serum.

**Results:** (1) The weight of all rats had increased after 4 weeks. The weight of HNC group increased the most and HHE group increased the least. The weight gain of HHE group was the least compared with HNC group. (2) The fat/muscle ratio of three interposed groups had decreased compared with HNC group after 4 weeks, and HHE group had the greatest reduction (P < 0.01). (3) The TNF-α of three interposed groups had decreased compared with HNC group after 4 weeks, and HHE group had the greatest reduction (P < 0.05). (4) The adiponectin of three interposed groups had increased compared with HNC group after 4 weeks (P < 0.05), and the values of three interposed groups are very close.
Conclusion:(1) Live in low concentration of oxygen can reduce rat's weight gain and fat/muscle ratio which has insulin resistance. Exercise have a similar effect, also. It had the best effect on insulin resisted rats' body composition when exercise combined with intermittent hypoxia. (2) Live in low concentration of oxygen can reduce rat's serum TNF-α level and increase adiponectin level. Exercise have a similar effect, too. These change are helpful to improve the body's resistance to insulin. It estimates that related to exercise or/and low oxygen to improve the body composition.
The metabolic and immunological impact of physical exercise in sleep restricted subjects

Physical activity and health

"Leandro Fernandes, Renan Pozzi, Ronaldo Vagner Thomatieli dos Santos, Marco Tulio de Mello, Vânia D'Almeida"

"Universidade Federal de São Paulo, Universidade Federal de São Paulo, Ronaldo Vagner Thomatieli dos Santos, Universidade Federal de Minas Gerais, Universidade Federal de São Paulo"

"BR, BR, BR, BR, BR"

“Background: Sleep disruption and deprivation are common in contemporary society and have been linked with poor health and wellbeing. In contrast, the physical exercise has been stimulated for general population with the aim of improving health and quality of life. However, the metabolic consequences of physical exercise in chronically restricted sleeping subjects are unknown. Thus the objective of present study was evaluated if the physical exercise could interfere in the deleterious effects of sleep restriction considering metabolic and immunological parameters.

Methods: Eleven male subjects underwent test of performance maximum at voluntary exhaustion in 80% of ventilatory threshold 2 (VL2) in two conditions, as follow: - condition of sleep habitual-SH (± 8 hours of sleep); and sleep restriction-SR (only 4 hours of sleep) for 3 nights (permitted to sleep between 01:00 and 05:00 h). Exhaustion time, heart rate and Borg scale were evaluated. Moreover, in both conditions blood was collected before exercise, after the completion of exercise, and 1 h after recovery. Glucose, insulin, lipid profile (triglycerides, cholesterol, LDL, HDL and VLDL), catecholamines (epinephrine and norepinephrine), testosterone, cortisol, GH, IL-1, IL-10, IL-6 and TNF-α were measured in serum or plasma.

Results: The sleep of volunteers was reduced by approximately 50% and there were no differences in parameters related to body composition. No differences were observed in performance data after sleep restriction. Although they showed no significant differences in fasting glucose, a tendency of increase above the normal glucose values was observed after the RS and, the acute physical exercise was effective in lowering these levels similar to SH condition. Moreover, there is an increase of ~40% in insulin and HOMA-IR and a decrease of ~40% in adiponectin levels reinforcing an impact on glucose metabolism. Interestingly, we observed a decrease of triglycerides and VLDL-cholesterol after RS, which remained lower after completion of the physical exercise. No other hormones or cytokines changes were observed.
Conclusions: Accordingly, these data indicate that even in sleep loss condition, the physical exercise must be stimulated for the specific population studied, since it was seen an improvement of glucose metabolism without impairing other parameters.

Financial support: FAPESP, CNPq, CAPES and AFIP."
The Muscle Activity is Affected by Using the Knee Wraps During the Back Squat Exercise at Different Intensities

Neuroscience and sport

"Willy Andrade Gomes, Lee E. Brown, Enrico Gori Soares, Josinaldo Jarbas da Silva, Érica Paes Serpa, Daniel Alves Correa, Guanis de Barros Vilela Junior, Charles Ricardo Lopes, Paulo Henrique Marchetti"

"Methodist University of Piracicaba, California State University, Methodist University of Piracicaba, Methodist University of Piracicaba, Methodist University of Piracicaba, Methodist University of Piracicaba, Methodist University of Piracicaba, Methodist University of Piracicaba, Methodist University of Piracicaba"

"BR, BR, US, BR, BR, BR, BR, BR, BR"

"Background: The knee wraps (KW) are typically worn to gain mechanical advantage, increase the performance during the back squat (BS). This mechanical advantage (~22%), results from the energy stored in the KW when tensioned (eccentric phase of BS), transferred to the knee and helping in the extension (concentric phase of BS) known as carry-over. However, the use of KW may affect the execution of the BS changing the pattern of movement and muscle activation. Therefore, the purpose of this study was to measure the muscle activation during the BS with and without KW at different intensities.

Methods: Fourteen trained-men with at least one year’s training experience volunteered to participate in the study (age: 24±4 years, height: 176±6cm, body mass: 81±11kg, BS 1RM: 107±30kg). The experiment was performed in two sessions. During the first session, the maximal BS strength (1RM) was evaluated (without KW), followed by a familiarization with the use of KW. In the session two, all subjects performed 1 set of 3 repetitions (self-selected cadence) under 4 different conditions in a random order: with KW and without KW (NW) at 60% and 90%1RM. A rest period (10 minutes) was used between conditions. The descent phase was parallel to the ground (~90º of knee joint flexion). The spiral wrapping technique was used. For the muscle activation evaluation, the superficial electromyography (sEMG) technique was used on vastus lateralis (VL) and gluteus maximus (GM), only in a dominant lower limb. The IEMG was calculated from the sEMG data (normalized by maximum voluntary isometric contraction, MVIC) during each trial. A repeated-measured ANOVA was used for all dependent variables ((wraps x intensity). Post hoc comparisons were performed with the Bonferroni’s test. An alpha of 0.05 was used.
Results: For muscle activity, there were significant decreases in the VL for NW at 60%1RM (P= 0.013) and a significant increase NW at 90%1RM (P= 0.037). There was a significant increase in VL at 90%1RM, when compared with 60% 1RM (KW: P=0.001, ES=1.51 and NW: P<00.001, ES=1.67). There was a decrease in GM for NW only at 60%1RM (P=0.014). There was a significant increase in GM muscle activity at 90%1RM, when compared with 60%1RM (KW: P<0.001 and NW: P<0.001).

Conclusions: In Conclusion, the use of KW may decrease the muscle activation of the VL at high intensities (90%1RM)."
The Organizational Stressors Encountered By Disabled Athletes

Sport psychology

"R. Arnold, C.R.D. Wagstaff, L. Steadman, Y. Pratt"

"University of Bath, University of Portsmouth, University of Portsmouth, University of Bath"

"GB, GB, GB, GB"

“Background: Organizational stressors have been found to be prevalent and problematic for sport performers, with research identifying demographic differences in the specific stressors encountered. Extant sport psychology research on the topic of stress, however, has generally focused on able-bodied athletes; whilst that which has been conducted on disabled performers has typically recruited relatively small samples to explore a narrow selection of organizational stressors, or examined other components of the stress process. The purpose of the present study, therefore, was to explore the various organizational stressors that disabled athletes encounter.

Methods: The sample comprised 18 disabled athletes (ten male, eight female) who had a classified disability and experience of competing at a major championships in their sport (e.g., Paralympic Games, World Championships). The participants reported a range of disabilities (e.g., vision impairment, amputee, cerebral palsy, Spina Bifida) and represented a diversity of sports (e.g., swimming, para-canoe, para-triathlon, athletics, cycling). Participants took part in a semi-structured interview which was analyzed by drawing from grounded theory procedures.

Results: A total of 316 organizational stressors emerged from the data, which were abstracted into 31 concepts and four exploratory schemes: leadership and personnel issues, cultural and team issues, logistical and environmental issues, and performance and personal issues. Leadership and personnel issues encapsulated the organizational stressors associated with the management and support of a sports team. Cultural and team issues encapsulated the organizational stressors associated with the attitudes and behaviors within a sports team. Logistical and environmental issues encapsulated the organizational stressors associated with the organization of operations for training and/or competition. Performance and personal issues encapsulated the organizational stressors associated with a performer’s athletic career and physical self.

Conclusions: The findings highlight that organizational stressors are highly prevalent for disabled athletes, just as they are for able-bodied performers. The second, overarching, message from this study is that whilst many similarities emerged between the organizational stressors that disabled athletes encounter and those previously reported by able-bodied performers, there were also a number of
distinct, disability-specific demands (e.g., inaccessible venues for disability requirements, lack of disability-specific coaching and training, lack of crowd at events, the disability classification system). Given the problematic nature of organizational stressors in competitive sport, future research should continue examining and measuring a diversity of disabled athletes’ experiences of these demands so that practitioners can work with sport organizations and performers to develop and implement appropriate, evidence-based stress management interventions."
Posters Presentation

The Pedagogical Practice of Rhythmic Gymnastics As Per Gardner’s Theory of Multiple Intelligences

Sport pedagogy

"Monique Marques Longo, Monique Longo, Lara de Castro Ramos, Ellen de Souza Santos, Vanessa Moura Barroso"

"University of Rio de Janeiro, University of State of Rio de Janeiro, University of State of Rio de Janeiro, University of State of Rio de Janeiro, University of State of Rio de Janeiro"

"BR, BR, BR, BR, BR"

"Background: In Brazilian schools, we notice a certain hierarchy between the objectives planned by the disciplines presented in the classroom and those proposed by the Physical Education program or practiced sports outside of the regular school schedule. Such ideology guides the school since its inception and it is pedagogically docked in modern assumptions that conceive the human body as dichotomous from mind, and the movement as independent from thought. The Cartesian postulate “I think, therefore, I am” has contributed to society and modern science epistemologically during the nineteenth Century, as well as it has been responsible for knowledge stratification in formal instruction institutions. The research submitted here aims to present a didactic proposal for Rhythmic Gymnastics, as a mechanism that subverts the modern logic of conceiving the sport at school. For this, Gardner’s Theory help us when, based on the assumption of the singularity of each human being and on the importance of conceiving the identity differences in the learning process, Gardner postulated the presence of nine kinds of intelligences in every human being: Linguistic, Spatial, Musical, Interpersonal, Intrapersonal, Logical-Mathematical, Naturalistic, Existential and Corporal Intelligence. - Kinesthetic

Method: The Methodology adopted had as typology an argumentative dissertation, what means, a bibliographic study, describing the documental analysis. We used as theoretical support the “Theory of Multiple Intelligences proposed by Howard Gardner.

Results: Some information was presented: (1) he execution of mandatory physical elements, described in its punctuation code fosters the spatial temporal notion, laterality, body image the general motor coordination and postural tone in those who perform it, promoting spatial and cognitive Intelligence, as it requires reflection and problems-solving skills (2), RG enables the improvement of cardio-respiratory capacity, mainly anaerobic, muscle strength and flexibility, qualities that according to Gardner (2010) for development of Kinesthetic Intelligence (3) the musical accompaniment during performance of the mandatory series promotes rhythm and cadence necessary for development of musical intelligence.
and (4) Linguistic and interpersonal intelligence is stimulated through presentation in groups, since it requires dialogue, interaction and conflict resolution during series of mandatory training.

**Conclusion:** Our research showed that the rhythmic gymnastic could become a instrument that subverts the modern logic of conceiving the sport at school. It was clear that RG practice at school shows a powerful instrument for stimulating several multiple intelligences, when, according to the assumptions proposed by Gardner, favouring body and movement entrance also in classroom and in the various school spaces."
POSTER PRESENTATION

The perception of the lifestyle of boys and girls who participate in sports schools in the city of Blumenau - Brazil

Sport and quality of life for adolescence and aging

“Marcel Henrique Kodama Pertille Ramos, Marlucio de Souza Martins, Arturo Molina Pinzón, Rafael Lenzi Tarnowsky”

“Fameblu/Uniasselvi University, Pontificia Universidad Javeriana, Pontificia Universidad Javeriana, UCP”

“BR, CO, CO, BR”

“Background: Currently many children and young people participate in school sports initiation programs. According to this process of sports initiation, the inclusion of concepts and attitudes for a healthy lifestyle can help to better development of sports initiation process. The Sports School is where children begin learning in a specific way, planned sports practice, and when performed and conducted properly, can bring many benefits (MOREIRA 2003). Thus, this study aims to identify possible differences in the perception of lifestyle between boys and girls who participate in sports programs in the city of Blumenau in Santa Catarina state – Brazil.

Methods: This study related Healthy Lifestyles with the components of Feeding, Physical Activity, Preventive Conduct, Social Relations and Stress Control. This research was a transversal descriptive quantitative study, with a sample of N=393 children, with an average age of 14.11 (±1.25), where 202 were boys (51.4%) and 191 were girls (48.6%). The sample was taken by applying the “Adolescent Lifestyle Profile” instrument (Nahas, 2013). The program IBM SPSS 20 was used for statistical analysis, being test “T” applied with a significance level of p≤0.05.

Results: There are not significant differences between boys and girls in the components, feeding, social relations, and control stress. Regarding physical activity noticed significant difference (t = 4.103 p < 0.001), demonstrating that boys are more physically active than girls are. Otherwise, concerning the preventive conduct component girls obtained a better result (t = 2.677 p < 0.008).

Conclusions: There were differences between boys and girls in the perception of lifestyle related to physical activity and preventive conduct. Only in the component related to feeding behavior was a negative perception. Then, these data can help health professionals and sport to trace actions for better intervention training and education programs aimed at improving the health of these young athletes.”
The Relationship Between Static Posture and Deep Cervical Flexor Strength in Patients with Chronic Neck Pain

Sport medicine and injury prevention

"Enming Zhang, Xinjian Li, Yijun Lin, Anli Wang"

"Beijing Sport University, Beijing Sport University, Beijing Sport University, Beijing Sport University"

"CN, CN, CN, CN"

"Background: Chronic neck pain was one of the most common clinical musculoskeletal injuries. Neck muscles played an important role in maintaining the dynamic stability of cervical spine and preventing from injuries. This study investigated the correlation between the function of deep neck flexors (DNF) and the posture of shoulder and neck in patients with chronic neck pain and provided an evidence for therapeutic exercise.

Methods: 39 patients were recruited as the experimental group (EG). The inclusion criteria: chronic neck pain repeatedly attacks for more than 3 months; non-severe neck symptoms (NDI <15/50) to avoid exacerbation of pain when testing; no history of spinal surgery and trauma; no drugs; no rheumatism. 21 subjects with no neck pain as control group(CG). Participants underwent postural screening to identify forward head and rounded shoulder. Posture was assessed using a digital camera. Forward head angle (FHA) measured from the vertical arterially to a line connecting the tragus and the seventh cervical vertebra (C7) marker. Forward shoulder angle (FSA) for rounded shoulder measured from the vertical posteriorly to a line connecting the C7 marker and the acrominal marker. Maximal isometric strength of neck retraction in neutral posture, 45° rotation on left and right sides were measured by Multi-Cervical unit(MCU). Unit is a pound. DNF endurance test: Subjects were in the supine position with knees flexed, cross hands on abdomen, keeping jaw backward and make head lift off the bed about 2.5 cm and maintain this posture. Testers ensured the height and record the time in seconds. The independent samples T test was used to analyze the significance. Statistical significance was set a priori at \( \alpha <0.05 \) for all analyses. Pearson’s correlation coefficient was used to investigate the relationship between posture and DNF strength. Statistical packages SPSS(19.0) was used for the analysis.

Results: The EG’ FHA(40.26±4.43°) was significantly bigger than the CG (35.95±3.57°) \( (p<0.01) \); The EG’ FSA(49.25±7.09°) was significantly bigger than the CG( 41.71±5.72°) \( (p<0.01) \). The EG's maximal isometric strength of neck retraction in neutral position was 11.97±5.05, the CG was 15.35±6.67 \( (p<0.05) \); In left rotating posture, the EG was 9.03±3.51, and the CG was 12.87±49 \( (p<0.01) \); In right
rotating posture, the EG was 9.26±3.61, the CG was 12.96±57 (p<0.01). In endurance test, the EG was 44.92±23.89 and the CG was 66.21±30.03 (P<0.01). FHA was correlated with neck retraction strength in neutrality (r=-0.084, p=0.524), left rotation (r=-0.216, p=0.097), right rotation (r=-0.129, p=0.327) and DNF endurance (r=-0.031, P=0.811). FSA was correlated with strength in neutrality (r=-0.277, p=0.032), left (r=-0.391, p=0.002), right (r=-0.293, p=0.023) and DNF endurance (r=-0.282, p=0.029).

**Conclusion:** The patients with chronic neck pain always showed a poor posture in head and shoulder. Their strength indexes related with DNF would be worse than normal subjects; there was strong correlation between the DNF strength and the abnormal shoulder position. Therefore, we suggest strength training of the DNF would be an important role to correct shoulder posture.
The Research on the Ecological Feminism Sports Concept with China’s National Fitness Strategy

Zhou Yi gang
Physical Education College of Zhengzhou University
CN

“Background:
The State Council of China published several opinions about accelerate development sports industry and sports consumption on October, 2014. It clearly put forward to raise the national fitness as a national strategy. It is a major reform in Chinese sports. The city fitness circle (a Chinese vocabulary which measures distance between people and fitness centers with the time radius) which matching the national fitness also ushered in the planning and construction climax.

Methods:
The research comprehensive analyze the guiding ideology, scientificity, rationality of china’s city fitness circles construction with methods of literature consultation, comparative and logical analysis.

Results:
(1) As an important composition of china’s society progress, the demands of women's participation in sports need to face from government and market during the china’s sports reform. The advancement of Chinese Women's sports and thoughts will take great change & influence to the Chinese sports, society and world sports;
(2) Since the 1970s, feminist formed unique gender sports sociological research, and it also gave birth to two major schools of sports theory, Liberal Feminism and Radical Feminism. Liberal Feminism thought the root of women social problems is the lack of freedom. It had made great progress after decades of sports practice. Radical feminism considered that patriarchy is the root of women's oppression. Liberal feminism and radical feminism have their own historical significance, but they are not enough to support and guide the development of China’s national fitness sports at the moment;
(3) From the current western feminist ideological trend of the latest research results, we find ecological feminism. Ecological feminism think women are more closely contact with nature, and praise the ecological feminism led by return basis, return to nature, and return to the women authenticity. It prefers on the basis of the characteristics of the female body in sports, rather than indefinitely transgender movement and eliminate gender characteristics in sports;
(4) The fitness with ecological feminism is accord to the needs of ordinary Chinese. The basic requirement for the people to participate in sports under the traditional Chinese Confucian and Taoist thought education is harmony & unification of human and nature. Get rid of the fierce competition of competitive sports and inner binding are extremely useful for the majority of Chinese women and families. Ecological feminism sports participation concept is also accordance with the fundamental principles of the Olympism.

**Conclusions:**

In short, We believe in China's rapidly advancing the construction process of national fitness strategy should pay attention to the values of ecological feminism based on the special national conditions and people life habit., it should also highlight the harmony between human and nature in the construction of urban ecological fitness circles, and try to avoid the traditional fitness concept (competitive, power, damage) affect people's lives unduly. "
The Role of Chinese Government and Soccer Competition Sports Broadcasting

Governance and policy
Luo Peng
Chengdu Sport Institute
CN

“Background:

In the past ten years, Chinese soccer was walking on a tortuous road. Many cases like soccer club corruption or top referee and soccer association official for taking bribe happened almost every years. Before 2014, all the biggest broadcasting rights like Olympics and FIFA World Cup are only belong to CCTV 5 in China, which is the main sports broadcaster part of the China Central Television. Other TV or media group didn’t have the rights to negotiate with foreign sports league or company alone. In 2014, the Sate Council of China unveil the Fiscal Policies Supporting the Development of Sports Industry, in this policies, the Chinese government is relaxed the broadcasting rights and liberalized to encourage other media group into the sports broadcasting field. Chinese giant estate company Wanda merged with Infront Sports & Media in 2015. Wanda said it will enter Chinese sports industry and focus on promote Chinese sports competitions. Also, other Chinese commercial giants like Sina and Alibaba, both announced their plan of sports industry. Chinese sports industry seems meet its best time. Soccer is the most popular game in China and it has the biggest commercial profits, every media giants want to cut the cake from soccer broadcasting market. Chinese government need clearly its role definition at this time, to be a regulator or to be a market pusher or both. This study is try to analyze the role of the Chinese government in soccer sports broadcasting market. Policy recommendations will provide in the Conclusion.

Methods:

Respondents in the current study included 116 participants from across the U.S. (n=61) and China (n=55). Participants were invited to participate in an online survey hosted by the Communication Research Lab at Chengdu Sports Institute from January 1 to January 29. All materials and procedures received approval through the Institutional Review Board. No monetary incentives were offered for participation; however, some Department of Communication professors offered extra credits to students who took the survey. Participants were 53% male (n=62) and 47% female (n=54). Participants’ age ranged from 17 years to 42 years. The mean age is 22.1 years old.

Results:
The goal of this study was to analyze the role of Chinese government in soccer competition sports broadcasting. The analysis revealed there were significant difference between Chinese citizens and American citizens’ cognition of their government role. Although Chinese people reported lower concern of politics, they thought the government should play an important role in the soccer broadcasting regulation. In those regulations, Chinese people were more concern about the price of watching sports broadcasting on TV or new media (n=31). There were no significant difference to show the advance policy can strong impact the sports broadcasting market.

Conclusions:

Chinese government can play an important role in Chinese soccer competition sports broadcasting. The government need make some positive policy for this market. The government make any suggestion policy need analyze the market before."
The role of kinin B1 and B2 receptors in the healing process of injured skeletal muscle

Genetics and sport

"LEONARDO MARTINS SILVA, JOÃO BOSCO PESQUERO"

"UNIFESP-EPM, UNIFESP-EPM"

"BR, BR"

"Background: Muscle injury is the most frequent event among sportsmen of various modalities, reaching 55% of injury’s cases in athletes and occurs in both recreational and competitive activities. Recent studies involving athletes from professional football revealed about 4483 injuries could occur after 500,000 hours of gameplay, being 35.2% muscle injuries reaching an average of 2 injuries per season for each player. The re-injury of the hind limbs is responsible for 27% of absences competition and basically occurs by inefficient healing. The muscle tissue remodeling after injury is a very complex and dynamic process and the role of kinin receptors in this process is very little explored.

Methods: To understand the role of these receptors in the healing process, one muscle injury model was previously established in C57Bl6 mice. After injury, WT (wild-type) and knockout mice with the same genetic background (B1KO mice, B2KO mice and B1B2KO mice) were analyzed in the following times: 0, 4, 8, 15 and 30 days. (All the procedures were reviewed and approved by the Research Ethics Committee of UNIFESP-EPM).

Results: Injured B1KO mice showed a slow progress of the injury area with around 2.5 times smaller than WT injury. B1B2KO showed an injury area 3.5 and 2.8 times smaller than WT on the 4th and 8th day, respectively. About the tissue regenerative potential, B1KO showed large amount of the centrally nucleated fiber on the 8th, 15th and 30th day post-injury compared with WT (75%, 39% and 29% versus 58.7%, 9.21% and 4.5%, respectively), as well as B2KO mice on the 15th and 30th day (41.2% and 20.7% respectively). B1B2KO showed a small area of regeneration on the 4th day (2.7%), with a significant percentage on the 30th day post-injury (20%), compared with WT mice. However, all KO mice showed a significant increase in the fibrosis tissue compared with WT, especially in the B1B2KO which showed an accelerated fibrosis and collagen deposition on the 4th and 8th day. The groups showed a different inflammatory cell profile. WT mice showed an inflammatory burst in the 4th day (1068± 278.3 cell/HPF) followed by a decrease on the 8th day until 601± 164 cell/HPF. In contrast, B1KO showed an increase of 425± 233.5 (4th day) to 1015± 292.6 (8th day) cell/HPF, maintaining a small population of the 221± 128.6 cell/HPF in the 15th day post-injury. B1B2KO showed a similar
profile of inflammation compared with B1KO. B2KO showed a similar profile of inflammation compared with WT, but with an 44% and 55% increase in the 4th and 8th day, respectively.

**Conclusions:** These results show that kinin B1 and B2 receptors can regulate the healing process during the repair of injured skeletal muscle and show the potential of this molecular manipulation in clinical research studies, especially in rehabilitation treatments.”
The Role of Non-Governmental Organizations in Promoting the Development of the Sports Industry in China

Governance and policy
Peijun Wen
Peking University
CN

“Background:
With the expansion of sports marketization, the factors of production are prone to be concentrated, franchising and other elements appear, which can easily cause the occurrence of monopoly. Some people may be unable to attend some sports events, or access sports venues and sports equipment in the future. China is a socialist country. And the government is committed to promoting sports marketization as well as protect the disadvantaged groups in the market. The non-governmental organizations (NGOs) have provided a new way for the government to solve this problem of inequality in society.

Methods:
This study is based on the data from the Chinese government and in-depth interviews with 48 people who are employed in the NGOs.

Results:
1) NGOs can effectively promote the development of the sports industry in China
In 1978 for instance, China implemented the policy of Chinese economic reform. Since then, a large number of NGOs focused on sports in China, launched programs and established offices in the country. Through these NGOs and their cooperation with the Chinese government, China has since hosted a series of global events which have brought great opportunities in the development of the sports industry in China.

2) NGOs investments in the Chinese sports industry
In fact, the NGOs also promote the development of the sports industry in China. The revenue of NGOs (mostly social enterprises) will come mostly from charitable donor communities, especially from the large consortia and companies. Such and other investments have enabled the development of China’s sports sector and the social impact has been progressive.

3) NGOs can foster the consumer confidence
The NGOs can also be a channel of government propaganda as they can organize the people to participate in the physical exercise as well as discuss sports topics. Through this, the people’s need for sport can be stimulated. A sport-conscious population can create a consumer group that attracts companies to be more willing to invest in the sports market and to develop a large-scale sports industry.

4) NGOs can fill gaps in government’s decentralization agenda

As the Chinese government starts to simplify administration and transfer power, NGOs have been identified as potential placeholders to fill the void that would be created through this decentralization agenda. While NGOs can adjust the functions of government as well as build a bridge between the government and people.

Conclusions:

This paper explores the NGOs’ role in promoting the development of sports industry in China, especially how NGOs operate in a socialist country. The data and findings indicate that NGOs have (1) promoted investment in sports; (2) developed the market and potential consumers and (3) cultured the consumers’ buying habits. Moreover, it was found that (4) NGOs have the potential to be placeholders to fill the void that would be created through government’s decentralization agenda. (5) The findings further highlight that NGOs can promote the development of sports industry in China as well as protect the people who have financial difficulty in sports marketization.”
POSTER PRESENTATION

The Sports Intelligence Structure Model for Elite Female Table Tennis Players with Disabilities

Elite performance
"YUAN Feng, LIU Futao, CHEN Dezhan, SUN Zhuang"
"Shandong Normal University, Shandong Normal University, Shandong Normal University, Shandong Normal University"
"CN, CN, CN, CN"

"Research Purpose:

Sports intelligence is the major part of athletic ability. Beginning with structural recognition, comprehensive study is necessary to evaluate elite players’ sports intelligence. This study aims to build the quantitative model of the special sports intelligence structure model for the elite female table tennis players with disabilities. Research shows that results of high-level competition often depend on nuance, and sports intelligence is a major reflection. On the one hand, table tennis has the characteristics of fast and varied, which has higher requirement for players' sports intelligence. Therefore, table tennis players’ sports intelligence is important in improving the their athletic ability. On the other hand, for the same level competition of players’ with disabilities, given the similar physical capability and technical level, it is the competition of sports intelligence. This research studies special sports intelligence level of elite female table tennis players with disabilities and builds the special sports intelligence structure, which will evaluate the sports intelligence of elite female table tennis players with disabilities and provide theoretical reference for elite table tennis players’ sports intelligence talent identification and scientific trainings.

Research Method:

This paper studies the sports intelligence of 58 female table tennis players with disabilities in various levels by using Documentary analysis method, Expert intelligence method, Psychological measurement and Statistics. The goal is to build the quantitative model of the special sports intelligence structure model for the elite female table tennis players with disabilities.

Research Results:

Our model is composed of five principal factors, they are sports perception, sports thinking, sports attention and images, and sports memory. We build the discriminate function:

\[ Z = 6.482x1 - 5.518x2 + 7.349x3 + 0.502x4 - 0.027x5 - 2.433x6 - 4.80x7 + 31.879 \]

for the elite table tennis players with disabilities according to the seven indices extracted from the five principal factors.

Conclusions:
1. We establish the quantitative model of the special sports intelligence structure model for the elite female table tennis players with disabilities using factor analysis, which is composed of five principal factors, they are sports perception, sports thinking, sports attention and images, and sports memory. We choose seven indices including reaction, time-space judgment, skin threshold, operational thinking time, attention transfer ability, move presentation and spatial position memory according to their weights, which reflect the sports intelligence structure of the elite female table tennis players with disabilities.

2. According to the analysis of the special sports intelligence test of the elite female table tennis players with disabilities, we build the discriminate function: 

\[ Z = 6.482x_1 - 5.518x_2 + 7.349x_3 + 0.502x_4 - 0.027x_5 - 2.433x_6 - 4.80x_7 + 31.879 \]

for the elite table tennis players with disabilities. Through back substitution, internal validation and cross validation, we prove the good performance of the prediction of the discriminate function.
The Straightness Backstroke Kick Makes Fast Speed and Increased Lactate Acid.

“Background: This paper analyzes the effect a straight knee kick has on the production of lactate acid during elite level backstroke competitions. Using results from Lactate ProTM we find (Result) With proper technique the straight-knee butterfly kick can increase speed and proper training will be able to mitigate the excess production of lactate acid.

Methods: We collect stroke and lactate data from several elite level swimmers during practice and competition. Kick speed is analyzed by Kinovea (0.8.15, 1GHz, 256Mo) the butterfly kick s with a 1/500sec frequency and underwater high speed HD camera (Panasonic HDM:1080i 720p 480pHX-WA30). The lactate test after a 50seconds wall kick with a tempo of 1.10sec/stroke measured by a FINIS tempo machine. The subjects lactate data is generated by the Lactate ProTM LT-1710 (Arkay, 5μl, Kyoto, Japan) meter for on-farm determination of the blood lactate of teleost fishes. Blood lactate of farmed cod, caught by rod and line, was below detection limits of the meter (< 0.8 mM), and confirmed by laboratory assay as 0.459 ± 0.037 mM (mean ± SEM, n = 34).

The data for the straightness knee backstroke kick speed and the lactate test are collected during a 60second wall kick, where tempo is 1.10-1.20sec/stroke measured by the FINIS tempo machine. The one stroke velocity, distance per stroke, and max speed data is collected from two 25 meter backstroke swims after a race start. The first 15 meters were completed under water using the dolphin kick and the final 10 meters are completed at maximum effort.

Results: When measuring the effects of straight-knee butterfly kick, we find the proportion of kicks greater than 170 degrees knee-bending increase from 12.5% to 67.4% and knee angle average 151.15degree to 171.06 degree, distance per cycle (DPC) improved from 2.12±9M/C to 1.93±12M/C, in the race distance per cycle 2.04M/C to 2.17M/C, Wilcoxon/Mann-Whitney.: 4.766278, p <0.01. The elbow angles of >170 degrees elbow-bending from 25.3% to 60.3%, Wilcoxon/Mann-Whitney.: 4.776403, p <0.01, but the straightness knee backstroke kick increased lactate acid 6.1mmol/l compared to the bending knee backstroke kick 4.3mmol/l.
Conclusions: Backstroke performance seems to be associated to the straight elbow and straight knee in elite world class swimmers. Butterfly performance improved through possible reasons are less resistance equal to increase the distance per cycle in the championship meet races. The results of this paper reveal that with proper training and technique, the straight knee backstroke kick can result in much faster 100 meter backstroke times for swimmer able to mitigate the increase in lactic acid production during competition."
The Stress Resilience Mechanism and Signal Regulation of Regular Aerobic Exercise for Aging Rats in Soleus Apoptosis and Autophagy

Physical activity and health
“Liu Wenfeng, Yin Dazhong, Tang Changfa, Zhang Bingxia, Wei Xia”
“Hunan Normal University, Hunan Normal University, Hunan Normal University, Hunan Normal University, Hunan Normal University”
“CN, CN, CN, CN, CN”

“Background:
To explore the stress resilience mechanisms of skeletal muscle fibers in the rheological ageing for preventing senile muscle recession and providing the related research data.

Methods:
In this study, 6-month-old, 16-month-old and 25-month-old specific pathogen free (SPF) male Sprague-Dawley Rat (SD) rats were divided into young (Y-SED), middle-aged (M-SED) and old-aged (O-SED) sedentary control group, and the corresponding Y-EX, M-EX and O-EX in the aerobic exercise runner group. The 10-weeks of regular moderate-intensity aerobic exercise intervention was carried out in the aerobic exercise runner group. TUNEL assay and HE staining was used for observing apoptosis index. Western Blot was performed to screen and verify the related signal pathways for the autophagy and apoptosis molecular mechanisms.

Results:
1) The stereology of soleus muscle fiber bundle and density can be improved and the SOD expression level was also improved in regular aerobic exercise with aging. 2) Apoptosis was increased in all age group rats soleus, and It’s showed a increased-trend with increasing rheological properties, and apoptosis index was increased respectively by 7.55% and 20.26% (P < 0.05) and 14.52% (P < 0.05) in all age rats in regular aerobic exercise. 3) LC - III autophagy gene was reduced with the age trend in each sedentary group, but LC - III were significantly increased (P < 0.01) in regular aerobic exercise all age rats, LC - III were increased with age-trend in each age group. 4) Compared with the corresponding control groups, the expression of autophagy factor Beclin1 were significantly increased (P < 0.05) in regular aerobic exercise in all age rats, in which the Y - EX was increased the significantly most significant (P < 0.01), but the expression level of Beclin1in each age group was presented with decreasing trend. 5) Compared with Y - SED group, the expression level of PGC-1 alpha and CaMK II alpha in M - SED group were increased, but the expression level of PGC-1 alpha and alpha CaMK II in...
O - SED group was decreased more significantly (P < 0.01) than in the two groups of Y - SED and M - SED. Compared with the sedentary control group, the expression level PGC-1 alpha was increased in the group Y - EX and M - EX, but the expression level of CaMK II alpha was decreased significantly. but compared with O - SED group, the expression level of PGC-1 alpha and CaMK II alpha were considerably increased (P < 0.01, P < 0.05).

Conclusions:
1) Cell autophagy and apoptosis in the soleus were changed in regular aerobic exercise in age rats trend and the balance and stability of cell autophagy and apoptosis may influence the development of aging.2) The balance and stability of cell autophagy and apoptosis may be involved in regulating and adjusting by stimulating the expression of PGC-1 alpha and CaMK II alpha signaling pathways in the regular aerobic exercise. It is conducive to the soleus biological function and improve skeletal muscle ageing."
The Study Of The Strength Of Muscle Group Around Shoulder In Players With Subacromial Impingement Syndrome

Sport medicine and injury prevention

"Ping Luo, Hong sheng Lin"

"GuangDong Vocational Institute Of Sport The Hone Kong Polytechnic University, Special Operation Academy"

"CN, CN"

**Background:** The aim of this paper studied the strength of muscle group around shoulder in the female volleyball players with Subacromial Impingement Syndrome (FVPSIS) and the male weightlifting players with Subacromial Impingement Syndrome (MWPSIS) who were in Guangdong province.

**Methods:** A sports medicine doctor evaluated the dominant shoulder function of the female volleyball players and the male weightlifting players in Guangdong, then made a definite diagnosis that Group I were thirteen FVPSIS and Group II were eight female volleyball players with normal shoulder, and Group III were nine MWPSIS and Group IV were ten male weightlifting players with normal shoulder. A examiner measured the dominant shoulder range of motion and the strength muscle group around shoulder by a electronic tachometer and a Hoggan MicroFet 2 handheld myodynamia tester respectively. Results were compared the difference of the shoulder range of motion and the strength muscle group around shoulder between two group players separately.

**Results:** Compared with Group II, there were obviously restricted in shoulder flexion and abduction of Group I (p=0.04), declined clearly on the strength of upper trapezius (p=0.001) but rised on the strength of lower trapezius and serratus anterior muscle (p=0.04), changed no apparently on the strength of middle trapezius, fell on the strength of internal rotation and external rotation of rotator cuff at the frontal plane (p≤0.05), the same to the scapula position (p≤0.05) but rised evidently on one hundred and twenty degree external rotation (p=0.001). Compared with Group IV, there were obviously restricted in the shoulder flexion, extension and abduction of Group III (p≤0.05), particularly in the shoulder flexion very clearly (p≤0.01); declined apparently on the strength of upper trapezius (p≤0.05), the same to the strength of middle and low trapezius but not clearly, rised on the strength of serratus anterior muscle but not obviously; fell evidently on the strength of internal rotation and external rotation of rotator cuff at the frontal plane of 60 degree and 90 degree (p≤0.05), especially
at the 60 degree internal rotation and the 90 degree external rotation very apparently (p≤0.01); drop clearly on the strength of internal rotation and external rotation of rotator cuff at the scapula plane of 60 degree, 90 degree and 120 degree (p≤0.05), especially very apparently external rotation at these three kinds of degree (p≤0.01).

**Conclusions:** Compared with players with normal functional shoulder respectively, it was all decreased the strength of muscle group around shoulder in FVPSS and MWPSS, but the level of the decline and the compensation due to decline were analyzed targetedly according to different sports.
POSTER PRESENTATION

The Use of Dietary Supplements by Physical Education Professionals in Goiânia, Brazil

Sport nutrition

"Ricardo Borges Viana, Wellington Fernando da Silva, Marília dos Santos Andrade, Rodrigo Luiz Vancini, Claudio Andre Barbosa de Lira"

"Federal University of Goiás, Federal University of Goiás, Federal University of São Paulo, Federal University of Espírito Santo, Federal University of Goiás"

"BR, BR, BR, BR, BR"

“Background: The number of dietary supplement users increased significantly, which could be explained by modern life and the search for an improvement in the physical fitness. The dietary supplementation can be beneficial for a subject when is detected a deficiency of nutrients. However, the use of dietary supplements, usually is accompanied by a lack of knowledge about adequate nutrition to the type of exercise performed, on many occasions making unnecessary the use of dietary supplements. Objective: The present study aimed to identify the prevalence of dietary supplements by physical education professionals in Goiânia, Brazil.

Methods: The study included 131 volunteers, 83 men (27.7±6.0 years) and 48 women (25.9±5.1 years). All signed the consent agreement to participate in the study, followed by the completion of a questionnaire about the topic.

Results: Less than half of respondents (46%) ingested dietary supplements. Approximately 72% of dietary supplements ingested were made by men and only 28% for women. Among the dietary supplements, whey protein is highlighted (82%), followed by BCAA (57%), carbohydrates (28%), creatine (28%), and others (18%). Approximately 27% of dietary supplements users ingested two or more kind of supplements.

Conclusions: The results showed a moderate use of dietary supplements among men than women. The most ingested supplements were rich in protein and aminoacids, occurring in some cases the simultaneous association of two or more supplements. Because the consumption of dietary supplements for almost half of the participants in this study, additional research is needed to better understand the real needs of intake of dietary supplements in this population."
POSTER PRESENTATION

The Water Aerobics in Improving the Body Composition and Force in Sedentary Elderly People.

Physical activity and health

"Milton Salles Garcia, Heleno da Silva Luiz Junior, Jose Maria Ferraz Filho"

"Prefeitura Municipal de Indaiatuba, Prefeitura Municipal de Indaiatuba, Prefeitura Municipal de Indaiatuba"

"BR, BR, BR"

"Background: Sedentary lifestyle is considered just a lack of physical activity, however, it is one of the great villains of global public health, causing many diseases such as obesity, cardiorespiratory diseases, some types of cancers, diabetes, muscular atrophies among others. The obesity as a technology evil is also associated with numerous health problems such as heart attack, diabetes and cancers due to the large accumulation of fat in the arteries, especially the coronary arteries. With diseases (obesity, type 2 diabetes, high blood pressure, cholesterol) is the loss of muscle mass in three different levels: cachexia, atrophy by inactivity and sarcopenia. Muscle mass is the key to the movement, as we age, there are significant changes in both muscle mass and in our quality of life. After 50 years of age muscle mass decreases by about two percent annually and 50 to 60 years to a decline of 1.5% annual power, after 60 years this decline goes to 3% per year. The water aerobics training is used as an intervention for the prevention and treatment of muscle strength loss, since many studies claim that exercises with weight resistance improves muscle strength, muscle power and body composition in relation to reduction of fat.

Methods: The first sample, diagnostic evaluation, consisted of 325 participants of both genders, but we used for this study only 203 participants, because only these were evaluated in two moments, belonging to the water aerobics group of the leisure department, in the Secretary of Sports of Indaiatuba-SP. Participants practiced water aerobics exercises twice a week, lasting an hour each class, for a total of two hours a week. Students were told that the assessments would be conducted in two periods of the year, featuring pre moment and the evaluation of the post. The sample that participated in both assessments (pre and post) was composed of 203 participants age 70.2 ± 6.2 (years): height 156.8 ± 7.9 (cm): Body weight 69.7 ± 13, 6 (kg): body mass index BMI 28.2 ± 4.6: Flexibility of 15.5 ± 10.3 cm: TUG and 6.59 ± 6.59 seconds. The evaluations were conducted in an eight-month-time interval between the pre-activity (PREA) and practiced post-activity (POSA).

Results: The sample consisted of 203 participants of both sexes, aged 70.23 ± 6.23, height 156.86 ± 7.93, 69.73 ± presented MCT 13.66 to 69.12 ± 13, 34, BMI 28.26 ± 4.67 to 27.86 ± 4.47, 96.04 ± 10.99
CC for 93.59 ± 10.87, TUG test 6.59 ± 2.58 to 5, 38 ± 2.10 and 15.56 ± 10.36 Test Wells to 19.03 ± 9.57.

Conclusions: The variables shown in this study conclude that water aerobics, applied twice a week, for seniors, for eight months, did not positively influence in significant changes in the MCT and BMI. For DC variables, TUG and Test Wells, the changes were positive, so we can say that the activity of water aerobics proposal helps improve the waist circumference, functional mobility and flexibility of the participants. The authors suggest that further studies need to be developed, taking into account the load and control of intensity of the exercise performed in the water.”
POSTER PRESENTATION

Theoretical Models and Its Evolution of the Elite Performance Growth

Elite performance
"Haixu Hu, Zhiguang Guo"
"Nanjing University of Aeronautics and Astronautics, Beijing Sport University"
"CN, CN"

“Background:
The aim of athletic training is to improve elite performance, whose theoretical models are different in different historical periods. This study focused on the later period of the 20th century, when through two world wars, and usher in the era of “big science” of society, science and history background, to reveal and analyses the theoretical models and its evolution characteristics of the athletic performance growth from that time on, and then to clarify the scientific basis and theory evolution characteristics.

Methods:
Mainly using methods of historical research and literature to find the typical theory model. To be specific, according to the development of science background and literature References, etc.

Results:
1) the generally evolution approach of theoretical models of the athletic performance growth is as follows: the physiological model of “cycle of suercompensation”、“cycle of super adaptation”、“cycle of supercompensation and compensatory adaptation”that based on the Selye’s GAS(general adaptation syndrome) model propsed in the 1950 s ; to the computational models of CP（Critical Power）、IR（Impulse-Response）、PerPot（The Performance Potential Metamodel）that based on physiology, physics and mathematics, computer science; 2）Physiology is an important basis of athletic training; 3）Mathematical model by assuming and verification, to achieve effective expression of the complex biological system, and according to different individual parameters personalized implementation models; 4）the PerPot that integration of computer information technology can use the existing data to optimize training plans and prevent excessive training immediately, with its strong operation function to achieve a good fit between athletic training data and target results.

Conclusions:
With other law of development of science and society, and the same to Jim Gray in “the fourth paradigm of science”, data-intensive scientific theory or is also a scientific paradigm of athletic training theory and
method, and needs to be based on this paradigm, build the next theoretical model of the athletic performance growth."
Three Different Post-fight Muscular Recovery Intervention Methods in Brazilian Jiu-jitsu

Sport development
"Ludmila F. de Araújo, Thalita F. de Castro, Cecília S. Peserico, Francisco A. Manoel, Danilo F. da Silva, Victor Hugo H. M. da Cruz, Adriane E. S. Inada, Fabiana A. Machado"

"State University of Maringa, State University of Maringa, State University of Maringa, State University of Maringa, State University of Maringa, State University of Maringa, State University of Maringa"

"BR, BR, BR, BR, BR, BR, BR"

“Background: Post-Exercise Recovery Is an Important Process that Increases Functional and Structural Muscle Recovery. Several Methods Have Been Tested, Including Cryotherapy and Light-Emmiting Diodes (Led) Therapy. The Aim Of This Study Was to Analyze the Effect of Three Different Recovery Methods Post Jiu Jitsu Fight, by Examining Changes in The Variables: Heart Rate (HR), Blood Lactate Concentrations [La], Rating of Perceived Exertion (RPE) and Handgrip Strength.

Methods: This Is an Experimental Approach Applied in a Cross Over Manner. Ten Male With Less than Two Years of Experience Performed Two Rounds of Fighting During Six Minutes Each, with Intervals of 15 Minutes, in which the Recovery Intervention Method Was Applied and the Proposed Variables Were Assessed in the Following Times: [La]: Before 1st Round, Just Post-1st Round, 3, 5, And 7 Minutes Later, Post-2nd Round, 3, 5, And 7 Minutes Later; –HR: 1, 3, 6 Minutes After 1st Round, Just After Recovery Method, 1, 3, 6 Minutes After 2nd Round; Rpe: Post 1st Round And Post 2nd Round; Handgrip Strength: Before Fights And Immediately After It. Three Different Recovery Methods Were Applied in Three Different Days with Interval of Roughly One Week: Led Therapy (Two Points Of The Forearm, Biceps, Triceps – 30 Seconds Each, Equipment THOR®, São José dos Campos - Brasil); Cryotherapy (Arms Immersed in Cold Water (10-15ºC) During 10 Minutes), and Passive Recovery (Resting in Seated Position for 15 Minutes). Data Was Presented in Mean ± Standard Deviation and Analyzed Through Two-Way ANOVA for Repeated Measures. Significance Was Set at P<0.05. Data Was Qualitatively Analyzed Based on Effect Sizes (ES).

Results: There Was a Significant Time Effect on [La] (P<0.01) with No Effect of the Recovery Method (P=0.69). Baseline [La] Was Significant Lower than the Other Times of Analysis. There Was No Time or Recovery Method Effect on RPE. For HR, We Observed No Effect of Time, in which It Kept Decreasing During the Recovery Period (i.e., Times 1, 3 And 6 Minutes After Each Round). However, No Effect Was Observed for The Recovery Method. Finally, There Was No Recovery Method Effect on
Handgrip Strength (p=0.45) While a Time Effect Was Observed (p<0.01). The Qualitatively Analyses Revealed a Moderate Effect Size for Handgrip Strength After Cryotherapy (Post 1st Round: 44.8 ± 6.7 kgF Versus 48.2 ± 5.7 kgF; ES = 0.54) And LED Therapy (Post 1st Round: 45.5 ± 5.0 kgF Versus 49.0 ± 5.8 kgF; ES = 0.64) Measured Before Starting 2nd Round.

**Conclusions:** We Observed No Differences Between the Recovery Methods For [La], As Well for the HR and RPE. However, We Demonstrated a Moderate ES for the Strength After Cryotherapy and Led Therapy Compared to the Post-Round 1 Suggesting that These Recovery Methods Provide Benefits to Muscle Recovery After the Fight."
POSTER PRESENTATION

TIME INFLUENCE OF HYPERTENSION BLOOD SYSTEMIC AND TYPE II DIABETES MELLITUS IN FUNCTIONALITY AND QUALITY OF LIFE IN ELDERLY SEDENTARY.

Physical activity and health
"VANIA FERNANDA CLEMENTE AGNER, ANDRÉ ANDRIOLLI TAFFAREL, CAMILA BALDINI MOURÃO, ISABEL DA SILVA, SARA PEREIRA, MARCIA CARVALHO GARCIA, MARIA STELLA PECCIN, IMPÉRIO LOMBARDI JÚNIOR"

"Federal University of Sao Paulo, Federal University of Sao Paulo, Federal University of Sao Paulo, Municipality of Santos, Federal University of Sao Paulo, Federal University of Sao Paulo, Federal University of Sao Paulo, Federal University of Sao Paulo"

"BR, BR, BR, BR, BR, BR, BR, BR"

"Background:
Hypertension Blood Systemic (HBS) and Diabetes Mellitus type II (DM II) has a high prevalence in the elderly, who may have their Quality of Life (QoL) altered by these diseases. Furthermore, it is known that the aging process also causes loss of Muscle Strength (MS) and consequently lower mobility and difficulty in walking in the elderly. Therefore this study aimed to verify if time of diagnosis of hypertension diseases and diabetes mellitus II are associated with QoL, FM and Function Walk (FW) in sedentary elderly.

Methods:
Cross-sectional analytical study in which 40 elderly, using to evaluate MS of 1 Repetition Maximum test in fitness equipment, for muscle groups of the lower limbs: knee extension, direct flexion and left knees, groin and adductor of hip and leg press; and upper limbs: rowing sitting, reverse flying, sitting bench press, biceps curl, triceps pulley and pulled front. FW assessment by the 6-minute walk test and QoL using the SF-36 questionnaire. A descriptive and inferential analysis of the variables: time of DM II and HBS, correlated through the linear coefficient of Pearson with QoL, MS and FW.

Results:
These elderly men who have muscular strength greater than women in all muscle groups studied. Women reported having more pain than men. After association analyzes between time of HBS and DM II with QoL, according to gender, it was found that male group had worse satisfaction of QoL in the physical aspects and mental health domains associated with the increase in HBS time. The male group also showed worse satisfaction in the domains functional capacity, physical aspects, pain and general health associated with longer duration of DM II. But the female group presented worse satisfaction..."
domain pain associated with longer HBS. For the group of men, the less muscle strength in the flexor movements of the right knee adduction and abduction hips, pulled front, horizontal leg press and biceps curls, are associated with poor satisfaction in functional capacity. It was also observed that dissatisfaction with the physical aspects, for men, was associated with lower muscle strength of knee extension and reverse flying. Worst reports on health status, for men, were associated with lower values of muscle strength adduction and abduction hips, pulled front and leg. For women, limitations due to pain-associate with less force in the reverse flying. The smallest displacement in the FW, the group of men, was associated with lower muscular strength in the leg press and abduction of hips.

Conclusions:
For the elderly group of this research, in addition to the decline in MS and FW also have loss in QoL, associating the longer the chronic HBS and DM II. And that for older men, the worst quality of satisfaction was related to the decline in physical aspects and reduced functional capacity associated with longer times HBS diagnostics and DM II. Older women reported loss of QoL, pain associated with increased time HBS disease."
POSTER PRESENTATION

Time-Course Recovery after a Single Session of Resistance Training in Elderly

Physical activity and health

"Lucas Bet da Rosa Orsatto, Bruno Monteiro de Moura, Ewertton de Souza Bezerra, Silas Nery de Oliveira, Vinicius Santos da Silva, Fernando Diefenthaler"

"Federal University of Santa Catarina, Federal University of Santa Catarina, Federal University of Santa Catarina and Federal University of Amazonas, Federal University of Santa Catarina and Federal University of Amazonas, Federal University of Santa Catarina, Federal University of Santa Catarina"

"BR, BR, BR, BR, BR, BR"

"Background: Resistance training (RT) is widely used to improve elderly muscle strength. In young, RT with sets to concentric failure shows great efficiency in strength and muscle mass increase. Before investigating the effects of concentric failure method in elderly, more information about how time-course of recovery may improve training prescription quality is required. The aim of the present study was to investigate the time-course of recovery in elderly after a single session of RT with two different intensities.

Methods: Twenty-two volunteers (15 men and 7 women) were randomized in two groups: G70 (n=11, 66±5 years; 75±12 kg, and 32±7% of body fat) and G95 (n=11, 67±5 years; 74±16 kg, and 31±7% of body fat). Subjects reported to the lab on four occasions, with at least 48 hours of interval between days. In the first visit, body composition was measured using DXA. During the following three visits, subjects were familiarized, tested and retested to obtain baseline values for a five-repetition maximum (5-RM) (horizontal leg press and seated knee flexor) and isometric peak torque (PT) during knee extension (isokinetic dynamometer). Three days after the retest, subjects performed a single RT session at intensity corresponding to 70% (G70) and 95% (G95) of 5-RM. Both groups performed 3 sets to concentric failure with 2 min rest period between sets and exercises. After exercise (0 hours) and at 24, 48, and 72 hours PT was evaluated. Relative PT for each subject was expressed as a percentage of the respective baseline value for 0, 24, 48, and 72 hours. Independent sample T test was used to verify differences between groups for 5-RM and PT at baseline. All comparisons were analyzed by means of two-way ANOVA analysis of variance for repeated measures (group x time). Post-hoc was performed using Bonferroni corrected when main effects or interactions were significant, p<0.05.

Results: PT baseline values were similar between groups (p>0.05). There was interaction between group x time (p=0.014). At 0 and 72 hours, G70 and G95 did not show difference (83±6 and 86±6%, p<0.05).
p=0.282 and 103±9 and 99±9%, p=0.230, respectively). However, at 24 (100±5 and 93±5%, respectively; p=0.01) and 48 hours (103±8 and 95±5%, respectively; p=0.007) was observed difference. When compared moment within groups, PT for G70 was lower at 0 (p<0.001), 24 (p<0.001), 48 (p<0.001), and 72 hours (p<0.001) compared to baseline, whereas for G95 was lower at 0 (p<0.001), 24 (p=0.01), and 48 hours (p=0.029) compared to baseline. Moreover, PT at 0 hours was lower than 48 (p=0.042) and 72 hours (p=0.038), but no difference was observed between 72 hours and baseline (p>0.05).

**Conclusions:** RT prescription in elderly must consider different recovery period according to training intensity.
POSTER PRESENTATION

Traditional Chinese Medicine and Olympic Games
Sport medicine and injury prevention
Delei Wang
Zhejiang Pharmaceutical College
CN

“Background: TCM is honored as a national treasure of China, bearing different treatment ideas and methods from Western medicine. In today’s medical world where Western medicine takes an absolutely dominant position, TCM was once rejected and misunderstood. However, as one of fruits in five thousand years of Chinese civilization, TCM, with its unique charm, excludes seductive aroma. The Olympic Games, as a sporting event with the largest scale and highest standards in the world, provides TCM with a large international stage to show itself to common people.

Methods: (1) Literature Review Method (2) Comparative Analysis (3) Investigation

Results: TCM serves the Olympic Games, specifically through the use of unique TCM treatment principles and methods to help athletes to make good preparation before competition and relax after competition. TCM services to the Olympic Games mainly cover the following 3 aspects. Firstly, unique techniques of TCM can be used to treat sprains and other diseases. Secondly, traditional acupuncture can be applied to treat various pains. Thirdly, the body-and-mind control method of TCM can be used to help athletes to relieve their anxiety, regulate body and mind, get sound sleep and restore physical fitness. The 2016 Rio Olympic Games is approaching. TCM is expected to function in Brazil, South America where Samba Culture prevails. China wants to share TCM with other countries in this world, instead of exclusively owning it. Advantages of western medicine are obvious. Moreover, Western medicine plays a dominant role in countries around the world, including China. However, TCM also has its unique advantages over western medicine. For example, massage in TCM can activate collaterals and excite muscles to relax the local or whole body through traditional techniques. TCM is focused on meridians and acupuncture points, while western medicine places its focus on muscles and joints. Each one has its good points. Before the game, athletes do not dare to take medicine, in consideration of drug test and side effects of drugs. However, the massage is quite safe and effective in warming up before the game, relieving fatigue and treating injuries and illness. 1-hour massage can soothe the soul of athletes and help athletes to ensure the best state for competition.
Conclusions: Higher, faster and stronger Olympic Games and the restrained, subtle and low-key Chinese medicine echo with each other. In today’s world with an ever-accelerating process of globalization, Chinese and Western cultures should avoid weaknesses and give full play to their strengths, to contribute to the global sports event for a four-year term. TCM has a compelling obligation to make the Olympic Games more brilliant and ensure mental and physical health of athletes."
POSTER PRESENTATION

Training Load During a Game Tennis Of Young Athletes

Elite performance
"João Marcelo de Queiroz Miranda, Roberta L. Rica, Márcio Roberto Doro, Gerson dos Santos Leite, Danilo Sales Bocalini, Aylton José Figueira Júnior"
"São Judas Tadeu University, São Judas Tadeu University, São Judas Tadeu University, Nove de Julho University, São Judas Tadeu University, São Judas Tadeu University"
"BR, BR, BR, BR, BR, BR"

“Background: Tennis requires great variety of movements during a match that can extend for a few hours. However, the length of matches may depend on the utilized floor, the training level or characteristics of athletes. Objective: To characterize the internal and external training load during a field tennis match in adolescent athletes.

Methods: Ten tennis players (15.5 ± 0.4 years old, 1.70 ± 0.02 meters, 61.9 ± 2.21 kg) unranked in the São Paulo State Federation participated in the study. It was simulated a field tennis game for 90 minutes. The internal load was determined from the heart rate (HR), blood lactate (BL) and rating of perceived exertion (RPE), analyzed at rest (10 minutes), during the simulation of a match (every 30 minutes) and assists recovery (10 minutes). The external load was determined by the duration of the rally, quantity balls for points and length of intervals between points, measured from the video analysis every 30 minutes. The data are described as mean and standard error. Analysis of variance (one way ANOVA) with Bonferroni correction was used to determine the degree of variation of internal and external load at different times of collections of data.

Results: HR and RPE showed similar behavior, increasing and stabilizing their values during the game and significantly reducing the recovery. The lactate did not change significantly in any of the analyzes. The duration of the rally showed no significant differences during match (0-30 min = 6.2 ± 0, 4s); (30 to 60 min = 6.6 ± 0.3 s); (60 to 90 min = 6.0 ± 0.3 s). The quantity of balls during the points showed no significant differences during the match (0-30 min = 4.0 ± 0.2); (30 to 60 min = 4.4 ± 0.2); (60 to 90 min = 4.0 ± 0.2). The rest between the points did not differ during the game (0-30 min = 17.8 ± 0.8); (30 to 60 = 17.9 ± 0.6 min); (60 to 90 = 18.1 ± 0.7 min).

Conclusions: The characterization of the requirement imposed on athletes from internal and external loads, during the 90-minute simulated game, allows us to understand the intermittent feature of the field of tennis, leading to young athletes one effort-pause ratio of approximately 1:3 seconds respectively, and small variations in physiological parameters during the match."
POSTER PRESENTATION

Training load, salivary immunoglobulin A and illness incidence in elite paratriathletes: a longitudinal study

Elite performance

"Ben Thomas Stephenson, Eleanor Hynes, Christof Leicht, Victoria L Goosey-Tolfrey"
"Loughborough University, University of Kent, Loughborough University, Loughborough University"
"GB, GB, GB, GB"

“Background:
Associations between training load and salivary secretory immunoglobulin A (sIgA) and upper respiratory symptoms (URS) have been demonstrated in a range of sports. High training loads are generally related to lower sIgA concentration and secretion rate, consequently increasing the likelihood of URS. To date these relationships have not been investigated in paratriathlon, a variant of triathlon modified for individuals with physical impairments. The aim of this study was to monitor paratriathletes’ training load and sIgA measures and investigate their effects on URS risk.

Methods:
Weekly saliva samples were collected from ten elite paratriathletes over 23 consecutive weeks for measurement of sIgA. Occurrences of self-reported URS and training load were also recorded on a weekly basis. Salivary measures were subsequently compared to URS and athletes’ individual weekly training load.

Results:
No significant relationship existed between athletes’ training load and sIgA concentration or secretion rate (P ≥ 0.625). In 65% of URS cases athletes reported their training to be affected. There was no correlation between sIgA measures and URS incidence, and no differences in IgA measures between weeks preceding URS and weeks preceding no URS (P ≥ 0.510).

Conclusions:
In contrast to existing literature outlining a relationship between depressions in sIgA and high training loads no relationships were found in the current study, and sIgA levels could not predict URS incidence. As such it is not possible to identify paratriathletes at risk of URS based on their training load or sIgA."
POSTER PRESENTATION

Translation, Cross-cultural Adaptation and Measurement Properties of the Brazilian Portuguese Version of the Identification of Functional Ankle Instability Questionnaire (IdFAI)

Sport medicine and injury prevention


“Federal University of Sao Paulo, Federal University of Sao Paulo, Centro Universitário das Faculdades Metropolitanas Unidas, Federal University of Sao Paulo, Federal University of Sao Paulo, Federal University of Sao Paulo, Indiana University, Federal University of Sao Paulo”

“BR, BR, BR, BR, BR, BR, BR, BR, US, BR”

“Background:
Ankle sprains are among the most frequent musculoskeletal injuries in daily life and sports. The recurrence index may reach up to 80% in athletes, due to residual symptoms that characterize a chronic ankle sprain. The IdFAI(1) has been developed because up to now there was no reference measure or universally accepted definition of functional ankle instability. It has been the only questionnaire able to determine the presence of functional ankle instability and is a valid instrument, reliable and developed in English. The aim of the study was translate and culturally adapt IdFAI questionnaire to Brazilian Portuguese language; even analyze the validity, reliability and responsiveness.

Methods:
Translation and cultural adaptation of IdFAI to Brazilian-Portuguese version process, was accomplished using standard guidelines and was applied in 50 university students. The reliability and validation of IdFAI was tested in 100 lower limbs. The reliability was tested thru the reproducibility evaluation (test-retest inter and intra-observer), internal consistency, standard error of measurement and minimal detectable change. The validation was made using the Portuguese version of Visual Analogic Scale to instability (VAS-I), Cumberland Ankle Instability Tool Questionnaire (CAIT) and Lower Extremity Functional Scale (LEFS). Correlation among IdFAI and VAS-I, CAIT and LEFS was analysed by Spearman’s Correlation Coefficient. For responsiveness measurement, 12 assessments were used before and after an eight week treatment period in 25 patients with functional ankle instability. Responsiveness was tested with the effect size and effects of “floor and ceiling”.

Results:
The Brazilian Portuguese IdFAI version showed high internal consistency (Cronbach α = 0.90), excellent reproducibility (intraclass correlation coefficient = 0.98 for inter and 0.96 for intra-observer); and excellent agreement (standard error of measurement, 0.94 and 1.46 points for inter and intra-observer; minimal detectable change at the 90% confidence level, 2.20 points for inter and 3.40 for intra-observer). IdFAI-Brasil version showed a strong correlation (r= 0.74 and -0.78; p< 0.001) with specific tools that measure ankle instability VAS-I and CAIT, and poor correlation (r=-0.21; p=0.03) with LEFS scale. There was high responsiveness, with an effect size of 1.34 for patients receiving physical therapy intervention, and no floor or ceiling effects were detected for the IdFAI Brazil.

Conclusions:
The Brazilian version of the IdFAI questionnaire has shown to be a valid, reliable and responsive tool to evaluate ankle functional instability and it may be used in clinical and scientific fields.

References

Acknowledgements
The authors thank the Coordination of Improvement of Higher Level Staff (CAPES), for the financial support that enabled the development of this study.
POSTER PRESENTATION

Traveled Distance and their Influence on Final Classification on the First Division in the Brazilian Soccer Championship

Elite performance

"Guilherme Manzano Barbosa, Hanna Karen Moreira Antunes, Ronaldo Vagner Tomatieli dos Santos, Jorge Fernando Tavares de Souza"

"Universidade Federal de São Paulo, Universidade Federal de São Paulo, Universidade Federal de São Paulo, Universidade Federal de São Paulo"

"BR, BR, BR, BR"

“Background: This study examined the distance that the clubs of the first division in the Brazilian Soccer Championship traveled on 2009-2014 editions and aimed to correlate the total distance traveled successfully in the competition through its final ranking on the championship.

Methods: The distances were calculated taking as reference the host city of the analyzed club and the place where it held the matches. It was considered the straight-line distance between two cities and the value found was duplicated in order to represent the outward and return of the journey performed. The statistical analysis was made by STATISTICA® 12.0 software (StatSoft, Inc., Tulsa, OK, USA). The Kolmogorov-Smirnov test was used to test the normality distribution of data. To compare the average distance of the top four and the last four, it was used the test t of Student, and to verify the correlation between points earned by the twenty teams and the distance traveled by them, it was used the Spearman's correlation.

Results: There is a negative correlation found between the traveled distance and the points obtained in the end of the championship, once the four worst placed teams, on average, significantly traveled more distance than the average distance traveled by the four finishers. Moreover, it can be noted that there is a greater concentration of teams located in the South and Southeast of the country, supposing this concentration is due to the fact that these clubs have their headquarters in greater financial power regions compared to the rest of the country. However, the success in soccer does not depend only on the amount of travel or the team’s economic power, even both are relevant, but to many correlated factors. This leads us to believe that greater distances have major impacts in lower economic power clubs.

Conclusions: It can be concluded that future researches are required to elucidate the relationship between travel and performance, since, in our study, parallel competitions trips have been discarded, as well as the logistics of travel adopted by the clubs."
POSTER PRESENTATION

Understanding Motivations Associated with Spectator Attendance of Professional Sports: Implications for the CTTSL

Sport sociology

“Mandy Yi Zhang, Kevin K. Byon, James J. Zhang”

“Shanghai University, Indiana University, University of Georgia”

“CN, US, US”

“Background: To a great extent, advancement of professional sports helps promote Olympic sports, particularly in the areas of elevating high-level sport performance and improving spectator interests. The Chinese Table Tennis Super League (CTTSL) was formed in 1999. Despite being the top level table tennis competition in China, even in the world, its management and marketing are lagged behind. A majority of CTTSL teams are facing challenges in attracting consumers, finding sponsorships, obtaining broadcasting rights, and earning a profit. By conducting a comprehensive review of literature as the focal research protocol, the purpose of this study was to illustrate the importance and relevance of studying fan loyalty and motivations (i.e., push and pull factors) associated with consuming professional sports, and extrapolating implications for enhancing the management and marketing of CTTSL. Because there is a general lack of studies into the table tennis marketplace in China, in particular the CTTSL setting, it appears necessary to review related theories and research findings generated in Western countries. Learning from the empirical evidence derived in Western settings is of a strong intention to shed light on improving CTTSL operations.

Method: Following the procedures suggested by Thomas, Nelson, and Silverman (2014), a comprehensive review of literature was conducted in this study. Through utilizing various electronic search engines such as the Sport Discus and Google Scholar, a total of 168 research journal articles or scholarly books on the theories and research findings of fan loyalty and motivations associated with consumption of professional sports were identified, categorized, synthesized, and interpreted.

Results: Fan loyalty encompasses both attitudinal loyalty and behavioral loyalty. Attitudinal loyalty as an emotional attachment toward a sport event could lead to increased behavioral loyalty or its consumption. A loyal fan exhibits strong psychological attachment to his/her identified team, along with behavioral supports. Social motivations are push factors that work as internal motives for spectators to attend sport events. There are five categories of push factors affecting sport game attendance, including salubrious effect, stress and stimulation, catharsis and aggression, entertainment, and achievement seeking. On the other hand, pull variables, such as game attractiveness and event
operations, are functional product features offered by sport organizations to attract consumers to the
game events, which are comparatively more tangible, more directly associated with the core product
operations, and more interpretable for management implications.

**Conclusion:** The synthesized information derived in the current study can be very useful for CTSSL;
nevertheless, future studies are needed to specifically address issues in CTSSL and accordingly
develop effective management and marketing strategies.”
University Students were Agreeable to Adapted Sports Learning at University General Education Curricular

Sport pedagogy
Satoru Okagawa
Nihon Fukushi University
JP

“Background:
This study was designed to investigate whether or not adapted sports education should be adequate for one of the education programs of the university general education curricula.

Methods:
Physical education class (PE) at Faculty of Health Sciences of NF University was mainly opened for freshman, and its main theme was “getting attitudes to enjoy sports all through the life” including cooperative learning between students without impairments and students with impairments. All the students took two sports classes, i.e., one was adapted sports class and the other was one of ordinary sports classes. As for ordinary sports classes, students could select their favorite class among volleyball, tennis, futsal, table tennis, basketball, or marine sports. Adapted sports class consisted of two parts, i.e., lecture and physical exercise, and the educational contents were based on the curriculum for the certification of the initial rank of instructor of adapted sports. This certification was established and run by the Ministry of Health, Labour and Welfare of Japan. There were several ranks for the instructor, i.e., initial instructor, intermediate instructor, advanced instructor, adapted sports coach, adapted sports doctor, and adapted sports trainer. Our faculty was authorized to certify initial and intermediate instructor, and after students got credit of adapted sports class, they could get certificate of initial instructor. From 2013 to 2015, five hundred and forty one students including 12 students with impairments (5 wheelchair users, 3 hearing impairments, and 4 physically handicapped) took those classes. Free comments about learning adapted sports were collected at the last time of adapted sports class. Text analysis was performed concerning those free comments and principal component analysis was performed using extracted categories.

Results:
Classes selected by students were as follows; volleyball (110), tennis (87), futsal (77), table tennis (97), basketball (92), aerobic dance (40) and marine sports (38)(number of students in the parenthesis). Among them, three hundred and ninety nine students wrote free comments concerning adapted sports
learning. Based on the text analysis, 8 categories were extracted, i.e., Good experiences (30.0%), Adapted sports (23.1%), Impairments (21.3%), Life long Sports (20.6%), Learning (12.8%), Understanding (9.0%), Good chance (5.6%) and Career (5.2%). Based on principal component analysis 2 factors explained 34.8% of the total variance. From 2013, we started new learning system in PE, i.e., all the students should learn adapted sports. This was because experiences about adapted sports would promote to make the eye of students open toward persons with impairments. Based on the text analysis, many students seemed to be very agreeable to learning adapted sports at university.

Conclusions:
Adapted sports education seemed to be very adequate as one of the educational program of university general education curricular."
Upper limbs functional assessment in Goalball Female Brazilian National Team

"Fabio Luis Feitosa Fonseca, Ana Beatriz de Almeida Freitas, João Paulo Marques Nogueira, Júlia Ribeiro Lemos, Luiza Ferreira Moreira"


"BR, BR, BR, BR, BR"

**Background:** Sports practice in high performance exposes athletes to higher risk of sports injuries. Changes in pattern of movement during training and competitions can also promote the appearance of these injuries. During the last Paralympic Summer Games, in 2012, goalball was the sixth modality that had the highest quantitative of injuries. The presence of injuries can lead to withdrawals of training and competitions, which results in prejudices of individual or collective performance, as well as financial losses. The objectives of this study were to verify the prevalence of sports injuries, in addition to evaluate functional performance of upper limbs from goalball athletes from Brazilian National Team.

**Methods:** A cross-sectional study was conducted, and individual functional assessments were performed with 11 athletes of Goalball Female Brazilian National Team at pre-season period. Validate questionnaire was used to estimate the prevalence of injuries in the last 12 months, and it was also performed the functional assessment of upper limbs through Upper Quarter Y-Balance Test (UQYBT) and Closed Kinetic Chain Upper Extremity Stability Test (CKCUEST). In UQYBT the athlete had to achieve the three largest distances (medial, superolateral and inferolateral) using one upper limb, while the other attempted to stabilize the movement. For the composite score, the sum of averages of the results reach were divided by the triple of the upper limb length and multiplied by 100. In CKCUEST, athletes started the test from the push up position with a distance of 60 cm between hands. For 15 seconds it was registered how many times the subject reached the opposite hand. Data were plotted and analyzed by comparison to normative data already standardized.

**Results:** The average age of the sample was 26.3 (SD=6.9; min=16 and max=39) years and all of the athletes have been training in high performance in the last six years. Regarding the prevalence of injuries, results showed that 8 (72%) athletes reported some kind of injury in the last 12 months. When performing CKCUEST analysis, the average found was 28.5 touches (SD=3.4; min=23 and max=34).
These values are above the reference values (22.9) and it indicates low injury risk (values below 21 indicate injury risk). However, UBYBT’s results showed that 10 athletes (91%) had values below normality for the dominant limb, indicating less neuromuscular control for task performance. This findings may expose athletes to higher risk of sports injuries, and it can decrease performance in training and competitions.

**Conclusions:** There is a lack of scientific papers showing reference values for paralympic athletes in many different functional tests. Data presented that athletes with some kind of visual impairment have neuromuscular prejudices to execute functional tests, like CKCUEST and UQYBT. Due to this, these athletes become more exposed to risk of some type of upper limbs injuries. It’s believed that individualized preventive programs might be important to reduce risks and to lead athletes to their better performance.
POSTER PRESENTATION

Urine Density and Potential of Hydrogen of Urine in Basketball Male Players During the Simulated Match

Sport medicine and injury prevention

“Luciane Aparecida Moscaleski, Simone Inácio de Lima, Rafael Mattias Pitta, Aytton José Figueira Junior, Maria Regina Ferreira Brandão, Danilo Sales Bocalini, Marcelo Callegari Zanetti, Henrique Rodrigues Nunes, Carla Giuliano Pinto Montenegro, Yago de Moura Carneiro, Fábio de Rocha Lima, Luis Felipe Tubagi Polito”

“Municipal de São Caetano do Sul University, Municipal de São Caetano do Sul University, São Judas Tadeu University, São Judas Tadeu University, São Judas Tadeu University, São Judas Tadeu University, São Judas Tadeu University, São Judas Tadeu University, São Judas Tadeu University, São Judas Tadeu University, Metodista de São Paulo University, Cidade de São Paulo University, São Judas Tadeu University”

“BR, BR, BR, BR, BR, BR, BR, BR, BR, BR, BR, BR”

“Background: The physical fitness and biochemical profile in adult basketball players are rare in the literature, and these knowledges are very important to correct prescription and training load control in sport. Thus, the purpose of this study was to determine the influence of basketball simulated match in urine density and urine hydrogen potential (pH). Methods: It was evaluate ten male and eight female basketball professional players (weight average 86, 52 ± 19, 96 Kg) with the use of Combur Test® strips in the pre and post training session. During the match the athletes could drink water at ad libitum and the water bottle was placed in side of playing court. The results were analyzed using descriptive statistics, Shapiro-Wilk for Normality Test and Test T Student for Parametric variables and Wilcoxon Test for Non Parametric variables, adopting significance level of p < 0.05. We used The GraphPad Prism Software for Mac. Results: We observed statistical difference between the initial weight 86, 52 ± 20, 33 Kg and the end weight 86, 07 ± 19, 97 Kg with small value of percentage delta (0, 52%), and this weight reduction can be occurred by sweating induced by thermoregulation process. Similar behavior to body weight, we found statistical difference between urine pH pre (6, 05 ± 0, 80) and urine pH post training (5, 30 ± 1, 42), a value of percentage delta of 12, 40%, but was not found statistical differences between urine density pre (1, 02 ± 8, 90) and urine density (1, 02 ± 6, 81) post training. Conclusions: the training load and the ad libitum water intake were not sufficient to maintain the urine pH and the weight in professional basketball players during simulated game match, but in the same time the workout load was not sufficient to alter the urine density in athletes.”
Using Practical Jumping Tests to Evaluate Muscle Power in Brazilian Paralympic Judo Athletes

Elite performance

"Ronaldo Kobal, Katia Kitamura, Cesar Cavinato Cal Abad, Lucas Pereira, Fabio Yuzo Nakamura, Irineu Loturco"


"BR, BR, BR, BR, BR, BR"

**Background:** Some studies have already reported strong relationships between muscle power performance and specific combat-sport skills, especially in Olympic and Paralympic judo. However, the proper evaluation of the muscle power normally depends on very-expensive equipment, such as force platforms and/or linear position transducers. On the other hand, the non-expensive and practical vertical jump (VJ) test might be considered as a valid and reliable method for assessing lower limb explosiveness in top-level athletes. In addition, due to its user-friendly characteristics, even athletes with visual impairments (who regularly need assistance to perform some specific motor tasks) may easily execute the VJs, which facilitate their implementation in Paralympic assessment routines. Thus, the aim of this study was to investigate the correlations between muscle power and vertical jumping performance in Brazilian Paralympic Judo athletes.

**Methods:** Twelve Paralympic judo athletes with visual impairments, 6 women and 6 men (68.8 ± 14.7 kg; 166.5 ± 9.5 cm; 28.3 ± 8.3 years) were assessed in squat jump (SJ), countermovement jump (CMJ), and mean propulsive power (MPP) in jump squat exercise. A Pearson correlation analysis was used to determine the relationships between VJ tests and MPP.

**Results:** The correlations between jump tests and MPP were 0.78 (CMJ and MPP) and 0.76 (SJ and MPP).

**Conclusions:** The overall Conclusion of this investigation is that there is a strong relationship between VJ performance and MPP. As a consequence, Paralympic coaches can use the VJ tests to properly assess lower limb muscle power in their “judokas” with visual impairment."
POSTER PRESENTATION

Validity of Wheelchair Fencing Performance Test in spinal cord injured athletes: preliminary results

Elite performance

"Gabriela Fischer, Ricardo Gass, Pedro Figueiredo, Eduardo Nunes, Leonardo Alexandre Peyré Tartaruga"

"Federal University of Rio Grande do Sul, Federal University of Rio Grande do Sul, University of Maryland, College Park, Grêmio Náutico União, Federal University of Rio Grande do Sul"

"BR, BR, US, BR, BR"

“Background: Wheelchair Fencing (WF) is a Paralympic sport in which athletes with amputations, spinal cord injuries and cerebral palsy are eligible to compete in foil epee (men and women) and saber (men) events. Their wheelchairs are fastened to the floor during competition. Studies have suggested that physical demand in WF is moderate and that both oxidative and glycolytic pathways are moderately recruited. Currently, there is minimal research that evaluated physiological responses during field tests in WF athletes. Field evaluation is useful due to its high specificity, cost-effective and simplicity. Furthermore, the results of such testing could be more relevant for feedback or to plan training strategies. Therefore, the aim of this study was to develop a WF performance test and to assess its validity against a laboratory arm crank ergometer test.

Methods: Five WF athletes with spinal cord injury (T1-L1; 3 men, 2 women, 3 in class A and 2 in class B; 33±7 years old, 71±10 kg of body mass, 171±7 cm of height, 18±2 h/week of training, 6±3 years of WF experience) participated in this study. Each athlete completed an incremental arm cranking test (arm ergometer MONARK 881E) to determine the peak cardiorespiratory responses (Vmax Metabolic Cart). Protocol consisted of 2 min of baseline phase, 3 min of warm-up phase (free wheel), followed by a ramp exercise phase with increments of 10-15 W every minute. One week later, each athlete performed a WF performance test, which consisted in a fighting sequence with foil against the trainer until exhaustion. Duration, peak heart rate (POLAR RS800), and peak lactate concentration (ACCUTREND) were obtained. Rate of perceived exertion using the adapted Borg Category Ratio CR-10 was determined after both laboratory and field tests. Descriptive statistics were calculated for each variable. Pearson correlation was used to verify the relationship between laboratory and field test measures. The results were considered to be significant at the 0.05 level of confidence. All statistical analyses were computed using the SPSS v.20.
Results: Peak physiological responses during incremental arm cranking test were 1.41±0.36 L/min and 19.95±3.89 ml/kg/min of oxygen consumption (VO2peak), 160±27 bpm of heart rate (HRpeak), 59±15 L/min of ventilation, 1.19±0.05 of RER, 498±143 s of duration (Tlim), Borg arm (6±1.1), and Borg dyspnea (4±2.3). Peak responses during WF performance test were 162±23 bpm, 8±2 mmol/L, 72±18 s of duration, Borg arm (6±2), and Borg dyspnea (6±2). HRpeak achieved during WF performance test was 97±6% of HRpeak achieved during arm cranking test. Strong correlation coefficients were observed between duration of WF performance test and Tlim (R=0.92 p=0.03) and VO2peak (R=0.86 p=0.058).

Conclusions: These initial results indicated that WF performance test seems to be a valid field test to assess aerobic capacity in WF athletes. Further analyses with increased sample size are necessary for an accurate test validation."
POSTER PRESENTATION

Video game: an effective propose to increments functional fitness at institutionalized obese older people

Physical activity and health

"Ariana Aline da Silva, Iago Gomes da Silva, Angélica Castilho Alonso, Mauro Sérgio Perilhão, Lilian Luiz da Silva Alves, Roberta Lukseviciu Rica, Aylton Figueira Junior, Maria Luiz de Jesus Miranda, Danilo Sales Bocalini"

"São Judas Tadeu University, São Judas Tadeu University, São Judas Tadeu University, São Judas Tadeu University, São Judas Tadeu University, São Judas Tadeu University, São Judas Tadeu University, São Judas Tadeu University, São Judas Tadeu University"

"BR, BR, BR, BR, BR, BR, BR, BR, BR"

"Background: Inactivity life style is the most important risk factor to chronic diseases and a progressive disability to maintain the activities of daily living especially on institutionalized obese older people. Thus, the physical activity is critical point to enhancement physical autonomy, however, the effects of video game-based exercise still unclear. Thus, the aim of this study was evaluated the effect of three months of video game-based exercise on institutionalized obese older people.

Methods: 50 institutionalized older women were distributed in two groups: control (C, n: 25), video game based exercise (VGE, n: 25). All participants played the Kinect (X-box) games for three times to 60-minute sessions per week for twelve week at 75% of maximum heart rate. The following parameters were evaluated: body composition, the functional capacity by chair stand (CS), arm flexion (AF), up-and-go (UG), balance (B), time to walk 800 meters (TW), flexibility (F) and self-reported quality of life of quality of life and depression status. The difference between parameters were analyzed by ANOVA (one-way), followed by Tukey test with significance by p <0.05.

Results: o differences were found on body composition. All parameters of functional fitness improve (p<0.01) just on VGE (AF: 19 ± 4; CS: 21±4%; UG: -67% ± 2; F: 19 ± 2%; B: 24 ± 3; TW: -55 ± 2%). No difference were found to C group. All domains, including physical (C: 2 ± 12 vs. VG: 18 ± 7% improvement), psychological (C: 1 ± 91 vs. VG: 19 ± 10 % improvement), social (C: 1 ± 11 vs. VG: 18 ± 10 % improvement) and environmental (C: 6 ± 10 vs. VG: 16 ± 6 % improvement), were significantly improved in the VG group (p < 0.001) in comparison to the C group. The video game program resulted in significant reduction of depression score for VG (before: 17 ± 3; after: 11 ± 2) group. No difference were found at C (before: 17 ± 3; after: 18 ± 3).
Conclusions: our data suggest that the video game based exercise practice is favorable to promote improvements on functional fitness, quality of life and depression status parameters in institutionalized obese older people. Moreover, no influence of exercise program were observed to body composition."
Visual Information in Fencing

"Augusto Siqueira Neto, Ana Paula Xavier, Carla Patricia Guimarães, Sonia Cavalcanti Correa "
"Universidade Presbiteriana Mackenzie, Universidade Presbiteriana Mackenzie, Instituto Nacional de Tecnologia, Instituto Nacional de Tecnologia "
"BR, BR, BR, BR"

"Background:

Fencing is an activity that requires fast reactions, which are planned based on spatial and temporal analysis of the weapon and the opponent. Thus offensive and counter-offensive actions require high visual attention. The fencer defensive and offensive performance may be improved by identifying which visual information are more relevant to predict the weapon and opponent movement. We aimed at identifying the most frequent body locations at which high-level fencing athletes concentrated during their practice.

Methods:

In a preliminary study, we evaluated three high-level epee fencing athletes (S1, S2, S3) of both genders during their training practices. All the subjects agreed to participate in this study, which was approved by an Ethics Committee. The athletes performed their training section using an eye tracking (Tobii Glasses 2) under their protective masks. This device used had 4 cameras to monitor the retinas movements and one camera that registered the images viewed by the subject. Data was analyzed with Tobii Glasses Analyzer (Version 1.16). Three main areas of interest (AoI) were identified in the subjects’ view videos, they were: the opponent armed arm (arm), trunk (trunk) and face (mask). The frequency the subjects focused on the AoI (FAoI) were calculated.

Results:

S1 focused greatly on the mask (66 times versus, 22 for the trunk and 20 for the arm), while S2 and S3 focused greatly on the arm (S2: 28 times for the arm, versus 14 for the mask and 24 for the trunk; S3: 22 times for the arm, versus 0 for the mask and 21 for the trunk)

Conclusions:

These preliminary study showed the influence of different coaches instructions on the strategies used by the athletes during their training practices. Eye tracking seems to be a useful and viable tool to be used to improve fencing training. The next analysis will correlate visual information with success of performance."
POSTER PRESENTATION

VO2 MAXIMUM VALUES IN EDUCATION CLASSES OF PHYSICAL EDUCATION AND FUNDAMENTAL II EAST: A CASE STUDY ABOUT THE SUITABILITY OF PUPILS CARDIORESPIRATORY

Sport and quality of life for adolescence and aging
FÁBIO PERON CARBALLO
Universidade do Estado de Minas Gerais
BR

“Background:
Cardiorespiratory fitness is one of the main elements of physical fitness and health. The VO2 max can be understood as the capacity of the body to capture the atmosphere of oxygen, transport it into the bloodstream with the help of hemoglobin and use it by cells through cellular respiration. The aim of this study was to determine the cardiovascular functional capacity of elementary school students II and East of the state schools in Carmo do Cajuru - MG. Treated an epidemiological study, cross-sectional.

Methods:
The sampling process was stratified by age (from 13 to 18 years), sex (male and female) and students with low or high physical readiness, with the participation of 154, 70 boys and 84 girls, schools two schools of City. All guardians signed informed consent. The study was approved by the Ethics Committee of FUNEDI / UEMG. In data collection, all students completed a based anamnesis in Readiness Questionnaire for Physical Activity (PAR-Q) with 7 closed questions, then underwent completion of the Cooper test in which students come to school court, previously marked, as far as possible in 12 minutes during physical education classes. In the statistical analysis, means and standard deviations were used, variância two-way analysis with post-hoc Tukey and chi-square test (p<0.05)

Results:
The results showed that the cardiorespiratory fitness of the boys is from 6 to 10 % higher than the girls, varying according to age. Regarding the age of the children, students 13 years were those with the worst results compared to the other ages (X = 17.05) and 14 years were the ones who had higher mean (X = 24.98). The average of students aged 15 and 18 approached (x = 24.31, 23.03 x = x = 23.34 and x = 23.84). Regarding the girls, the students of 17 and 18 showed the worst results compared to the other ages (x = 9.7 and x = 6.5), since the 14 years were those that had higher mean (x = 23, 4). The average among students aged 14 and 15 approached (x = 23.4 and x = 22.1). However, it was possible
to notice a significant difference between the ages of 16 (\( x = 18.8 \)) and 17 (\( x = 9.7 \)). Another important finding was that 28% of boys and 46% of the participating girls showed cardiorespiratory fitness below recommended criteria for health, 28% and 46%, respectively. In relation to the classification criteria related to readiness for physical activity, it was observed that 36% of boys and 38% of girls did not meet the recommended criteria.

**Conclusions:**

Considering the results obtained by the Cooper tests and applied questionnaire in schools, there is the importance and the urgency to create action plans to stimulate the practice of physical activity and health care for children and adolescents in the city."
POSTER PRESENTATION

WALKS IN HYPERTENSION OF FIGHTING SYSTEMIC

Sport and quality of life for adolescence and aging

zilma nunes ferreira
HCFMUSP
BR

"WALKS IN HYPERTENSION OF FIGHTING SYSTEMIC"

Data from the World Health Organization (WHO) indicate that chronic non-communicable diseases now account for 58.5% of all deaths worldwide and 45.9% of the global burden of disease and is a serious public health problem both in rich countries as in middle and low income, exacerbating inequalities and increasing their poverty. According to the Health Profile of Staff of a separate hospital in São Paulo, published in 2010, where 70% of its employees are sedentary, there is a need for programs for prevention and promotion of health of caregivers.

Objective

Encourage the practice of healthy habits, noting that with small changes we can keep away from possible health complications. With only 30 minutes walking, three times a week in the complex or on the way home, we can improve the health of employees.

Methodology

This group was led by professional physical education and medical care, where employees perform hike since October 2010, at a frequency of three times a week, lasting at least 30 minutes.

Composed of employees of the Hospital das Clinicas Faculty of Medicine, University of São Paulo - HCFMUSP initially conducted with 18 employees, today there are 21 participants (with the constant recruitment of new employees).

Are all female, age 27-67 years, which 45% (N = 12) are hypertensive, 15% (N = 4) diabetic, 11% (N = 1) high cholesterol, 7% (N = 2) depression and 22% (N = 6) without chronic diseases.

Some of the participants have more than one non-communicable chronic disease (diabetes and are hypertensive). They came to the project for medical recommendations and others for being overweight, aiming at reducing them and thus away from problems already known that physical inactivity and overweight may bring.

For three consecutive months was measured systolic blood pressure at the beginning and end of each walking session.

Conclusion
It was proven that the practice of physical activity, even a few times a week at moderate intensity is shown to be beneficial to their fans.

The idea is to expand this project, extend this population of 14 thousand employees, meet a larger group, mobilize the mass, causing physical activity is incorporated into the daily routine of these employees, thus improving those of quality of life takes care of health of others.
POSTER PRESENTATION

Water Aerobics Contribution on Combating Chronic Back Pain

Physical activity and health
"Carla Mariza de Lima Krieger, Jorge Luiz de Souza, Marco Carlos Uchida"
"UNICAMP/UFRGS, UFRGS, UNICAMP"
"BR, BR, BR"

Background:
Nowadays, there is concern on the behalf of health scholars so as to fight degenerative problems of the spinal column which are responsible for the back pain. They originated from incorrectly performed movements, impacts over the joints and muscular imbalance; they can, however, be improved and even prevented through the practice of exercises which are, among others, hidrogymnastics. The purpose of this study was to verify the effect of hidrogymnastics over the back pain in seven regions of the body (cervical, dorsal, low back and radiated pain in shoulders, arms, gluteus and legs) associated to muscular pain.

Methods:
The sample was constituted by women hospital’s employees suffering from chronic back pain. 12 women (41.8 ± 9.7) were submitted to a hidrogymnastics program. Each session of this program included aerobics exercises (between 60% and 80% of maximum heart rate), of muscular resistance to upper and lower limbs, of stretching and of relaxation, developed for a period of twelve weeks of treatment, with two weekly sessions, of 45 minutes each. The group control had 20 women (38.6 ± 6.5).

The effect of the program was analyzed, through the use of a questionnaire to evaluate the intensity and the frequency of the back pain. The data were statistically analyzed by Kruskal-Wallis test.

Results:
The results obtained shows that there were a statistically significant differences in the intensity and frequency of the back pain, respectively in the cervical area (p=0.01), shoulders (p=0.00) and shoulders and arms (p=0.00), as well as in the shoulders area (p=0.01), shoulders and arms (p=0.00) and dorsal area (p=0.03). Moreover, the intensity of pain was reduced in these areas: cervical (50%), shoulders and arms (33%), dorsal (66%), low back (33%), gluteus and legs (50%). The frequency of the pain also was reduced: cervical (67%), shoulders and arms (33%), dorsal (66%), low back (67%), gluteus and legs (67%).

Conclusions:
The Results Found in This Study Allow Concluding that the Hydrogymnastic Program Was Efficient to Reduce the Intensity and Frequency of the Back Pain, Mainly in the Cervical, Shoulders, Shoulders and Arms, Dorsal Suggesting Being an Affective and Appropriated Program to Combat Back Pain."
POSTER PRESENTATION

Water Practices: Learn To Swim through Multidisciplinarity in Sesc Vila Mariana

Physical activity and health
"Graziela Higino de Moura, Bartira Pereira Palma"
"Social Service of Commerce, Social Service of Commerce"
"BR, BR"

"Sesc - Social Service of Commerce is a private institution, nationwide, established in 1946 on the initiative of trade and service entrepreneurs which are responsible for its maintenance and management. Its purpose is to promote a social welfare, improvement in quality of life and cultural development of workers in the trade of goods, services and tourism, as well as the community. It is part of its action field to develop projects and programs to enhance sports and physical activities experiences, and that can raise awareness of the importance of continuing practicing to improve quality of life and wellbeing. In this direction, in 2013 the institution started a reflection on the swimming course contents. The result was that learning to swim could not be limited to learning the four traditional swimming styles (crawl, backstroke, breaststroke e butterfly stroke). Thus, after discussions, it was decided that the course would be named “Water Practices”, which considers the numerous motor experiences that the aquatic environment may offer.

At SESC Vila Mariana, in the south of the city of São Paulo, the new approach was implemented in January 2015. Multidisciplinarity is one of the new approach principles, so a variety of new contents was included in the course, basically water sports, such as water polo, synchronized swimming, variations of the traditional swimming styles. The wide variation of contents facilitates learning of new skills and improves students’ retention. In this process, the learning of new skills is facilitated by a skill that has already been learned. This is called transferable practice. Additionally, rating of students by skills levels was replaced by rating by age because the experiences of one student can help in the learning process of his colleagues. At first, the students were resistant to the changes. They were afraid that the new approach would not allow the learning of the traditional swimming styles technique. This way, some important points were listed in order to promote greater acceptance by students: 1) to include new contents gradually, 2) to present historical and cultural aspects of the sports modalities, 3) to explain that the new approach may improve the learning of swim styles technique due to transferable practice, 4) to offer classes based on the new approach open to the public and, 5) to participate in swimming competitions and other events to promote interaction among students, and so that the course more experienced students understand that the new approach would still allow participation in these type of activities. In January 2016 it was
observed that, despite of the changes, there were not reductions in the number of students. There was also an increase in students interested in participating in external events, such as competitions, including beginner students. In Conclusion, the new approach increased interaction among students, respecting their individualities and facilitating learning.”
POSTER PRESENTATION

What the effect of elastic bandage in force in individuals with dynamic valgus?

Rehabilitation

"Francisco Rodrigues Brioschi, Karine Jacon Sarro, Rodrigo Luiz Vancini"

"Federal University of Espírito Santo, Vitória, Brazil, University of Campinas, Brazil, Federal University of Espírito Santo, Vitória, Brazil"

"BR, BR, BR"

“Background: The dynamic valgus is a movement disorder that affects athletes of volleyball. Changes in lower limb kinematics during jumps can compromise the performance. These changes are the result of the weakness of muscles of the pelvis, particularly hip external rotator muscles. A technique that could contribute to correcting the dynamic valgus is the elastic tape, which aims to increase muscle activity through exteroceptive stimulus.

Objective: to evaluate the effect of elastic bandage on variables related to strength in individuals with dynamic valgus.

Methods: Athletes attended the screening process that consisted in 3 drop jumps from the top of a box of 31 cm, while a previously trained evaluator classified them with 0 being the absence of medial deviation, 1 light medial deviation and 2 high medial deviation of one or both knees. Eight young volleyball athletes (5 with dynamic valgus and 3 controls) aged 14 to 17 were tested on an isokinetic dynamometer to evaluate the peak torque of external rotators of the hip. After familiarization, they performed 5 repetitions of eccentric contractions at 60°/s. Four tests were done: without bandage, with a placebo model, with mechanical model and with an activation model of the gluteus maximums. Application was randomized and athletes were blinded to the purpose of each bandage model.

Results: Preliminary results of individuals with the best and worst values for the control group and the experimental group following the order described above: Control group with higher values: (N-M) 204, 30 right leg (RL) and 202, 10 left leg (LL), 153, 2 RL 165, 8 and LL 124, 6 RL and 150, 2 LL, 219, 2 RL and 232, 6 LL and 538, 7 LL, 279, 5 RL and 363, 6 LL, 152, 1 RL and 231, 5 LL, 308, 2 RL and 327, 4 LL. Control group with lower values: 111, 10 RL and 73, 90 LL, 198, 9 RL and 137, 4 LL, 140 RL and 121, 7 LL, 139, 1 RL and 145, 9 LL. Experimental group with higher values: 97, 90 RL and 73, 80 LL, 107, 1 RL and 89, 4 LL, 78, 9 RL and 79, 4 LL, 98 RL and 97, 9 LL. Experimental group with lower values: 68, 10 RL and 63, 90 LL, 76, 1 RL and 79, 4 LL, 89, 1 RL and 55, 6 LL, 52, 3 RL and 48, 2 LL.
Conclusions: There is a trend that athletes with dynamic valgus showed lower torque peak values than the athletes without dynamic valgus. The bandages do not seem to have effect on peak torque, this could be due to the fact that the bandage does not propose to increase strength but muscle activation."
POSTER PRESENTATION

Winter 25(OH)D Status of Elite US and Canadian Paralympic Athletes

Sport nutrition

“Robert Pritchett, Kelly Pritchett, Ryan Galindo, Elizabeth Broad, Melissa LaCroix, Dana Ogan”

“Central Washington University, Central Washington University, Central Washington University, US Olympic Committee, Canadian Sport Institute Pacific, Central Washington University”


“Background: To examine the 25(OH)D status in relation to lifestyle factors in elite Paralympic athletes during the winter months.

Methods: Winter 25(OH)D status was assessed in 54 Paralympic athletes (height: 163.9 ± 26.1 cm; weight: 61.1 ± 12.9 kg; age: 29.9 ± 6.8 years) from outdoor: tennis and athletics (track and field), and indoor sports: basketball and rugby. Lifestyle factors possibly contributing to 25(OH)D status were assessed via a lifestyle questionnaire.

Results: Mean (± Standard Deviation) 25(OH)D levels were 68.2 ± 26.5 nmol/L. Vitamin D insufficiency (≤ 80 nmol/L) and deficiency (≤ 50 nmol/L) was observed in 67 and 26% of the sample respectively. Those who reported consuming milk once daily had significantly higher serum 25(OH)D levels compared to those who reported consuming none (87.8 ± 7.6 nmol/L vs. 53 ± 10 nmol/L, p=.005). Positive correlations between vitamin D status and milk consumption (r = .45, p=.001), egg consumption (r = .38, p = .005), calcium with vitamin D supplement use (r = .52, p < .0001) and calcium supplementation (r = .48, p < .0001) were observed. Lesion duration (r = -.30 p = .029) and number of reported illnesses per year (r = -.29, p = .036) were negatively correlated with 25(OH)D levels, and those who had been injured between 1-10 or 11-20 years had serum 25(OH)D levels higher than those who had been injured 21-35 years (78.8 ± 9.4 and 75.4 ± 4.6 vs. 51.7 ± 4.3 nmol/L, p=.011 and p=.001).

Conclusions: A high prevalence of vitamin D insufficiency was found in US and Canadian Elite Paralympic athletes irrelevant to gender, sport played, whether sport was played inside or outside, or level of spinal cord injury. Further research is warranted to examine appropriate supplementation protocols and dosages for athletes with SCI to prevent deficiencies."
POSTER PRESENTATION

Woman in Brazilian Paralympic Sport: Participation, investment and achievements.

Sport eligibility and inclusion
"RAFAEL ESTEVAM REIS, FERNANDO MARINHO MEZZADRI, MARCELO MORAES E SILVA, TABEA EPP KUSTER ALVES"
"FEDERAL UNIVERSITY OF PARANÁ, FEDERAL UNIVERSITY OF PARANÁ, FEDERAL UNIVERSITY OF PARANÁ, FEDERAL UNIVERSITY OF PARANÁ"
"BR, BR, BR, BR"

"Background: The Brazilian Paralympic Sport has gained international recognition in recent years the achievements in major competitions such as the Paralympic Games and Para-PanAmerican. Parallel to this, the Brazilian government has been investing in stocks in order to develop the national Paralympic Sport, one of these actions is the Bolsa Athlete Program, which allocates a financial value in the form of grant to athletes with results in competitions and had his beginning in 2005. The objective of this research is to analyze the women in the Brazilian Paralympic Sport through participation and results in international competitions and investment from the federal government through the Bolsa Athlete Program.

Methods: Our method was to collect data from the participation of Brazilian athletes in the Paralympic Games through information on the Brazilian Paralympic Committee website and the data Bolsa Athlete Program in specialized papers.

Results: Since the first Brazilian participation in Paralympic Games, women were present in 9 editions, with a total of 151 athletes and winning 78 of the 224 medals, representing 34% of total medals. In 10 years of Bolsa Athlete program, they were distributed 7,815 grants for Paralympic Sport, of this total, 31.98% of the grants were intended women athletes.

Conclusions: We conclude, regarding the participation and the number of medals won at Paralympic Games by Brazilian athletes, these numbers may represent that women have less space in the national paralympic scenario, may be a reflection of a lack of demand from the athletes, which also allows us to relate with the lowest investment programs developed by the Federal Government, in this case the Athlete Grant Program. Besides there are two Paralympic sports (Football five-a-side and Football seven-a-side) that are exclusively male and Wheelchair Rugby is a mixed sport, but it is predominantly practiced by men. Finally, these data show the need for greater investment in public policies for the promotion of sports for women with disabilities in Brazil."