FISU CONFERENCE
25th UNIVERSIADE

BOOK OF ABSTRACTS

The role of University sports in education and society – a platform for change

BELGRADE
JULY 2nd-5th, 2009

FACULTY OF SPORT AND PHYSICAL EDUCATION
UNIVERSITY OF BELGRADE
SERBIA

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CONTENT

FISU Conference Schedule	**I-V**
Wellcome Messages	
FISU president, Mr. George E. Killian: "Two Sides of the Fisu Coin / Two Sides of University Sport"	**1**
Wellcome Message by FISU First Vice President and CESU Chairperson, Mr. Claude-Louis Gallien	**3**
Wellcome Message by Deputy Prime Minister for European Integration, Mr. Božidar Đelić	**5**
Wellcome Message by Minister of Education, Mr. Žarko Obradović	**6**
Wellcome Message by Minister of Youth and Sport, Mrs. Snežana Samardžić Marković	**7**
Wellcome Message by Rector of University of Belgrade, Mr. Branko Kovačević	**9**
Chairperson of FISU Conference, Dean Dušan Mitić: "The Role of University Sport in Education and Society"	**10**
Keynote speakers	
Wendy J. Brown: Stand Up Sit Down Keep Moving: Can University Sport Provide a Foundation for a Healthy Life?	**13**
Zhong Bingshu, Dong Jinxia: University Sport: A Bridge linking Physical Activity with Health, Emotion, Intelligence and Culture	**19**
Jean-François Toussaint: The Citius End: World Records progression Announces the Completion of a Brief Ultra-Physiological Quest	**27**
Albrecht L. Claessens, Maarten Peeters: Body Composition in Athletes: Concepts and Methodological Aspects with focus on the BOD POD® Procedure	**32**
Jenő Kamuti: Thoughts about Fair Play	**41**
Luc Silance: Tendances Et Innovations Dans Le Sport Universitaire: Une Nouvelle Cohérence	**46**
V.I. Stolyarov: Modernisation of Contemporary University Sports	**62**
Rob Koehler: Doping, Behavior, Society, Sport and Sustainable Education	**72**
Orhan Güvenen: World Dynamics, University Sports and Ethics	**74**
Lea Azucena Cruz Cruz: Sports in Central American and Caribbean Universities: Trends, changes and opportunities	**79**
Adrian Gagea: About the Advanced Science in High Performance Sport	**90**
Mahdi TalebPour, Farshad Emami, Ferdowsi Mashhad: Physical Activity and Healthy Quality of Life in Students	**96**

Sub-Themes	
University sports: trends, opportunities and challenges	106
University sports: a foundation for healthy lifestyle	118
University sports: a foundation for fair play and ethical values	130
University sports: a foundation for education and academic achievement	141
University sports: a foundation for sustainable universal development	154
University sports: open session	170

Universiade Belgrade 2009 FISU Conference
Faculty of Sport and Physical Education, University of Belgrade
2nd – 5th July 2009
Congress Hall Sava Centar, Belgrade, Serbia

Preliminary schedule

Day 0	**1 July, 2009**		
9.00 – 14.00	**Registration**		
Day 1	**2 July, 2009**		
8.00 – 9.00	**Registration**		
9.00 – 9.30	**Wellcome Ceremony**		
9.30 – 9.45	**Wellcome Address by Deputy Prime Minister for European Integration Mr. Božidar Đelić** **Wellcome Address by Minister of Education Mr. Žarko Obradović** **Wellcome Address by Minister of Youth and Sport Mrs. Snežana Samardžić Marković** **Wellcome Address by Rector of University of Belgrade Mr. Branko Kovačević** **Wellcome Address by Chairperson of FISU Conference, Dean Dušan Mitić**		
9.45 – 10.00	**Opening Remarks by Chairperson, Universiade Belgrade 2009 Organizing Committee, Dean Dušan Mitić** "The role of University Sport in education and society"		
10.00 – 10.10	**Address of FISU President, Mr. George E. Killian**		
10.10 – 10.20	**Address of FISU First Vice President and CESU Chairperson, Mr. Claude-Louis Gallien**		
10.20 – 10.50	**Break**		
10.50 – 11.30	**Address of Keynote Prof. Wendy Brown** "Stand up sit down keep moving: can university sport provide a foundation for healthy life?"		
11.30 – 12.10	**Address of Keynote Prof. Bingshu Zhong** "University sport: A Bridge linking Physical Activity with Health, Emotion, Intelligence and Culture"		
12.10 – 13.30	**Lunch**		
13.30 – 15.00	**Sub-Theme Presentations**		
	University sport: trends, opportunities and challenges **hall annex 1/0 a** Introduction and Panel Discussion **1. Zhao Peiyu** -The Development of PE Electronic learning System and the study of Cooperative Method **2. Dimitra Papadimitrou** - The significant of 2007 Universiade to the economy of Bangkok Estimating the sport tourist consumption **3. Jadranka Plavsic** - An illustration of Successful tournament organization as seen at the Belgrade open tennis tournament for University students **4. Tatjana K. Tomazin** - Functional training Chairperson: **Luc Silance** Secretary : **Zhong Bingshu**, **Dragan Mirkov**	**University sport: a foundation for Healthy life style** **hall annex 1/0 b** Introduction and Panel Discussion **1. Rene Leveux** - The effect of university sport in the assimilation to university life an Australian perspective **2. Mohamed Afzalpour** -Evaluation of postural status and general health of Birjand University students **3. Irina Juhas** - Cross in function of education of students for healthy life style **4. Ameneh Balavi** - The effect of two different intensity of aerobic training on high density lipoprotein and A1 on female collage students Chairperson: **Wendy Brown,** Secretary : **Mahdi Telebpour, Irina Juhas**	**University sport: a foundation for fair play and ethnical value** **hall 2/0** Introduction and Panel Discussion **1. Parvaneh Shafie Nia** - Goal Orientations and Participation Motives for individual and team sport activity in University Students Athletes **2. Elijah Gitongu** - Challenges facing Sport development in Kenya University **3. Milan Mihajlovic** - Case Study- Silvana Vukas, Clean and jerks silver medalist at FISU world University weightlifting championship **4. Fatos Gjata** - Sociological aspects of University sport in Albania Chairperson: **Jeno Kamuti** Secretary : **Orhan Guvenen, Dusanka Lazarević**
15.00 – 15.30	**Break**		

15.30 – 17.30	Oral Presentations **hall annex 1/0 a** **1. M. Ghanbarzadeh** - The influence anaerobic test on pulmonary function criteria in the elite basketball players of Khuzestan province **2. Dopsaj Milivoj** - Comparative analysis jumping abilities at specific and non specific trained female students **3. Saideh N.S. Booshehri** - Women's Promotion to the management level in the Physical Education organization in the country: environmental and personal constraints Chairperson: **Zhong Bingshu** Secretary : **Luc Silance, Dragan Mirkov**	Oral presentation **hall annex 1/0 b** **1. V. Draskovic** - Influence of continues and dozed exercising on students corporal status **2. Aleksandar Ivanovski** - Students camp of Healthy life stile in Serbia Chairperson: **Mahdi Telebpour** Secretary : **Wendy Brown, Irina Juhas**	Oral Presentation **hall 2/0** **1. Mina Xiong** - Sports culture in College and Social Adaptability on the youth **2. Habibi Honari** - The study of Organizational Culture of Sport managers Chairperson: **Orhan Guvenen,** Secretary : **Jeno Kamuti, Dusanka Lazarević**
18.30 – 20.30	**Wellcome Dinner** Hosted by Universiade Belgrade 2009 Organizing Committee restaurant of Sava Centar		

Day **2**	**3 July , 2009**		
9.00 – 9.40	**Address of Keynote speaker** **Prof. Jean Francois Toussaint** "L'évolution des performances et les limites humaines"		
9.40 – 10.20	**Address of Keynote speaker** **Prof. Albrecht L. Claessens** "Body composition in athletes: concepts and methodological aspects with focus on the BOD POD® procedure"		
10.20 – 10.50	**Break**		
10.50 – 11.30	**Address of Keynote speaker** **Prof. Jeno Kamuti** "Thoughts about Fair Play"		
11.30 – 12.10	**Address of Keynote speaker** **Prof. Luc Silance** "Tendances et innovations dans le sport universitare: une nouvelle coherence"		
12.10 – 13.30	**Lunch**		
13.30 – 15.30	**University sport: a foundation for education and academic achievement** **hall annex 1/0 a** Oral Presentation **1. Feng Di** - Strengthening PE Curriculum reform promoting Sunshine Sport Movement. The PE Curriculum reform Theory and Practice of Harbin Engineering University **2. Cecilia Gevat** - Speed running in the students faculty of physical education and sport	**University sport: a foundation for sustainable universal development** **hall annex 1/0 b** Oral presentation **1. Jakovljević Saša** - Basketball players and wrestlers academicals status in Serbia **2. Sudarsan Biswas** - University sport in India and Present scenario of physical education and sports in all level of educational system A critical analysis	**University sport: open session** **hall 2/0** Oral Presentation **1. Stancuescu George** -Evolution Somatic indices, Physical and Techniques a team of football players with children aged 10-12 years **2. Abdolhamid Habibi** - Relationship the forward head and Kyphosis disorders with the psycho health among the male staffs of Saderat bank

	3. Rozi Georgial - Anthropo-morphological characteristics of students of the swimming specialization faculty of Physical Education and Sports Sciences of the Kapodistrian University with and without training or competitive experience **4. Nesic Goran** - Technical tactic structure of compete activity at Universiade 2007 in Thailand Serbian female national Volleyball team Chairmen : **Adrian Gagea**, Secretary: **Vladislav Ivanovič Stolyarov, Goran Nešić**	**3. Dragan M. Strelic** - Application of the sophisticated technologies in the training process of the representatives of the Republic Serbia in biathlon **4. Boban Miljojkovic** - Organization model and functional and significance of orienteering as university sport at the criminalistic and police academy in Belgrade Chairman: **Lea Azucena Cruz** Secretary : **Milivoj Dopsaj**	**3. Lidija Moskovljevic** - Relations between motor abilities and performing of free elements in rhythmic gymnastics **4. T. Okicic** - Influence of some relevant anthropological manifestation on crawl swimming sprint performance **5. S. Shakerian** -The reliability of body density with method body mass index, skin fold thickens bioelectrical impedance based on relevant method in men athletes swimmers from Ahvaz city Chairman: **Albrecht Claessens** Secretary: **Sanja Mazić**
15.30 – 16.00	**Break**		
16.00 – 17.00	Oral Presentations **hall annex 1/0 a** **1. Abdossaleh Zar** - The effect of exercise with low and high intensity on Changes of respiratory burst activities and neurophilis counts in judoiest **2. M. Nikbakht** - The relation somatotype anthropometry to physical and motor abilities in girl non athletes university students **3. Elijah Gitongu** - Challenges facing Sport development in Kenya University Chairmen : **Vladislav Ivanovič Stolyarov** Secretary: **Adrian Gagea, Goran Nešić**	Oral Presentations **hall annex 1/0 b** **1. Florin Paraschiv** - High performance sports and creativity **2. Jelena Jovanovic** - Preparation and Organization of the Elbrus 2008 expedition **3. R. Valizadeh** - The effect of eight weeks aerobic exercises on the Mental health of men student of Chamran University of Ahwaz Chairman: **Lea Azucena Cruz** Secretary : **Milivoj Dopsaj**	Oral Presentation **hall 2/0** **1. Nemanja Pažin** - Evaluation of consecutive maximum contractions as a test of neuromuscular function reliability and generalizability **2. Olivera Knezevic** - Isometric and isokinetic muscle strength evaluation Following ACL reconstruction in elite athletes Pilot study **3. Mohamed Keshk** - The effect of whey protein supplementation without and combined with shock training on muscle strength and body composition **4. Stanimir Stojiljkovic** - Influence of individual programmed exercises and nutrition on the body composition of students population Chairman: **Albrecht Claessens** Secretary: **Sanja Mazić**
17.00 – 18.30	**Opening Ceremony of Poster Presentations by FISU First Vice President and CESU Chair, Mr. Claude-Louis Gallien** Secretary: Ivana Milanovic, Gordana Vekarić 1. **Xuengong Du** - Choice of folk sport and collage sports in culture 2. **Farideh Sharififar** - The effect of LP G massage as a complement of aerobic in decreasing women's limb circumferences 3. **Felipe A**. **Roriz** - Psychological correlations of exercise behavior among university Students A study at major academic transition 4. **Yong Man Kim** - A study of effect of service quality of pro soccer club and behavior after purchases 5. **Un Sook Kim** - A study of effect of service quality for sport events on service quality brand satisfaction, brand trust and brand immersion of sports brand 6. **Kim Boo-ja** -The effect of Korean traditional dance on life stress Physique and Physical Fitness in adolescent female students 7. **Lei Le** - Discussion on some issues about university Sports Scientific research work in China 8. **T. Amzsha** - The study of relationship between leadership styles and the rate of occupational stress in the physical education offices managers of Khuzestan province		

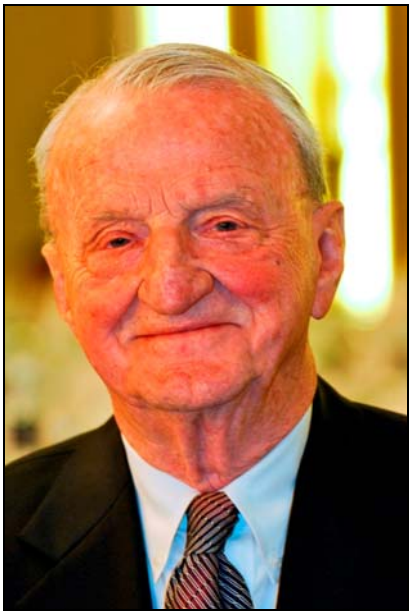
17.00 – 18.30	9. **T. Amzsha** - The study of leadership behavioral dimensions of coach in Iran Volleyball club first league games 10. **Hadi Samadi** - An investigation into effect of lower extremity muscular fatigue on the static balance from electromyography aspect 11. **Rohollah Daei** - Comparison of medal longitude arch among various sport 12. **Hooman Minoonejad** - An Investigation into the relationship between the maximum electromyography activity ad fatigue on the erector spine muscles with thoracic and lumbar curvatures 13. **Chungmi Lee** - The current Situation of east Asian University sport education and its task in future 14. **Stevan Grujic** - Improvement test to verify the physical abilities of the Military academy students 15. **Abdolhamid Habibi**/- the relationship between the malformations of the spine with the disabilities of blindness and deafness of the male university students 16. **Simindhokht Dezfuly** - Investigation and comparison of tendency to Sport for All in academic members of university 17. **El- Mataboly Mahmoud** - Effect of mental toughness training on athletic coping skills and performance level of reversal among elite young wrestlers 18. **Magda Ismail** - Psychological characteristics among elite athletes in hall sports (boxing- gymnastic- fencing) 19. **Nader Kalantar** - The study and influence of a leisure computer -tailored exercise activity intervention in a life excellent setting in adolescent Ahwaz people 20. **M. Ghanbarzadeh** - A Comparison between a Morning and Afternoon Exercise Session on the Amount of Dehydration of Elite Speed and Endurance Runners in the Khuzestan Province 21. **Y. Youssef** - Effect of functional strength training on bone metabolic markers, certrain physical variables and kinematic analysis of the Harai-goshi judo technique 22. **Parvin Ramezani** - The Study of the Incidence and Influential Causes of Leg Pain among Iranian Professional Female Sprint and Endurance Runners. 23. 24. **Tahereh Azmsha** - Comparison Anthropometric Characteristics of Bakhtiari, Arab and Roman ethnic groups Females students of the Khuzestan Province Universities 25. **Itaru Enomoto** - Relationship between profiles of exercise history and performance on a fitness test: a case study of female university freshmen in Japan 26. **S Shakerian** - The reliability of body density with methods: body mass index, skin fold thickness, bioelectrical impedance based on relevant method in men athlete's gymnasts from Ahvaz city 27. **A Mehdipour** - Investigate and compile talent identification characteristics in men's climber's cyclists from the viewpoint of the experienced coaches of Iran 28. **Habibi Honari** - The Study of Mental Health in Allame Tabatabaei University Athletes Students 29. **K. Atanasova** - Control and physical loading in students individual exercise with fitness device 30. **K. Atanasova** - Students motivation for participation in physical exercise and sport activities 31. **Goran Prebeg** - Team Building importance and applications in the education of students as future managers 32. **Tudor Bogdan** – Particular aspects of the students spectator the handball game 33. **Elijah Gitonga** - The grand coalition Government In Kenya. A recap for Sort development in Kenyan Universities 34. **Dana Badau** - Psychological training and informational adaptation in sport
19.00 – 22.00	**Dinner, Ship tour**

Day **3**	**4 JULY , 2009**
9.00 – 9.40	**Address of Keynote speaker** **Prof. Vladislav Ivanovič Stolyarov** "University sport: The new models of play rivalry and their pedagogical value"
9.40 – 10.20	**Address of Keynote speaker** **Prof. Rob Koehler** „Doping, behavior, society, sport and sustainable education"
10.20 – 10.50	**Break**
10.50 – 11.30	**Address of Keynote speaker** **Prof. Orhan Guvenen** „World Dynamics: Universitz Sport and Ethnical Values"
11.30 – 12.10	**Address of Keynote speaker** **Prof. Lea Azucena Cruz** "El Deporte Universitario en Centro América y el Caribe: Retos Cambios y oportunidades"
12.10 – 13.30	**Lunch**
14.00 – 18.00	**Cultural Tour - Bus tour through the city**
19.00 – 20.30	**Farewell Banquet**

Day **4**	**5 JULY, 2009**		
9.00 – 9.20	**Official address**		
9.20 – 10.00	**Address of Keynote speaker** **Prof. Adrian Gagea** "About the Advanced Science in High Performance Sport "		
10.00 – 10.40	**Address of Keynote speaker** **Prof. Mahdi Telebpour** "University sport: a foundation for healthy lifestyle"		
10.40 – 11.10	**Break**		
11.10 – 12.50	**University sport: a foundation for education ad academic achievement** **hall annex 1/0 a** Oral Presentations **1. S. Hejdanineyad -** Comparative study of efficiency evaluation in PE and Sports science with other Human science **2. V. Draskovic** - significance of university sport in evaluation of student physical status Chairman: **Vladislav Ivanovič Stolyarov** Secretary: **Dušan Mitić**	**University sport: a foundation for sustainable universal development** **hall annex 1/0 b** Oral Presentations **1. Mahdi Armandia** - Comparison of Physiologic, Body composition and Anthropometric Characteristic Between Elite and Beginner Table Tennis players **2. M. Nikbakht** - Comparison of anthropometric and VO2 max parameters among elite and amateur junior wrestlers Chairman: **Rob Koehler ,** Secretary: **Stanimir Stojiljković**	**University sport: open session 2/0** **hall 2/0** Oral presentation **1. Nenad Planic** - The relationship between the peak force and rate of force development and relaxation **2. Predrag Bozic** - Evaluation of bidirectional consecutive maximum contractions as a test of neuromuscular function **3. M. Nikbakht** - Effect of acute creatine and caffeine supplement on high intensity intermittent performance in club basketball players of Khuzestan province Chairman: **Albrecht Cleassens** Secretary: **Aleksandar Nedeljković**
12.50 – 14.00	**Lunch**		
14.00 – 14.30	**Presentation of two students from FISU Forum 2008** 1. **Miss Iris Olberding** 2. **Mr. Cristoph Bocklin**		
14.30 – 15.30	**Conclusion of the Conference: Sub-themes by each Chairpersons** **General conclusions: by Mr. Claude-Louis Gallien FISU First Vice President and CESU Chair, Dean Dušan Mitić, Chairperson of FISU Conference.**		
15.30 – 16.30	**Certificate Presentation and Closing Ceremony by Dean Dušan Mitić, Chairperson of FISU Conference.**		
	End of Conference and Departure		

TWO SIDES OF THE FISU COIN / TWO SIDES OF UNIVERSITY SPORT

Mr. George E. KILLIAN,
FISU President



It is with a great deal of pleasure that I have the opportunity to welcome you here this morning at the Opening Ceremony of the 2009 FISU Conference. It is a honor for me to have the opportunity to speak with you here today on a subject that is near and dear to my heart, “The role of University sports in education and society”.

Before beginning my remarks, I would like to take a minute to give thanks to some very important individuals who have made this Conference become a reality. First, let me introduce Dr. Branko Kovacevic, Rector of the Belgrade University. I had the pleasure and honor of taking part in the “Presidents Summit” some months ago right here in Belgrade that Dr. Kovacevic produced that resulted in an outstanding international educational event. I’d also like to recognize Mr. Dusan Mitic, Dean of the Faculty of Sport and Physical Education here at the University for the role that he and his staff played in organizing this Conference. Thank you again gentlemen.

FISU, as most of you are aware, is a federation that has made its mark in the international sporting world by organising and promoting sporting events featuring university students. Like a coin FISU does have two sides, one side devoted to sporting events, the other side to education and cultural events.

First, the side that promotes sporting events. Every two years, FISU organises both a Winter and Summer Universiade which has now grown to rival the Olympic Games in size. In addition on the years where there are no Universiades, FISU will host some thirty individual sport championships covering a multitude of individual and team sports. The sites for these championships cover the globe.

Today, here in Belgrade, we turn our full attention to the other side of the coin. Some years ago, we had only a small segment of our overall program devoted to educational endeavours.

In the years that I have been involved in university student sport life, I have always said that the graduates of our universities worldwide are and will be the great future leaders of tomorrow. If this be true, what leadership qualities do we expect our students to gain from their participation in our FISU program? Researchers in this area have found the following leadership qualities to be positive attitude, fun, enthusiasm, teamwork, confidence, and sense of fairness, creativity, cooperation and a desire of achievement. When prioritizing these values the results indicated that fun, self-esteem, team work were the leadership qualifications most highly prized by the participants. All of the above are obtainable in our FISU programs and if our students through the efforts of their Rectors worldwide are afforded the opportunity to participate in university sport, not only in there own country, but through the entire FISU program they will be quite easy to obtain.

As you will quickly realize, the two key words of this Conference as I see it are the words, Platform and Foundation. This is really what FISU is all about. These words are matched with one of the main FISU objectives, that of giving university students the right of opportunity. We are offering an opportunity to every university student athlete to meet and compete in a spirit of understanding with the ultimate goal of having the student athletes gain a better understanding of the world in which we all live. FISU with this very solid foundation based within our sport and education program, along with our core values such as respect, tolerance, and understanding is offering this extraordinary opportunity to tomorrows political world leaders to meet in one of the worlds largest university sport programs now in existence. That is why for FISU these two terms of Platform and Foundation are so important, because they are the basis of our movement.

The common aim of all our partners in higher education is to strengthen our foundations in order to continue to build up and to provide a better and more realistic platform as we strongly believe that sport in itself is one of the key factors in achieving this aim.

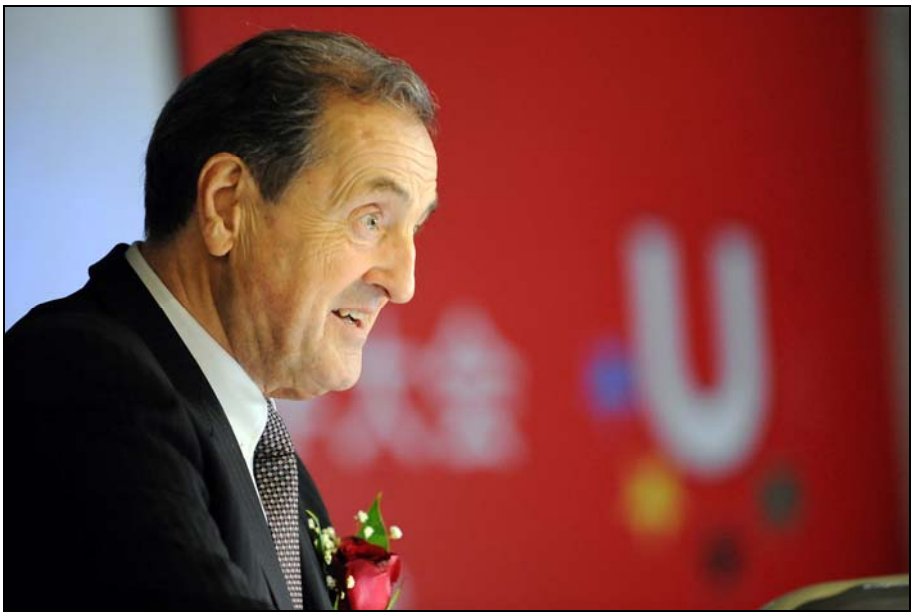
Let me point out to you that higher educations historic role has been always to provide leadership for and in our society. If we are to continue to support this role and to make it flourish around the globe then it is inevitable that we all work together in a productive way to see that all of our university students, where ever they reside are given the right foundations and the largest platform to catch the opportunities that will lead us to a better world.

In closing let me on behalf of the entire FISU Family wish you great success with this Conference and may all in attendance here today in Belgrade return to your homes and country with a greater regard for the importance of your personal involvement in university sport.

Thank you,
George. E Killian
FISU President

WELLCOME MESSAGE

Claude-Louis GALLIEN
First Vice president of FISU – Chairperson of CESU



The role of University sport in education and society is the guiding concept of this academic FISU Conference linked with the 25th Universiade.

Education of young people is doubtless the main challenge that our society meets, facing a period of dehumanization when financial powers organized worldwide physical and intellectual misery leading to the actual economical and social crash.

We should be convinced that sport, along with science and culture, might play a major role in a new higher education system, not devoted to meet only the requirements of instantaneous efficiency, but to provide constructing and provoking strategies to bring ethical sustainable answers to today's stakes.

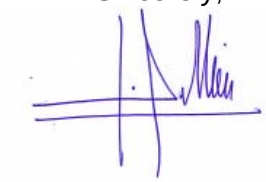
This academic Conference can be considered as significant as the Universiade itself. The universiade promotes goodwill and friendship among university students from all over the world. The Conference will offer, through keynote speakers, oral and poster presentations, a platform to exchange and coordinate traditional and innovating scientific concepts and sports activities among universities across the globe.

Holding this FISU Conference at the campus of the prestigious Belgrade university, founded in 1808, and one major university in the region with 80 000 students receiving the most innovant formation in a way that preserve the traditional aspects of Serbian culture, is an honor and a privilege. Belgrade university is an ideal place to demonstrate that sport can be an essential tool for educating young people of the world, to enable them understand each others, and to give them the way for building their own age and not just send back a reflect of the past or present eras.

I express my gratitude to the President of Belgrade University, Doctor Branko Kovačevic, to the Chairman of the organizing committee, Doctor Dušan Mitić, Dean of Faculty of Sport and Physical Education, and all the organizing committee members for their efforts in preparing for this conference. We have been working together, with great confidence and pleasure. It has not always been an easy task, but the team was good enough and overcame problems and difficulties. Finally, this conference will be one of the best ever organized, with 12 eminent key note speakers, and more than one hundred scientific presentations of the highest level.

I finally want to express my deepest thanks to Serbia and to the City of Belgrade, for allowing professors, researchers, coaches and students from all over the world to exchange and define the bases of an education using sport as an essential tool.

Sincerely,



Claude-Louis GALLIEN
1st Vice president of FISU - Chairperson of CESU

WELLCOME ADDRESS

Mr. Božidar ĐELIĆ
The Chairman of OK UB 2009,
Vice President of the Government for European integrations and
Minister of Science and Technological Development in the Government of the Republic of Serbia

Respected participants of the Conference, honored guests,

As a Minister in the Republic of Serbia, I participate in a large number of scientific and professional meetings, but it seems to me that the starting point of this conference – the excellence of body and spirit – is one of the best premises from which to start the overall progress of the society we live in.

And really, there is either a country or the society, apart from the status, wealth and tradition, which do not need young, capable people who unite their strength in an exceptional fitness of body and mind. There are no statesmen whose aim is not to encourage such a development and there should not be a system of education that separates everything that has been an inseparable value with its foundations since the ancient times.

I have a great pleasure to greet you in Serbia, in Belgrade, in the country and the city that are proud of their sports tradition and great, famous minds well-known in the whole world. As good hosts, we are doing our best to provide you the best working conditions, convinced that this conference is an extremely important segment of the Universiade Belgrade 2009. We shall do our best to implement the conclusions of this conference in our programs and to give our own contribution to the fulfillment of the mission of university sports.

I wish you a successful work and, from my heart, I would like Belgrade and Serbia to be written in your agendas as places where the union of sport and intellectual spirit is celebrated.

WELLCOME ADDRESS

Mr. Žarko OBRADOVIĆ
Minister of Education

The accelerated development and significant role of sport has involved all spheres of human life. As an activity that usually occupied free time, sport has become before all the main sociological and then also an economic attraction.

For such a progress, the field of education has a key role as special turning point of all changes occurred in the field of sport in the past thirty years. All international sports-related organizations indicate a necessity of further interconnection of these two important segments of the society.

The importance of involvement of educational process in sport has a clear significance for each individual, through educational, sociological and cultural component and especially in the sphere of incentives for opening of new working positions. Within the educational system, sports processes can play a vital role in acquiring new life values from sport, through team work, regular development of competitive spirit and learning of life rules in the society.

WELLCOME ADDRESS

Mrs. Snežana SAMARDŽIĆ MARKOVIĆ
Minister of Youth and Sport

Dear friends, dear guests,

I wish to greet you in the name of the Ministry of youth and sport of the Republic of Serbia, and in my personal name. I am very glad to have the opportunity to be part of this great event celebrating two fields in which the Ministry I represent, is involved – the youth and sport. We are happy because of the possibility to present ourselves appropriately, as good hosts and as the nation which understands sport in the right way and truly enjoys in it.

Sport itself contains values without which we cannot imagine a single successful society, because it promotes achievement of work results, competitive spirit, respect of opponents and healthy life style. The future of one society depends on relations of young generations towards these values and the Universiade is one of their greatest promoters.

Last year, at the initiative of the Ministry of youth and sport, the Government of the Republic of Serbia adopted the "Strategy of sports development in the Republic of Serbia in the period from 2009-2013". We consider this one of the major successes achieved by the Ministry of Youth and sport since its establishment, because for the first time in the history of Serbia, the plan of sport development was systematically developed and expressed in writing. The Strategy defined three priorities – sport of children and the youth, development of sports infrastructure and top sport. As you can see, all three priorities of the Strategy are united in the project „Universiade 2009.", which is a good example of what we would like to achieve in development of sport in Serbia. We intend to make sport available to everybody, through planned improvement of infrastructure and sports system of children and the youth, therefore of university sport as well and create thus conditions for achievement of top sports accomplishments. Our aim is to create through sport conditions for development of healthy, both physically and mentally, young population to represent the base for recruitment of elite athletes, but primarily enabled to participate in the right way in social life and realize its own objectives, whether or not directly related to sport.

While drafting the Strategy of sports development in the Republic of Serbia in the period from 2009-2013 we undertook a series of preparative actions, which among other things, meant also harmonization of our strategic plans with the plans and directives of European sport as a whole. That way we achieved that Serbian sport, which is one of the

fields, Serbia can boast of and in which we have always kept abreast of the world, sometimes even a step ahead of the world – become defined as one of the factors to accelerate connection of Serbia and the rest of Europe. The organization of this great event, ahead of us, is also a step towards such integrations and I am sure we shall enjoy it together.

To Belgrade and other cities involved in organization of the Universiade, I wish to present themselves as good hosts, to our guests I wish a good time and positive memories from our country, and to the athletes I wish plenty of sports luck, good results and success both on the fields and out of them.

WELLCOME ADDRESS

Prof. Branko KOVAČEVIĆ, Ph.D.
Rector of the University of Belgrade

Ladies and gentlemen, dear guests,

In the name of the University of Belgrade, allow me to greet you and wish you welcome to this gathering. As you know, the gathering coincides with the event which is second only to the Olympic Games in terms of attracting sportsmen from all over the world. Of course, this event is the 25th Summer Universiade which Belgrade proudly hosts this year.

Most of us university employees insist on the quality of education above all, although education itself is often observed as the sole process of learning. On the other hand, when we consider the needs of young people from all points of compass, as well as the needs of the whole society, this frequent tendency does not seem to be inclusive enough. More specifically, it has to be emphasized how significant the role of sports and physical activity is in one's academic and later professional life, since they enable the all-round development of an individual. Not only do sport and physical activity teach us about life, but they help us in building our own set of ethical values. They help us to develop competitive spirit as well as to show readiness for cooperation, teamwork, socializing and friendship. They make us more hospitable and tolerant to differences, and help us live in peace and harmony. No wonder then that sports is the tool of the United nations in the struggle for peace, friendship and cross-cultural understanding.

This is precisely why it is our task to bolster the cooperation between educational institutions and sport organizations, in order to integrate sport more firmly into the field of education. Thus the values of sport can be incorporated into education, making good sportsmen even better people and world citizens!

Let me thank you once again and wish you a pleasant and successful stay in Belgrade.

THE ROLE OF UNIVERSITY SPORT IN EDUCATION AND SOCIETY

Prof. Dušan Mitić, Ph.D.
Faculty of Sport and Physical Education, University of Belgrade

Dear Vice President,
Dear Ministers,
Dear Mr. Kilijan,
Dear Mr. Gallien,
Dear Colleagues,

It is my great pleasure, to welcome you in the name of my associates who have been engaged in preparation of this conference for a whole year, and to wish you fruitful work in the following few days.

All that time we were led by the idea that our role was to channel and direct energy of researchers and experts who treat wider issues of sport at Universities or more widely promotion of physical activities in students' population.

Systematic stimulation of regular physical activity through physical education instruction and experience of application of various competition models are based on spatial-technical conditions and logistic support by the Ministry of Education or a consortium of owners of certain universities.

Awareness of the importance of physical education is developed and accepted by the leading world institutions. The United Nations promoted their positive attitude about the significance of physical education and sport for the youth, by proclaiming the year 2005 the international year of sport on the entire planet. The Declaration from the closing meeting in Magglingen, in several chapters directly appeals to the Governments of all the states, to multilateral organizations within the UN system, sports organizations and directly to athletes with the distribution of concrete tasks and defining of directions of actions at each level of the activities:

- *Governments across all sectors:* promote the ideal of sport for all; develop inclusive and coherent sports policies; involve all stakeholders in their coordination and implementation; strengthen and invest in sport and physical education in schools and educational systems; and integrate sport, physical activity and play in public health and other relevant policies.
- *Multilateral organizations and the UN system:* take a lead role in policy dialogue on strategic and global levels; raise the awareness of international actors and other partners; strengthen networks and enhance coordination; and carry out and evaluate projects and programs.

- *Sports organizations:* integrate and implement sustainable development principles into their policies, programs and projects
- *Athletes:* act as role models and actively use their influence and experience to advocate for development and peace.

It illustrates how the great social power of sport can be used positively for peace and development. The aim of the conference is to take stock of experiences to date, present examples of pioneering projects and to establish an action-orientated agenda for the future. The event should contribute to ensuring that the enormous momentum in the area of sport and development continues and grows beyond 2005.

The level of social development and primarily the level of social awareness and current socio-political order define behavioral patterns and directly decide on the way and dynamics of investing in educational system and the system of development of sport and physical education. On the example of the Chinese University, represented by the Prof Liu Zhigang[i] we can see that they have accepted Campus as a model of university organization, with integrated all sports facilities, so that for greater period of a day students are within the university where they can also solve the greatest pare of their free time activities. From the photos we can notice high standards respected in both architectonic and functional sense. Based on the society determination and investments the following expectations were set out:

- Sports Fulfill University Student Needs
- Sports Promotes University Values
- Sports Breads University Revenues
- Sports Enhances School Pride

Physical activity, system of physical education and organized system of sports competitions move a series of subtle social interactions within a group so they present mighty means in the process of self-acknowledgement, on which the stability of each group is founded. Hartman 2009.[ii] defines significance and possibilities of application of sport in the process of overcoming of racial and religious differences in the course social integrations:

- Social integration is a long lasting process. This process has **to be arranged as a holistic and educational orientated approach** through different stakeholders.
- Sport can only give a part-payment and assist to successful integration. **It takes more than sport and physical activities** to facilitate relevant and valuable results.

Sport is a suitable medium for better integration:

- Mutual experience through and with our bodies makes it easier to get known of each other.
- Language is less important.
- Jointly experiencing victories defeat and emotions create a feeling of community.
- Uniformed rules and norms make a better understanding.
- Sportive values of fair play, respect, international understanding create an atmosphere of familiarity.

This winter I've had a pleasure to be one of the lecturers at the first scientific conference at the Winter Universiade in Harbin within the University President Forum. I was especially impressed by the presentation of prof. Lee Tien-Rein[iii], who as the President of Chinese Cultural University gave his perception of the role of sport in development of universities. By summing up experiences and ranges of students' involvement in the field of

[i] Liu Zhigang, President of Harbin Engineering University, Physical Education, Sports and University Education, 2009 Winter Universiade Sport Science Conference, University President Forum, Harbin, China

[ii] H.Hartman, Integration Through Sport, Remarks on criteria for success of programmes and projects, International Round Table, "Sport for All as the element of intercultural dialogue", Ljubljana, 15./16. May 2008

[iii] Dr. LEE, Tien-Rein, President, Chinese Culture University, THE ROLES OF SPORTS IN UNIVERSITY DEVELOPMENT, 2009 Winter Universiade Sport Science Conference, University President Forum, Harbin, China

physical education and sport, he presented us the formula of university development (Figure 2) based on the square of intelligence, information and communication multiplied by usage of information technologies with the square of staff in the process, and all that is raised to n power which depends on sport development in that particular environment.

$$U.\ D. = (\ I^2\ X\ P^2\ )^S$$

- "U.D." = university development
- "I^2" = intelligence multiplied by information and communication
- "X" = educational technology
- "P^2" = people multiplied by process
- "S" = sports

Figure 2. Formula of university development (Lee Tien-Rein, 2009.)

Instead of a conclusion I shall cite the last point of the Declaration form Magglingen 2005. which reminds us that without the right support from the media which should be aimed at encouragement to physical activity in the function of development of physical education on which the whole structure and development of sport can practically be established:

Media: adopt editorial strategies that ensure the coverage of social and political aspects of sport; train journalists; and raise awareness of the possibilities of sport for development and peace[iv].

Reference:

Dr. LEE, Tien-Rein, President, Chinese Culture University, THE ROLES OF SPORTS IN UNIVERSITY DEVELOPMENT, 2009 Winter Universiade Sport Science Conference, University President Forum, Harbin, China

H.Hartman, Integration Through Sport, Remarks on criteria for success of programmes and projects, International Round Table, "Sport for All as the element of intercultural dialogue", Ljubljana, 15./16. May 2008

Liu Zhigang, President of Harbin Engineering University, Physical Education, Sports and University Education, 2009 Winter Universiade Sport Science Conference, University President Forum, Harbin, China

Magglingen Call to Action 2005, 2nd Magglingen conference sport and development, 4-6 decembre 2005

[iv] Magglingen Call to Action 2005, 2nd Magglingen conference sport and development, 4-6 decembre 2005

STAND UP SIT DOWN KEEP MOVING: CAN UNIVERSITY SPORT PROVIDE A FOUNDATION FOR A HEALTHY LIFE?

Wendy J. Brown
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The health effects of physical activity

The US Surgeon General's report on Physical Activity and Health was published in 1996 on the eve of the Centennial Olympic Games in Atlanta (USSG 1996). Somewhat ironically perhaps, the main message of the report was that we do not have to scale Olympic heights to achieve significant health benefits from physical activity; instead, there are important health benefits from participation in regular moderate intensity physical activity.

The basis for this message was the accumulating evidence from several studies that linked lack of physical activity with adverse health outcomes. The earliest studies, reported by Morris in 1953, showed that rates of heart attack and other health problems were higher in London bus drivers and postal sorting office workers (who spent most of their working days sitting), than in bus conductors and postal delivery workers (who spent most of their working day on their feet or walking about). These studies, and others conducted with samples of men from many countries, confirmed an independent relationship between low levels of energy expenditure and adverse health outcomes (e.g. Taylor et al, 1962; Paffenbarger and Hale, 1975).

From the 1960s, the focus of much of the research work in this area changed from work-related sitting to leisure-time exercise, and its associated heart disease benefits (Powell et al, 1987). Research studies conducted in the 70s and 80s led to the American Collage of Sports Medicine recommendation that aerobic fitness training through vigorous exercise at least three times per week for more than 20 minutes, was required for optimal health (ACSM, 1978). However, although interventions that achieved this level of vigorous exercise showed physiological benefits, several surveys showed that only about 10% of adults in western developed countries met this '3 x 20 recommendation' (Bauman, 1987).

By the 1990s, evidence was accumulating to show that, because more people might actually participate in moderate-intensity activity, getting more people to do 'less-vigorous' activity might have a greater impact on population health than getting a few people to do vigorous-intensity activity (Bauman, 1988). Increasing evidence from large-scale epidemiological studies (mostly of men) led to the public health recommendation that adults should accumulate 30 minutes of at least moderate intensity physical activity on most days of the week (Pate et al, 1995). This evidence, which was summarised in the 1996 US Surgeon General's Report on Physical Activity and Health, showed a clear dose-response relationship

between activity and health outcomes, across increasing levels of physical activity. Maximal benefit was observed in those who were moderately active on most days, with small additional benefits accruing to those who reported doing vigorous exercise. This evidence resulted in the development of guidelines for 'health-promoting physical activity' in the USA, and in many other countries around the world (e.g. US Department of Health and Human Services, 1996; Australian Department of Health and Ageing, 1999). These guidelines suggest that doing 30 minutes of moderate intensity activity on most days of the week is important for good health and the prevention of chronic disease.

Accumulating evidence relating to the health benefits of physical activity in men and in women (for details see Bauman, 2004 and Brown et al, 2007), resulted in an update of the US recommendations on physical activity and health in 2007 (Haskell et al, 2007). The recommended frequency of moderate intensity activity was clarified as 'on at least 5 days per week' with increased duration (to 60-90 minutes daily) proposed for obesity prevention and control. Strength training was recommended for the prevention of falls. Revised US guidelines, published in October 2008, emphasised the dose-response relationship between physical activity and health outcomes, with further benefits (above those resulting from the previously stated 150 minutes per week), for even higher levels of activity (more than 300 minutes of moderate-vigorous activity per week). Additional guidelines included muscle strengthening activities (resistance training on at least 2 days/week) for adults, and a recommendation of an hour per day of physical activity for children and adolescents (US Department of Health and Human Services, 2008).

Levels of physical activity around the world and across the lifespan

Although regular participation in physical activity confers numerous health benefits, it is now thought that about 60% of people world-wide do not do sufficient physical activity to meet the current recommendations. It is difficult to make precise comparisons between countries, because different measurement instruments and definitions are used. However, the available data suggest that, when physical activity is considered in the domains of work and transport, as well as in leisure, physical activity levels are lower in western developed countries, and decrease with increasing urbanization and technological development (Brown, 2009).

In western developed countries, physical activity participation also declines across the life-span, with the highest levels seen during early childhood and the lowest in older age. Recent data from Australia show that physical activity levels are highest in primary (elementary) school, but fall during secondary (high) school, and that this decline is more marked in girls than in boys (Australian Government Department of Health and Ageing, 2008). There is then a marked reduction in physical activity from late adolescence to early adulthood, as evidenced by data from US surveillance studies (Casperson et al, 2000). In the USA, 27% of 9th grade students do not meet current physical activity guidelines, and this proportion increases to 56-80% during the 'college years' (CDC, 1995).

One study has suggested that much of this decline in physical activity occurs during the summer period between high school and college (Han et al, 2008). Not surprisingly, the transition from high school to University is associated with changes in health behaviours, many of which may impact on physical activity. These occur as living arrangements, relationships, employment and study habits change. It is also likely that modes of transport change, with many US and Australian students having access to cars for transport. In 2008, Han et al reported that the amount of time spent walking decreased significantly between beginning and the end of the freshman (first) year at University.

Once college or university studies are completed and adults move into the workforce, physical activity levels fall further. In Australia levels are lowest in mid-age. At this life stage, the time pressures of managing the commitments of paid and unpaid work, as well as the demands of children and other family care-giving responsibilities, make it difficult to make time to be active, in our ever increasingly mechanised world. There is some evidence to suggest that physical activity levels may increase with retirement, when there is more 'free

time', but with increasing age, levels then tend to fall again as injury or illness make participation increasingly difficult for many (Brown, Heesch and Miller, 2009).

Overweight and obesity around the world and across the lifespan

Despite their consistently good performances in the Olympic Games, the USA, UK and Australia currently hold the gold, silver and bronze medals for population levels of overweight and obesity. In these countries the prevalence of overweight and obesity escalated in the last two decades of the last century, so that by the turn of the century, around two thirds of adults in these countries had a body mass index (BMI) above the healthy range (Flegal et al, 1999; The Comptroller and Auditor General, 2001; Australian Institute of Health and Welfare, 2004).

Worldwide, as physical activity levels continue to fall, the prevalence of overweight and obesity continues to increase over time. Although these increases have been evident in all age groups, between 1991 and 1998 the most marked rise in obesity in the USA was seen in the 18-29 year age group. In the nineties, obesity levels increased in this age group from 7.1% to 12.1% of the population; among those with 'some college education' the increase was even greater (from 10.6% to 17.8%) (Mokdad et al, 1995). In Australia, levels of overweight and obesity have also increased markedly in mid-age women in recent years (Brown et al, 2005).

As is the case with physical activity, the healthiest weight profiles are seen in children, with gradual increases in overweight and obesity with age (Australian Department of Health and Ageing, 2008). In Australia it is estimated that about one quarter of boys and girls are overweight or obese at the end of their school years. Prospective data from the Australian Longitudinal Study on Women's Health suggest that, ten years later, almost 40% of young women are overweight or obese. There are no corresponding data for young men, but there is no reason why they would not also gain considerable weight during this period.

There is a common belief that US students gain significant weight during their first semester at college, and the term 'freshman 15' has been used to describe the 15 lbs typically gained by students in this period. However, the evidence is equivocal and one recent report found a 2.4 lb weight gain in the six months from the beginning of first semester (October) to the end of second semester six months later (Morrow et al, 2006). Members of college sporting teams were however excluded from this study. Notwithstanding, if this rate of weight gain (1kg/year) was to continue for ten years, there would be a 10kg increase in weight by the time these US students were in their early thirties. Data from the Australian Longitudinal Study on Women's Health suggest that young women gain an average of about 6kg in the ten years from 18-23 to 28-33; about 40% of that sample have university education. Following young adulthood, levels of overweight and obesity continue to increase with age, but at a slower rate, until the effects of premature death among the obese results in a lower prevalence of obesity in the over seventies (data from the Australian Longitudinal Study on Women's Health).

The health benefits of maintaining healthy weight

Overweight and obesity increase the risk of many leading causes of morbidity and mortality, including coronary heart disease, stroke, type 2 diabetes and some forms of cancer, as well as symptoms such as back ache, and surgical procedures such as cholecystectomy (Brown et al, 2005). The development of chronic health problems with age appears to be largely driven by increasing weight in mid-age. For example, the risk of diabetes more than doubles when body mass index (BMI) increases from the healthy to the overweight category, which, for most people, occurs in the middle years of life. In the Australian Longitudinal Study of Women's Health, the incidence of diabetes over five years in the mid-age cohort was determined largely by BMI at age 45- 50 when the study began (Mishra et al, 2007). This clearly illustrates the importance of maintaining a healthy BMI during the twenties and thirties, when increasing numbers of people (in developed countries) are attending college or university.

The importance of sedentary behaviours

While weight gain is ultimately caused by energy imbalance [eating too much food (energy intake) and doing too little exercise (energy expenditure)], there is growing evidence that too much sitting may also have adverse effects on health in mid-life and beyond. Sedentary behaviour (from the Latin sedere - 'to sit') is the term now used to describe behaviours for which energy expenditure is low, including prolonged sitting in transit, at work, at home and in leisure time.

Most working adults now spend many more hours sitting (not only at work, but also in transport and in leisure time), than did their parents and grandparents. Walking from place to place, growing (and eating) fruits and vegetables, and doing household chores without labour saving devices were common in the 1950s and 60s. In only half a century, almost all this 'activity of daily living' has been engineered out of our lives. In Australia, we estimate that the average adult now spends about 9.3 hours each day sitting, in transport, at work, watching TV and participating in other sedentary leisure activities.

This is important, because, in the last two years, several cross-sectional studies have demonstrated relationships between self-reported sitting time with BMI and other health outcomes (e.g. Brown et al, 2003; Mummery et al, 2005; Dunstan et al 2007), even after adjusting for physical activity. There are also early indications that self-reported sitting time (as a marker of sedentary behaviour) may be a predictor of weight gain in Australian women, even when the effect of energy intake and leisure time activity are taken into account (Ball et al, 2002; Brown et al, 2005). Observational studies with more objective measures of sedentary time have also shown that total sedentary time is important for blood glucose control, and that more breaks in sedentary time are associated with more-favourable metabolic profiles (Healy et al, 2007, 2008).

For most people, sitting occurs while at work and in leisure activities such as watching TV and reading, and in using a computer at home. These long periods of sitting can impact negatively on daily total energy expenditure (Miller et al, 2004; Merom et al, 2005; Anderssen et al, 2007). There is also evidence to suggest that contemporary patterns of transport may also be important in terms of weight gain and health. This is illustrated by the fact that in the Netherlands, which is one of the only countries where obesity levels have not increased markedly in recent years, many people commute by bicycle. In contrast, in the UK, Australia and the USA, many people spend several hours each day sitting in cars, buses or trains, in their travel to and from work. A Danish study has recently shown that there can be real health benefits of active transport, such as cycling to work (Andersen, 2000).

Conclusions

As we move towards the second decade of the 21st century, it is unlikely that, in the context of otherwise sedentary lifestyles, leisure time activity will be sufficient to prevent increasing population levels of overweight, obesity and chronic disease. However, in addition to trying to discourage prolonged sitting, we need to re-engage people in active leisure, including involvement in sport and recreation. Since the University years appear to be the time that falls in physical activity and increases in weight are most marked, encouraging more widespread involvement in University sport could be an important for public health. As participation rates are currently low, this will be a challenge for Universities worldwide. Moreover, as the competing commitments of work and families grow during the years following University, maintaining involvement in sport will also be important. Efforts to promote University alumni sports should also therefore be encouraged, with 'transfer' arrangements in place for students whose geographical location changes once they complete their University studies.

Acknowledgements

The contributions of my colleagues, Adrian Bauman and Neville Owen, to the ideas and concepts discussed in this paper are gratefully acknowledged.

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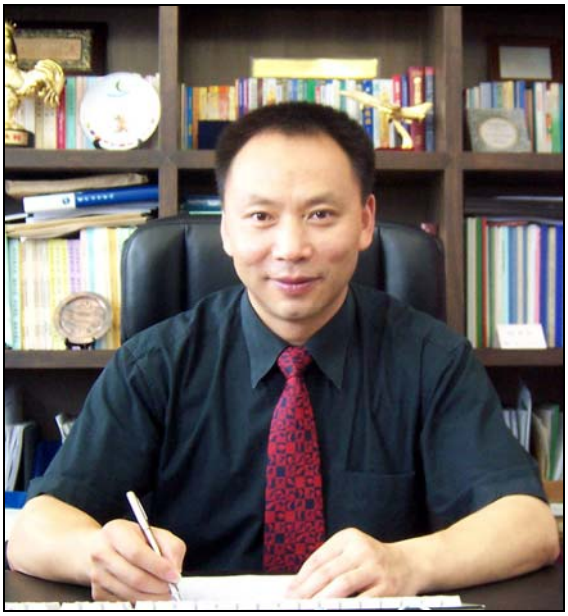
UNIVERSITY SPORT: A BRIDGE LINKING PHYSICAL ACTIVITY WITH HEALTH, EMOTION, INTELLIGENCE AND CULTURE

Zhong Bingshu, Beijing Sport University
Dong Jinxia, Peking University



Introduction

University is an important institution in modern society. It is a place where our philosophical, political, economic and moral values on society and human beings are shaped. Now there are over 100 million university students in the world. This figure is still increasing with the rapid expansion of higher education in China, India, the Arabic and other developing countries.

Sport, as a regulated and specialized activity for both participants and spectators, has become central to modern society. “It was one of the first indices of early forms of internationalization and, later, became embroiled in processes of globalization. It was integral to the growth of leisure in modern industrial society, to popular entertainment and to forms of massed gatherings. It was also widely used in educational and health related initiatives, central to political ideologies and militarization, and constitutive in the shaping of gendered identities”.v

University sport, a combination of university and sport, is self-evidently of significance. Virtually no student is immune from the impact of sport – either through direct participation in sports training and competition or watching others playing or simply chatting with peers about competition or sports stars. Indeed, university sport has played prominent roles in the expression of university identity, in enriching campus live and in promoting students physical, psychological and social well beings.

However, university sport is the most divided phenomenon. While some consider it as a culture, some claim it just a “game”; while some take it as a discipline seriously, some regard it merely a physical activity. In spite of this divison, in recent years, there is a growing body of serious research on the topic of sport from historical, sociological, philosophical,

References

[v] Stanford University and Cambridge University invite public to join in discussion about the future of sports and athletics in Western culture https://www.stanford.edu/dept/humanitiesout/drupal_files/file/pdf/Sports_FINAL.pdf

biomechanical, psychological and physiological and many other perspectives. However, there is paucity of studies on the interconnection between university sport, health, emotion, intelligence and culture. This state of affair is partly caused by the fact that most studies remain firmly fixed within disciplinary frameworks and there is a lack of creative interaction between scholars from different discipline backgrounds. Arguably, this affects people's attitudes towards university sport.

Given the increasing importance of university sport in both campus and society at large, and the fact that sport is physical activity done by human being within a specific cultural setting, it is necessary to evaluate the roles that sport plays to individuals, university and society, to examine the intricate relationships between physical activity, health, emotional and intellectual intelligence in order to transform university sport to meet the needs of the twenty-first century.

Based on literature reviews, observation and interview, this paper will analyses the current practices and problems in university sport, explore the possibilities of integrating physical activities with health, emotion, intelligence and culture and address the relevant issues and challenges in initiating changes in university sport.

University Sport and Health

In general, university sport consists of varsity sports and recreational sports though different universities in the same country or different nations have their own features own terms and structures.

Varsity sports are mainly for student athletes who undertake organized training and participate in inter-collegiate and /or national/international competitions. Through analyzing 30 selected US academic institutions, James L. Shulman and William G. Bowen found out that about one-quarter of the men and 15 percent of the women students playing on intercollegiate teams. Most athletes nowadays are recruited. [vi] The hold that intercollegiate athletics can be assessed in terms of its direct effects on the core educational mission of a college or university, its impact on campus ethos, alumni loyalty, and institutional reputation as well as its financial return.[vii]

Varsity sport is very import in universities because athletic competition fosters learning for life, trains leadership and cultivates team-work, competitiveness, self-control and discipline. The Duke of Wellington's oft-cited aphorism: "The battle of Waterloo was won on the playing fields of Eton" is the best reflection of this. In the West, America particular, virtually every university or college has its teams for various kinds of sports. These teams are professionally managed by specially employed coaches and serve as an advertisement for the respective university in order to recruit new students. For this reason, the universities provide the coaches with a budget to recruit talented athletes from around the world and help them finance their studies or even their entire stay abroad.[viii] Scholarships are available for most sports at college level. According to their size and the number of sponsored sports the universities are divided into four different divisions in up to 30 different sports. In competition, an individual may choose how to personally grow from either winning or loosing from the game. If the choice of development is right, a person engaged in such activities may as well increase their self-esteem and rather develop a personal drive for perfection. Scholarships are available for most sports at college level. University sport programs usually bring out the best and the worst among students, and among universities. Thus, competition is often intense between universities, even those prestigious Ivy League universities such as Yale and Harvard. Athletes, coaches and administrators, therefore, take their sports very seriously. Partly because of this, Chatzisarantis' studies in 2007 found out that "competitive athletes display lower psychological wellbeing than recreational athletes".[ix] In addition,

[vi] James L. Shulman and William G. Bowen, The Game of Life: College Sports and Educational Values, Princeton and Oxford: Princeton University Press, 2001, Pp.258-267.
[vii] James L. Shulman and William G. Bowen, op.cit.,, p.5.
[viii] http://www.sport-scholarships.com/english/whyathleticscholarships.htm
[ix] Nikos L. D. Chatzisarantis & Martin S. Hagger (2007), The moral worth of sport reconsidered: Contributions of

academic underperformance of athlete students is a common issue in the world. The aforementioned study by Shulman and Bowen indicate that this phenomenon has "its roots in high school academic performance, in the priority assigned by athletes to academics, and in the 'culture of sport'." x How the colleges and universities rebalance their objectives and solve the contradiction of athletic training and academic studies and strengthen the 'pure' values of sport are challenges facing varsity sport in the world.

Recreational sports including intramural sports, informal sports, club sports, and fitness programs are often offered to students to give them an opportunity to participate in sport and fitness activities. Physical activity behaviors established during university years have a long-term impact on adult physical activity patterns.

In the West, physical education is not a compulsory subject in universities. Students make their own choice whether to join a sports club or go to gym to do exercises or do no exercise at all. Such sports administration is advantageous in stimulating students' initiative in sports and developing life-long sports habit. However, it cannot guarantee that every student participates in sport regularly for the sake of her/his well-being, especially in the era of satellite television, the Internet and cellular phones. University sport in China includes varsity sport, recreational sport and physical education class.xi Since the mid-1990s university sport has been transforming. More selective PE courses and diversity of sports club activities have been provided in most universities.xii More attention has been paid to building up life-time sports habit and generating students' enthusiasm in sports. Inter-collegiate competitions have become more robust and visible since the 1990s and attracted more media coverage and corporate sponsorship.

Nowadays students tend to sit more and do less physical activities, especially outdoor exercises. Physical inactivity is associated with the increased risk of many chronic diseases. Obesity is one of them. It has become a public health problem in the world. In the United States an estimated 26.3 percent of adults reported being obese in 2007, an increase of nearly 4.3 percent since 2005.xiii Approximately 300,000 deaths per year may be attributable to obesity.xiv The findings of Amber A.Mather's study shows that being obese is associated with different types of Personality Disorders, women in particular. xv

It is estimated that the medical costs associated with overweight, obesity and their related health issues amount to more than $100 billion each year.xvi In China, a survey co-sponsored by Beijing Municipal Education Commission and Health Bureau reveals that the obese children in the city have increased from 3% in 1990 to 13.8% in 2001. At the same time infectious, cardiovascular and psychic diseases that are related to obesity have become the major factors that cause students to terminate their study. xvii It is widely accepted that the two major reasons for obesity are over-feeding and the lack of physical activities.

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recreational sport and competitive sport to life aspirations and psychological well-being, Journal of Sports Sciences, July; 25(9): 1047 – 1056

[x] James L. Shulman and William G. Bowen, op.cit., p.262.

[xi] physical education in China is a mandatory subject lasting two to three years in universities. University undergraduate students usually take in p.e. classes once a week(1.5 hour), lasting for 2 years, some for 4 years. Some universities, for example, the prestigious Tsinghua University, even demand the post-graduate students to take on the P.E. class once a week.

[xii] In Peking University, for example, over 40 kinds of activities are provided in the P.E. class including aerobic dance, tennis, self-defense, body shaping and many more activities, but track and field events are cancelled from the teaching program.

[xiii] Behavioral Risk Factor Surveillance System, http://apps.nccd.cdc.gov/cdi/IndDefinition.aspx?IndicatorDefinitionID=11, accessed on May 15, 2009.

[xiv] Office of the Surgeon General, Childhood Overweight and Obesity Prevention Initiative Healthy Youth for a Healthy Future, http://www.surgeongeneral.gov/obesityprevention/factsheet/index.html,

[xv] Amber A.Mather, Brian J.Cox, Murray W. Enns and Jitender Sareen, Associations Between Body Weight and Personality Disorders in a Nationally Representative Sample, PsychosomaticMedicine70:1012¨C1019(200

[xvi] Center for Disease Control and Prevention . (2007). Overweight and Obesity: Economic consequences, Retrieved Feb. 3, 2008, from http://www.cdc.gov/NCCDPHP/DNPA/obesity/economic_consequences.htm.

[xvii] Qi Haiyan, xiao panduner 10 nian duo liao 11% [Obese children increased 11 percent within the decade], Beijing ribao [Beijing Daily], March 16, 2001.

Due to lack of sufficient physical activities students' fitness has declined over time n China. According to a report on national physique test in 2004, students in muscular strength, endurance and flexibility had declined significantly over the past 15 years.[xviii] Alarmed by the situation, the Ministry of Education and the State Sports Administration endorsed jointly in 2002 the "Criteria for Students Fitness", according to which eight-five percent of schools and universities are to implement the Criteria for Students Fitness within the three years, and over 85% of students can do exercises an hour a day.[xix] Various health or fitness centers have being set up in universities one after another and fitness tests have been carried out in schools and universities throughout the country. A study by Mark Hamer And Andrew Steptoe shows physical fitness is associated with smaller inflammatory cytokine responses to acute mental stress, an effect that may be partly mediated through parasympathetic pathways. This may be one of the mechanisms by which physical fitness confers protection against cardiovascular risk. [xx] In 2006 the Ministry of Education launched the nation-wide program of "Sunny Physical Education and Sport for Hundreds of Million Students". Similarly, in the United States, the U.S House of Representatives approved the "No Child Left Inside Act in 2008".[xxi] It is claimed that people who are usually inactive can improve their health and well-being by becoming even moderately active on a regular basis. Lance E. Davidson and Kathleen McMillan's study showed the combination of resistance and aerobic exercise was the optimal exercise strategy for simultaneous reduction in insulin resistance and functional limitation in previously sedentary, abdominally obese older adults.[xxii] Greater health benefits can be achieved by increasing the amount (duration, frequency, or intensity) of physical activity.[xxiii]

'Health', according to the World Health Organization as early as in 1947, refers only to the state of not being ill and weak, but also to physical, psychological and social wellbeing. Recent medical researches found out that women who were more physically active in adulthood had a lower risk of breast cancer than those who were less physically active.[xxiv] Now family physicians were advised to increase physical activity of primary care patients. [xxv]

Except for the physical benefits, physical activities have impact on psychological well-being that is a complex construct that concerns optimal experience and functioning[xxvi] and associated with pursuit of a limited number of goals. Waterman pointed out in 1993 that "experiences of eudemonia (manifestation of psychological well being) are derived from personally expressive activities that facilitate self-realization through the fulfillment of personal potentials and through the advancement of one's purposes in living". Participation in sport is kind of experience of eudemonia. Goldberg claimed in the mid-1990s that "regular physical activity and recreation have moderate effects on the psychological health of 'normal' people, and marked beneficial effects for those at high-risk." [xxvii]

Emotional and behavioral conditions such as depression and hyperactivity are also brain disorders. Neuroscientists found that bodily activity increases the likelihood of achieving

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[xviii] Ibid.

[xix] "jiaoyu bu yunxiang tiyu chengji yu gaoka guagou [The Ministry of Education is considering to link physical education scores with college exams], Beijing wanbao [Beijing Evening News], Dec. 26, 2006.

[xx] Mark Hamer and Andrew Steptoe, Association Between Physical Fitness, Parasympathetic Control, and Proinflammatory Responses to Mental Stress, Psychosomatic Medicine 69:660-666(2007).

[xxi] No Child Left Inside, 2009. Healthier kids, a healthier world – No Child Left Inside. Retrieved Feb. 4, 2009, from http:??www.cbf.org/site/PageServer?pagena,e=act_sub_action-center_federal_NCLB.; NWF, 2008b)

[xxii] Lance E. Davidson, Kathleen McMillan, Effects of Exercise Modality on Insulin Resistance and Functional Limitation in Older Adults: A Randomized Controlled Trial, Arch Intern Med/Vol169(No.2), Jan26, 2009, Pp.123-131.

[xxiii] Physical Activity and Health At-A-Glance, http://www.cdc.gov/NCCDPHP/sgr/ataglan.htm

[xxiv] Beverly Rockhill, Susan E. Hankinson, A Prospective Study of Recreational Physical Activity And Breast Cancer Risk, Arch Intern Med/Vol159,Oct25, 1999, pp.2290-2296

[xxv] Gonzalo Grandes, Imanol Montoya, Effectiveness of Physical Activity Advice and Prescription by Physicians in Routine Primary Care: A Cluster Randomized Trial, Arch Intern Med/Vol169(No.7), Apr13,2009, 694-701

[xxvi] Ryan & Deci 2001

[xxvii] Goldberg, B., Sports and exercise for children with chronic health conditions. Champaign, IL.: Human Kinetics, 1995.

greater mental capacity. McKay and his colleagues stated in 1996 that "physical activity improves self-esteem and self-concept in children, and also contributes to a reduction in depressive symptoms, stress and anxiety".xxviii

The study by the Swedish scientist Bjornebekk A., mentioned earlier, show that physical exercise can have antidepressant effects.xxix James A. Blumenthal et al, based on their clinic study, suggest an exercise training program may be considered an alternative to antidepressants for treatment of depression in older persons.xxx These findings are particular valuable today when the levels of perceived stress and depression among university students have elevated. According to a national survey of 14,000 college students, 54 % of the students who discontinued their studies did so due to psychiatric disorder. In addition, about 17 % had negative psychological qualities.xxxi The incidents of students' suicide have been reported frequently in recent years.

Physical activities can also teach participants basic life skills in order to avoid injuries and risks to health. For example, life-saving skills are components of swimming classes and survival skills in extreme conditions are taught in the outdoor activities sessions. Such social skills and experience can provide young people with valuable training for their current and future lives.xxxii

Some studies suggest that participation in sport can reduce the likelihood of smoking, premature sexual activity and associated teenage pregnancy, and moderate negative attitudes to school, reduce the drop-out rate in schools and lessen anti-social behavior.xxxiii

Physical activities are believed to be an effective means to cultivate perseverance, confidence, self-control, competitiveness and fighting spirit. University sports give students the chance to interact with each other, a chance to mingle with both their classmates and schoolmates. Sports activities can be a useful tool to mould teamwork and co-operative qualities that are important for success in modern society. They are often used by many business companies for this purpose. Tina M. Penhollow and B. Sue Graves did a survey to the Southeastern University students and got the results that respondents who participate in physical activity had significantly greater life satisfaction and body satisfaction.xxxiv Corby K. Martin's study illustrates that exercise was a significant predictor of quality of life change (QOL). Higher doses of exercise were associated with larger improvements in mental and Physical aspects of QOL. xxxv

Generally speaking, university sport has become institutionalized in the world. However, there exist some problems. First, the significance of physical fitness through sport is widely recognized but its social and economic benefits are not fully appreciated. Second, varsity sport is stressed over recreational sport and competition performance is stressed over fair play. As a result, too many sport programs have lost sight of the importance of fair play and the interest of mass students.

[xxviii] McKay, S.L, Reid, I.S., Tremblay, M.S., and Pelletier, R., 'The impact of recreation on youth in transition to adulthood: A focus on youth-at-risk'. In B. Galway and J. Husdon (eds.), Youth in transition: Perspectives on research and policy. Toronto: Thompson Educational Publishing Inc., 1996.

[xxix] Bjornebekk A, Mathe AA, Brene S, The antidepressant effect of running is associated with increased hippocampal cell proliferation. *Int J Neuropsychopharmacol*, 2005; 8(3): 357-68. Epub 2005 Mar 15

[xxx] James A. Blumenthal, Steve Herman, Mark Appelbaum, Effects of Exercise Training on Older Patients With Major Depression, Arch Intern Med/Vol159,Oct25,1999, pp.2350-2356

[xxxi] Beijing Wanbao [Beijing evening daily], November 12, 2001.

[xxxii] Brown, E.W., et al., Participation in Youth Sports: Benefits and Risks. Spotlight on Youth Sport, no.2, 1998, pp.1-4.

[xxxiii] Margaret Talbot, The Case For Physical Education, in Proceedings: World Summit on Physical Education, Berlin: International Council of Sport Science and Physical Education, 2001, pp.39-50.

[xxxiv] Tina M. Penhollow and B. Sue Graves , 'Predictors of Physical Activity and Life Satisfaction Among College Students', Research Quarterly for Exercise and Sport, Supplement to Research Quarterly for Exercise and Sport Vol. 80, No.1, Research Consortium Abstracts, A-33.

[xxxv] Corby K Martin, Conrad P. Earnest, Exercise Dose and Quality of Life A Randomized Controlled Trial, Arch Intern Med/Vol169(NO.3), FEB 9,2009, pp.260-278

Academic Approach to University Sport

In the last three decades there have emerged various sports labs and research centers in many universities across the world. In China, for example, the Research Centre for the People's Olympics affiliated to the Renmin University in Beijing, the Research Centre for Sports Law in the Politics and Law University of China and the Peking University Research Centre for Gender, Sports Society came into being one after another. In addition, a number of leading universities, including Peking, Tsinghua, Shanghai and Zhejiang universities, have been awarded the title of "Key Research Base for Social Science of Sport" by the State Sports Administration. This signals that sports-specialized university and institutes can no longer monopolize sports studies.

The modules of sports history, the Olympic culture and many other sports theory subjects are incorporated into the university academic programs in increasing number of universities. These courses can help deepen students' understanding of sport – its role in character-building including the qualities of competitiveness and cooperation, discipline and hard work, goal-setting and self-motivation. In Britain some 70 universities have sports science program, in Germany 76 and in France 60. In America most universities have sport-related programs for undergraduate, graduate and Ph.D. students.

More than this, some sports disciplines have obtained the degree-awarding status. The Central Finance and Economy University will have undergraduates specializing in Sports Economy from the autumn of 2003. In the same year, Sports Economy and Sports Media will be the newly established majors for students in the Beijing Normal University. Not only is the bachelor degree awarded to sports studies, but also master and doctor students are recruited to read sport in a number of general universities. In China, some 122 higher education and research institutes have Master study programs and over 20 universities have sport-related Ph.D. programs.

More world prestigious universities have involved in sports related academic events in the past years. For example, the Bi-annual Cambridge-Stanford Sports Colloquium was initiated in 2006; Yale University and Hong Kong University hosted the International Conference of The Olympics in East Asia: Nationalism, Regionalism and Globalism on the Center Stage of World Sports in 2008; Peking University included the Olympics into its annual international conference "Beijing Forum" since 2006. All this demonstrates the tendency that sport is becoming a discipline like history, Math and many other main-stream subjects in universities. Sport will occupy a significant position in universities.

Recent studies in the mainstream subjects suggest that there are intricate links between body, brain, emotion, intelligence and culture. Brain is composed of billions of specialized cells that are further organized into specialized functional regions. Different regions of the brain are devoted to each type of task, but the brain controls both voluntary and involuntary activities. The human brain is shaped by sensory and social input. During embryonic development and early life, the brain changes dramatically. Neurons form many new connections, and some neurons die. However, the changes are not restricted to early life.[xxxvi] Even in the adult brain, neurons continue to form new connections, strengthen existing connections, or eliminate connections as we continue to learn. Recent studies have shown that some neurons in the adult brain retain the ability to divide and damaged neurons have some capability to regenerate if the conditions are right;[xxxvii] that people raised in different cultures may differ in the ways their minds and brains work.[xxxviii] A series of

[xxxvi] Gould, E., Tanapat, P., Rydel, T., and Hastings, N. Regulation of hippocampus neurogenesis in adulthood. 2000. *Biological Psychiatry, 48*: 715–720

[xxxvii] Guld, E., and Gross, C.G (2002). Neurogenesis in adult mammals: some progress and problems. Journal of Neuroscience, 22(3): 619–623

[xxxviii] for examples, differences between Euro-Americans and East-Asians in selectivity of brain responses to the self instead of friends (greater in Westerners); overlap of brain activations to self and mother (greater in Easterners); eye movement focus on central objects rather than the background of visual images (greater in Westerners); and category formations based on a variety of shared features rather than a single central feature (greater in Easterners).

studies conducted by Swedish scientist Astrid Bjornebekk has direct reference to sport. He claims that exercise helps rats form new cells in the hippocampus, a part of the brain associated in humans with memory and learning. The new cells could be the key to why working out relieves depression.xxxix Another study by Antonio Terracciano et al. claimed that those with scores above average on General Activity, Emotional Stability, or Conscientiousness lived on average 2 to 3years longer than those below the mean.xl Based on their study, Diana Kuh et al pointed out that adult cognitive ability was positively associated with balance time which remained independently and positively associated with verbal memory and search speed.xli

The above studies have great implications for understanding the role of sport in shaping our minds and brains.xlii For example, sport might make people intelligent because it can lead to the increase of brain cells; different sports might have different impact on brain structure and function. However, what is the mechanism for sport and physical activity to work upon brain structure and to affect physical and mental health, and how different activities and different training programs should be arranged according to patients, age, gender and fitness levels are just a few of the many issues that need to be explored. There are sufficient justifications for sport to become an academic subject in universities.

Future Trend and Challenges

From the above introduction of university sport development and research findings about human brain, body and their relationships, it is evident that university sport is changing from practice-oriented physical activity to a comprehensive institution integrating play, competition with education and research.

To make a breakthrough in the academic analysis of university sport requires the joint effort of people with different academic backgrounds such as physiology, psychology, neurology, sociology and many others. Of course, the process of understanding across different disciplines is difficult to achieve because stereotypes against sport still exist. The educational philosophy that emphasizes book knowledge over others and intellectual intelligence over physical and emotional intelligence is hard to change. There is a deep-seated belief that sport is not an academic subject though it has a number of master degree or Ph.D. degree programs in many universities in the world. As the poet Robert Bly mentioned that most of his contemporaries were in the academic community, which looked down on the institutions' athletic programs, especially the mammoth machinery of football, as alien, unimportant, and beneath consideration."xliii Thus, it is difficult, if not impossible, to call for interdisciplinary collaboration into sports studies. However, while it is often incomplete it is frequently rewarding and rarely totally impossible. Leadership is crucial for initiating changes in university sport, especially for interdisciplinary or multi-disciplinary investigation into sports-related issues.

To promote both academic inquiry into and actual practice of university sport it also needs global collaboration and many parties involvement. In the twenty-first century, the globalization of cultures, economies and sport has accelerated markedly. We are linked, inter alia, by the increasing internationalization of trade, the global mobility of capital and by media cosmopolitanism. The need for new forms of international analysis and understanding and for the transcending of merely localized perspectives is acute. This requires a joint and well-concerted enquiry into university sport by scholars from different countries and different

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[xxxix] Exercise Grows New Brain Cells, by Jeanna Bryner, LiveScience Staff Writer, posted: 28 June 2007 12:25 pm ET http://www.livescience.com/health/070628_exercise_brain.html

[xl] Antonio Terracciano, Corinna E.L. Ckenhoff, Alan B.Zonderman, Luigi Ferrucci and Paul T. Costa, Personality Predictors of Longevity: Activity, Emotional Stability, and Conscientiousness, Psychosomatic Medicine 70:621-C627(2008

[xli] DIANA KUH, eta al., Lifetime Cognitive Performance is Associated With Midlife Physical Performance in a Prospective National Birth Cohort Study, PsychosomaticMedicine71:38¨C48(2009

[xlii] Bruce Wexler,

[xliii] Michael Nelson (2005), 'College-Sports Books Go Varsity', *The Chronicle Review*, June 10.

cultural backgrounds. Comparison between the cultures of West and East and between the developed and developing counties can provide an analytical network of overlapping similarities and differences leading to greater understanding of university sport.

In our view, global cross-cultural studies of university sport should examine both shared and different cultural and academic traditions, value systems, policy making, management systems and financial structures; should analyse the common and uncommon features in the history of university sport in Asia, Africa and other continents; should compare the different sports policies and practices regarding university sport in the developed and developing countries; should also scrutinise the varied attitudes to sport between Confucian, Christian and Islamic countries and review the different approaches of centrally controlled nations and democratic nations. Who should take the lead to launch the changes and how to establish global and inter-disciplinary network are some of the issues that need to be considered.

Summary

University sport has become a very important institution by any reasonable measures – participation rate, media coverage, financial support and corporate sponsorships as well as spectators. It plays prominent roles in building university identity, in promoting students physical and psychological health and in improving students' live quality.

Varsity sports and recreational sports are the two major pillars of university sport in which the significance of physical fitness is more widely recognized than the social and economic benefits of sport; varsity sport is often stressed over recreational sport and competition performance is stressed over fair play. In the past decades there have appeared some changes in university sport. With the establishment of sports labs and research centers, the introduction of various sports theory courses and sports-related Master and/or doctoral programs and the organization of sports related academic conferences university sport is changing from practice-oriented physical activity to a comprehensive institution integrating play, competition with education and research. The recent research findings in Mainstream studies illustrate that exercise not only help physical and psychological well-being, but also leads to the increase of brain cells, thus making people more intelligent and less depressed. Sports activities can be a useful tool to teach participants basic life skills, mould teamwork and co-operative qualities, increase their self-esteem and develop a personal drive for perfection. As culture and socio-economic environment have impact on brain structure and function, different sports and different way of exercising might have different impacts on brain structure and function. This is the area that needs to be explored further.

It is time for practitioner and scholars from different academic backgrounds and from different nations to work together to probe the problems, potential and possibilities of university sport in the twenty-first century.

The Citius End: World Records Progression Announces the Completion of a Brief Ultra-Physiological Quest

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Abstract

World records (WR) in sports illustrate the ultimate expression of human integrated muscle biology, through speed or strength performances. Analysis and prediction of man's physiological boundaries in sports and impact of external (historical or environmental) conditions on WR occurrence are subject to scientific controversy. Based on the analysis of 3263 WR established for all quantifiable official contests since the first Olympic Games, we show here that WR progression rate follows a piecewise exponential decaying pattern with very high accuracy (mean adjusted r^2 values = 0.91 ± 0.08 (s.d.)). Starting at 75% of their estimated asymptotic values in 1896, WR have now reached 99%, and, present conditions prevailing, half of all WR will not be improved by more than 0,05% in 2027. Our model, which may be used to compare future athletic performances or assess the impact of international antidoping policies, forecasts that human species' physiological frontiers will be reached in one generation. This will have an impact on the future conditions of athlete training and on the organization of competitions. It may also alter the Olympic motto and spirit.

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Introduction

Olympic Games were reintroduced in 1896 by Pierre de Coubertin. One hundred and eleven years later, world record collection shows the progression of human performance as elite athletes periodically pushed back the frontiers of "ultra-physiology". This unplanned experiment could have been written as the phenotypic maximization of present human genotype under the pressure of regulated competition [1]. This large scale investigation can now be appraised, but the best methodology to do it is a disputed scientific issue [2–5], with some literary perspectives [6,7]. Linear regression models [2,8] have been criticized [3] for their inaccuracy and non physiological relevance. A flattened S-shaped model has been elaborated by Nevill and Whyte [4,5] on 8 running and 6 swimming events, but closer observation would suggest more detailed variations of the WR curves, adding historical or technical influences to biological parameters (Fig. 1). Here we identify a common progression pattern for world records from all quantifiable Olympic events and propose a model that predicts the end of the quest.

Materials and Methods

We conducted a qualitative and quantitative analysis of 3263 WR in all 147 measurable Olympic events from five disciplines [9–13] in order to identify WR progression patterns. Data were gathered from 1896 to 2007 (modern Olympic era).

Descriptive analysis: λ, κ factors

Two indicators were introduced in order to describe WR. Because the WR number established each year also depends on the number of events, we defined factor λ as the annual ratio at year t of the new WR number over the total number of official Olympic events:

$$\lambda_t = \frac{\Sigma(new\,WR)_t}{\Sigma(events)_t} \quad (1)$$

WR evolution is also analyzed through the progression step κ, which measures the relative improvement of the n^{th} best performance as compared to the $n\text{-}1^{th}$ value:

$$\kappa_n = \frac{|WR_n - WR_{(n-1)}|}{WR_{(n-1)}} \quad (2)$$

with a mean $\bar{\kappa}_t$ annually calculated for all official events at year t.

Function description

WR series for each event were fitted by the function

$$y_j(t) = \Delta_{WR} \cdot \exp^{(-a_j \cdot t')} + b_j \quad (3)$$

Where $\Delta_{WR} = WR_{i,j} - WR_{f,j}$ is an event indicator for the studied j period; it is positive for the chronometric events (with decreasing WR values) and negative for the non-chronometric ones

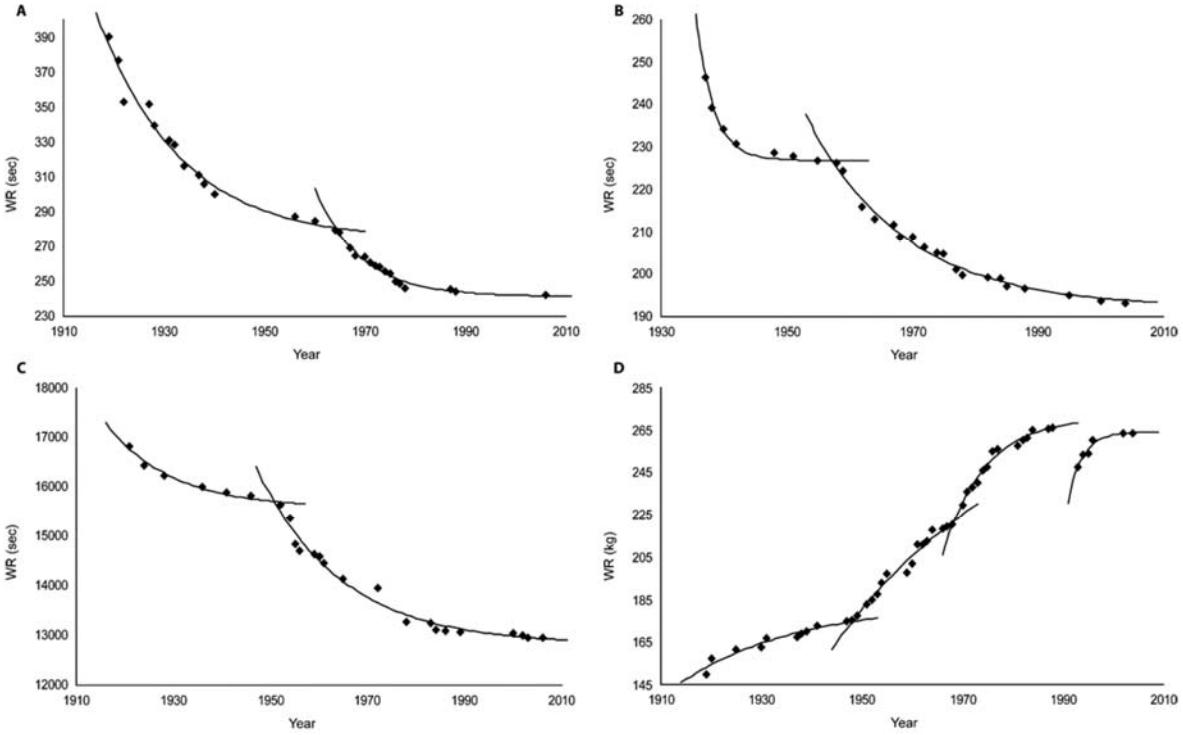

Figure 1. Model fitting on 4 events. A. Women 400 m freestyle (swimming) with biexponential decaying curve, adjusted $r_i^2 = 0.976$ and $r_{ii}^2 = 0.966$; B. Men 4×100 m freestyle relay (swimming), $r_i^2 = 0.985$, $r_{ii}^2 = 0.988$; C. Men 50 km walk (track), $r_i^2 = 0.972$, $r_{ii}^2 = 0.977$; D. Clean & Jerk Super Heavyweight (weight lifting), $r_i^2 = 0.939$, $r_{ii}^2 = 0.937$, $r_{iii}^2 = 0.975$ and $r_{iv}^2 = 0.946$. Weight categories were altered in 1948, 1968 and 1992 and control reinforced in 1988–1992 in weight lifting.
doi:10.1371/journal.pone.0001552.g001

(increasing WR values); $WR_{i,j}$ and $WR_{f,j}$ are the initial and final WR values, respectively ; a_j is the positive curvature factor given by non linear regression; b_j is the asymptotic limit. Normalization of t in the [0, 1] interval ensures the objective function (3) to be well-defined for all values of t. As a consequence, we used:

$$t'_j = \frac{t_j - t_{i,j}}{t_{f,j} - t_{i,j}} \quad (4)$$

where t' is the WR year after linear transformation of t ; $t_{i,j}$ and $t_{f,j}$ are the years of initial and final WR in the current j period, respectively. Equation (3) assumes that WR will achieve an asymptotic value within a given span starting at $WR_{i,j}$.

Splitting WR series into periods

A procedure based on the best adjusted r^2 is used to split WR series into periods. The algorithm is initiated by the first three WR values. The series is iteratively fitted by adding the next WR point using equation (3). For each fit, the adjusted r^2 is obtained; local maxima provide the changes of incline corresponding to the beginning of a new period. The minimum period duration is 6 years, the minimal WR number is three per period.

For each event, this piecewise exponential decaying model provides successive periods. A period refers to a time slot defined by a group of consecutive WR, following a rupture of incline. During the period j, parameters a_j and b_j are estimated using the Levenberg-Marquardt algorithm [14–16] (LMA) in a non linear least-squares regression to fit the model to WR. High values of the curvature coefficient a are seen in highly curved periods showing weak margin of final progression. Coefficient b is the asymptotic value; the comparison of the initial (WR_i) and final (WR_f) records to b are described through the b' and b'' ratios respectively. The progression step over the Olympic era is equal to b''–b' and expressed as a percentage of the asymptotic value.

Coefficients description

The initial progression range is given by b'. In order to compare the predicted final progression, b'' are calculated for terminal periods of events.

For chronometric events ($WR_i > WR_f$): $b' = \frac{b_j}{WR_{i,j}}$ and $b'' = \frac{b_j}{WR_{f,j}}$; for non chronometric events ($WR_i < WR_f$): $b' = \frac{WR_{i,j}}{b_j}$ and $b'' = \frac{WR_{f,j}}{b_j}$.

This presentation also allows for a comparison of each record as a percentage of the estimated asymptotic value.

Prediction

Data set used for prediction was reduced to 125 events. From the 22 discarded events, two resulted from javelin weight change and 20 referred to weight lifting: 9 Clean and Press events were removed from official list in 1972 (Fig. S2) and 11 suffered major rule's alterations (weight categories). For prediction purpose, the

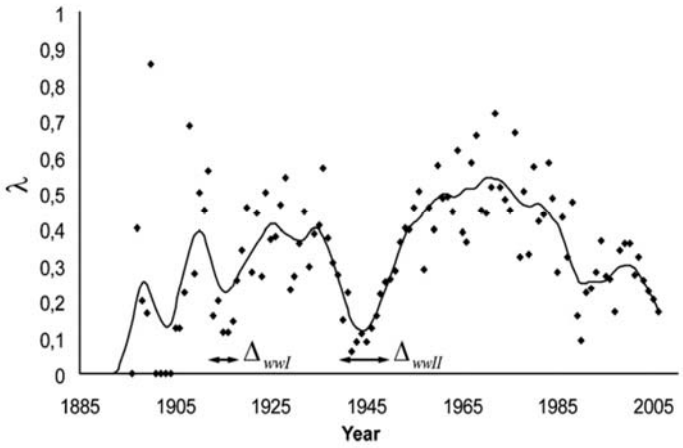

Figure 2. Evolution of factor λ : new WR number over official Olympic event number. Exact numbers (black dots) are filtered with a 60 Hz second order low pass butterworth filter (black curve). World wars show major impact on λ : $\Delta_{wwI} = 6.4$ years ; $\Delta_{wwII} = 13.4$ years.
doi:10.1371/journal.pone.0001552.g002

inverse function of equation (3), is given by:

$$t' = \frac{1}{-a} \cdot \left[\log\left(\frac{y-b}{\Delta_{WR}} \right) \right] \quad (5)$$

Coefficients of equation (5) are calculated for the last period of each event through LMA. The result is used to estimate the year t when the 99.95% (1/2000) limit is reached. This limit is set by $y = b + \frac{b}{2000}$ for chronometric events, and $y = b - \frac{b}{2000}$ for non chronometric records. The 1/2000 value was chosen in reference to the chronometric limits used on the quickest track race: it represents half of a $1/100^{th}$ of a second on the 100m (and about 4s on a marathon or 100g in weight lifting disciplines).

Estimating prediction variability

Credibility interval is computed using a simulation method of Monte Carlo [17]. Previously estimated coefficients from equation (5) are used to draw 10 000 new coefficients in a bidimensional normal distribution. Median was chosen as a robust measure of the center of the distribution in a non parametric approach.

We used the 2.5th percentile, median and 97.5th percentile to produce the prediction errors for the estimated year at 99.95% and the estimated WR asymptotic values. The credibility interval [18] is given by the mean of the 2.5th and 97.5th percentiles for all 125 predictable events (Table S1).

Results

Chronometric events represent 58% of the data set (swimming, track, cycling, speed skating) with a decreasing tendency of WR values; 42% are non chronometric events (field, weight lifting) with increasing WR values.

Factor λ evolution during the Olympic era (Fig. 2) reveals three major phases of decline starting in 1913, 1938 and 1971 respectively. World Wars impact on λ results in two major lag times, estimated by their width at mid-height: $\Delta_{wwI} = 6.4$ years for World War I and $\Delta_{wwII} = 13.4$ years for World War II. The calculated mean delay between each new WR is 2.62±3.05 (s.d.) years.

$\bar{\kappa}_t$ significantly diminishes over the whole studied era (linear model: $F(1,102) = 27.14$, $P<0.001$) (Fig. 3) supporting the hypothesis of a constant reduction of WR progression possibilities.

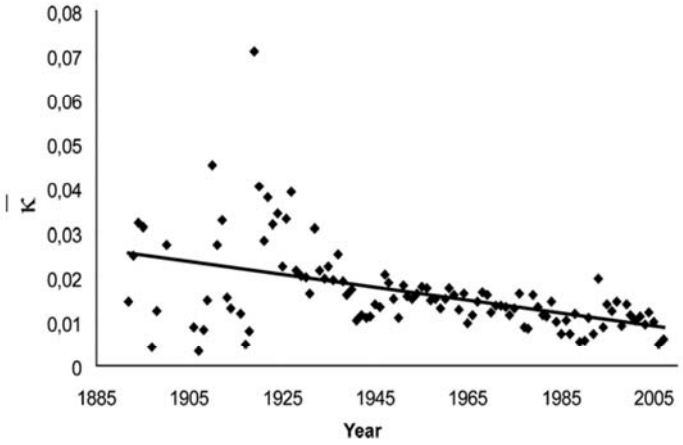

Figure 3. Annual evolution of WR relative improvement: $\bar{\kappa}$ decreases from 0.024 in the first 30 years to 0.010 in the last 10 years (Linear model: $y = -1.46 \cdot 10^{-4}x + 0.301$, $F(1,102) = 27.14$, $P<0.001$). This decrease is representative of the growing difficulty to improve previously established WR values.
doi:10.1371/journal.pone.0001552.g003

Using the best adjusted r^2 iterative algorithm, 363 periods were obtained with mean $a = 3.00 \pm 2.87$, $b' = 0.75 \pm 0.15$ (Fig. S4), $b'' = 0.99 \pm 0.008$, an average progression step between initial and final records of 24%, and mean adjusted $r^2 = 0.91 \pm 0.08$ (Fig. S3). The evolutionary profile of WR series over the Olympic era shows 2 to 3 periods for most of the events (2.47 periods $\pm$ 1.18, range 1–6), with a mean of 8.98 WR per period and a mean duration of 25.8 years $\pm$ 14.8 per period.

We predicted the asymptotic value of each record, using the inverse function of equation (3) on the last period of 125 exploitable events (Table S1). A Monte-Carlo procedure was used to define the credibility interval of the prediction. The mean credibility interval of the asymptotic WR values is [−2.28% ; +2.28%]. We also predicted the year when a record will be established at 99.95% of its asymptotic value using the same method on the last period of the 125 exploitable events. The distribution of the 125 dates is expressed by decades (Fig. 4): 12.8% of these asymptotic WR have been reached in 2007. By 2027, half of the records will reach 99.95% of their asymptotic value, within a [2002–2120] credibility interval (Table S1 for each event prediction).

Discussion

The proposed piecewise exponential decaying model, describing momentary expansion in a finite context, suggests a major global fading of WR progression. During an initial phase of rapid improvement, interrupted by two major events (Fig. S1), WR progression rate may have been described by a linear model. With a 40 years hindsight on the WR rate decline (Fig. 2), debate on the limits now clearly emerges. As expected from biology, accurately fitted curves (high r^2 values) now refute the linear model. In all measurable Olympic contests from five different disciplines, involving either aerobic (10000 m skating) or anaerobic (weight lifting) metabolic pathways, leg muscles mainly (cycling) or all muscles (decathlon), lasting seconds (shots) or hours (50 km walk), either in men or women, small (Fly weight) or tall athletes (100 m free style), individual or collective events (relays), all progression curves follow the same pattern, supporting the universality of the model.

Recently introduced events, such as women weight lifting starting in 1998 (Fig. S2), may require closer follow-up. Also final periods appearing in the last decade, with smaller data samples, may have a wider progression margin than estimated. Record measurement accuracy may be enhanced by using more precise technologies (times recorded in milliseconds, jumps in millimeters). Such decisions, however, are expected to have no effect on the WR progression rate λ, as it only alters the curve sampling and not the exponential shape nor the asymptotic value.

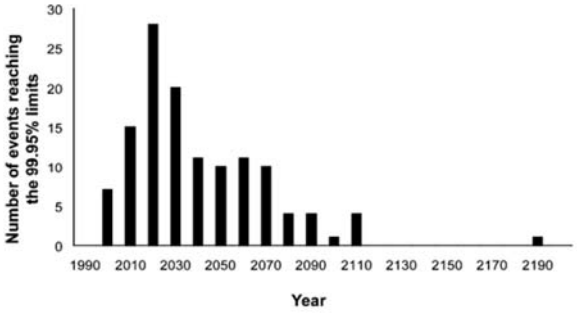

Figure 4. Distribution of estimated limits at 99.95% of the asymptotic value. Results are sampled by decades. Half of the asymptotic records will be established in 2027, and 90% in 2068.
doi:10.1371/journal.pone.0001552.g004

Historical circumstances and WR evolution are closely linked: the impact of world wars results in two delays (Fig. 2) with Δ_{wwII} being twice as large as Δ_{wwI}. Starting in 1971, a much larger λ reduction is observed (from 0.72 to 0.17), in the absence of major conflict [19] and despite the Cold War, which boosted sport competition among east European and western nations. In addition economic development between 1950 and 1980, with major technological, nutritional and medical advances, offered a constant elevation of life resources in the few countries (USA, Russia, Australia, Canada, Japan and European countries) that provide 95% of WR. This last WR rate decrease also happened despite a considerable expansion of participating countries (and athletes) : from 14 nations in 1896 in Athens (240 competitors), 69 nations in Helsinki's 1952 games (4950 athletes) and 202 nations for the last summer games in Athens again (11100 athletes). Rule modifications and antidoping control reinforcements may have generated specific WR evolutions, as in Clean & Jerk super heavyweight (Fig 1.D), where weight categories changed in 1948, 1968 and 1992. Finally, the λ decrease still appeared despite improvement of selection and training processes (time allotted to practice, new jumping or race-starting techniques, recruitment of taller athletes [20]). All of these may have triggered new periods, but did not alter the global pattern, which is common to sport events as different as marathon, 4×100 m medley relay or pole vault.

Individual or team doping strategies have been used throughout the Olympic era, and state controlled protocols were developed since 1970 [21,22] : both may have contributed to slow down the λ slope. Such practices however did not prevent the decline observed after the Mexico Games. Situations where doping would be legalized or not properly prevented [23–26] may again partially alter the record course in the future. The fact that suspected or belatedly convicted athletes hold some of the final records may exaggerate our predictive model, such that the year when half of WR will reach the 99.95% limit may even be closer. In fact recent data show no progression of the 10 best performers in the last 20 years for the 100 m track women or men high jump [27] suggesting these WR may not be challenged anymore, especially when anti-doping agencies increase their actions and penalties. This is also observed when comparing the sprint events in running, swimming and speed skating over the second half of the XXth century [28].

Major international rule changes, new technologies or gene profiling have also been tested in sport [29–30]. However 50% of asymptotic WR values will be obtained in one generation: sport organizations may then try to create new events, drop the WR quest, favor sports less directly associated with pure performance or promote health benefits of physical activity [31]. The "citius, altius, fortius" motto may be reworded within this century. Toward a "sanius ?" remains an open question.

In summary, an epidemiological analysis of sport performances demonstrates that WR progression follows a piecewise exponential decaying pattern, altered by historical events. Results point out that in 2007, WR have reached 99% of their asymptotic value. Present conditions prevailing for the next 20 years, half of all WR won't be improved by more than 0.05%. As compared to the positivism triumphing at the time Coubertin inspired Olympic renewal, the present analysis emphasizes the ineluctable rarefaction of the quantifiable proofs of human physiological progression.

Supporting Information

Figure S1 Evolution of cumulative annual number of records. The growth of WR is altered by the two world wars, and is slowing down since 1988.
Found at: doi:10.1371/journal.pone.0001552.s001 (0.15 MB TIF)

Figure S2 Evolution of cumulative annual number of events with official WR. In 1972, 9 weight-lifting events were discarded from Olympic event list; 14 women weight lifting events were introduced in 1998.
Found at: doi:10.1371/journal.pone.0001552.s002 (0.15 MB TIF)

Figure S3 Adjusted r^2 values for the 363 periods showing no variation over the modern Olympic era (Linear model: $F(1,361) = 1.268$, $P = 0.261$) and a mean value of 0.91 ± 0.08.
Found at: doi:10.1371/journal.pone.0001552.s003 (0.20 MB TIF)

Figure S4 Evolution of b': this parameter increases (Linear model: $F(1,145) = 106.7$, $P<0.001$) during the Olympic era, such that recently introduced events will reach their asymptote faster than early XXth century contests.
Found at: doi:10.1371/journal.pone.0001552.s004 (0.17 MB TIF)

Table S1 Table of predicted WR asymptotic value, year of the 99.95% limit, credibility intervals and period number per event. Women and men are respectively symbolized by (W) and (M). C&J are Clean and Jerk weight lifting events. Two versions of the Track women 100 m are presented, version 1 includes the last WR, version 2 leaves it out.
Found at: doi:10.1371/journal.pone.0001552.s005 (0.29 MB DOC)

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Author Contributions

Conceived and designed the experiments: OH GB JT XJ. Performed the experiments: GB JT VT NE. Analyzed the data: GB VT MT SE. Contributed reagents/materials/analysis tools: GB MT SE. Wrote the paper: GB JT.

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BODY COMPOSITION IN ATHLETES: CONCEPTS AND METHODOLOGICAL ASPECTS WITH FOCUS ON THE BOD POD® PROCEDURE

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Abstract

Body composition is, besides other physical characteristics, a factor that can explain and/or influence athletic performance. Regular assessment of an athlete's body composition is a vital aspect of his/her achievements during training and competition. As such it is of considerable interest to coaches and athletes. The study of body composition attempts to devide and quantify body mass into its basic components, and can be studied at several levels from basic anatomical elements and specific tissues to the body as a whole, as descibed in the "Fivel-level-model", introduced by Wang and co-workers in 1992. A lot of methods to assess body composition in vivo are available. Methods are different in methodological and technical aspects, so that one may inquire whether they provide reasonably similar estimates of the different body composition compartments, such as fat mass and fat-free mass, or the different components of the fat-free mass, such as water, protein and mineral. A brief overview of the levels and models often used in body composition research will be discussed with focus to the two-compartment model (Siri-equation), and multi-compartment models, to assess percentage of body fat. Special attention will be given to the densitometric method, with emphasis to the Air Displacement Plethysmography (ADP) technique, which is a rather new developed method introduced by Dempster and Aitkens in 1995. Attention will be given to the assessment of body composition in athletes, comparing ADP with underwater weighing (UWW) to assess percentage of body fat. Own results of a recent study on male and female student athletes in various sports will be discussed.

Introduction

In his book "The Physique of the Olympic Athlete", Tanner (1964), argued that the 'physique' of an athlete "is a factor in the sort of success that may lead to inclusion in an Olympic team; or, more negatively, that the lack of a proper physique may make it almost impossible for an athlete to reach that degree of success" (Tanner, 1964, p. 14) Body size, body structure, and body composition are seperate yet interrelated aspects of the human body that contribute to what has been defined as 'human physique'. Body size refers to length, body mass and volume, breadths and circumferences, and body surface, whereas

body structure refers to the distribution of body parts such as the skeleton and muscle-adiposity distribution. Body composition, as the third dimension of physique, refers to the amounts of the different constituents of body mass. (Houtkooper and Going, 1994). As such, body composition is, besides the other physical characteristics, an important factor that can explain and/or influence athletic performance. (Hergenroeder and Klish, 1990; Heyward and Wagner, 2004b; Malina, 2007; Sinning, 1996) Especially in sports where competition is based on weight-categories, such as judo, wrestling, and weight lifting, the evaluation of the body composition of the competitors is of crucial importance, the more body weight as such is a poor performance indicator. (Marshall, 2005) Not only body composition is important for guiding the training process and to obtain optimal performance, knowledge of it is also important for the health condition of the athletes, especially in so-like "arts"- sports, such as figure skating and gymnastics. An athlete has to reach an ideal body composition related to the specific sport, dependent on training goals and diet. (Hergenroeder and Klish, 1990; Heyward and Wagner, 2004b; Malina, 2007; Marshall, 2005) Especially in young athletes, it is important to know how the different components of an athletes' body weight vary with age, sex, and maturity status, especially during the adolescense period. (Lohman et al., 2008; Malina, 2007) Body composition assessment in women athletes becomes more and more attention in sports medicine and centres around a combination of three disorders, the so-called 'female triad', especially observed in young female athletes, including menstrual dysfunction, osteoporosis and disordered eating. (Oppliger and Cassady, 1994)

This article provides an overview of levels and models used in studying body composition in general. The densitometric approach, with focus on Air Displacement Plethysmography (ADP) will be discussed. Attention will be given to the assessment of body composition in athletes, comparing ADP with underwater weighing (UWW) to assess body fat.

Body composition levels: The 'Five-level-model'

The human body is comprised of more than 30 recognized major components which can be studied at several levels - the atomic, the molecular, the cellular, the tissue, and the whole-body level, as described by the 'Five-level-model', developed by Wang and co-workers. (1992) The atomic level includes the basic chemical elements and is the ‘basic’ level of analysis. About 50 of the 106 elements that exist in nature are found in the human body and can be measured in the living subject, but ~95% of body mass is composed of four elements: oxygen, carbon, hydrogen, and nitrogen. The molecular level includes primarily water, lipid (fat), protein and minerals. Carbohydrate, in the form of glycogen found in the cytoplasm of most cells, is also a molecular component but is not usually considered in estimates of body composition. The molecular level is the conceptual foundation for most studies of body composition and associated technologies. At the cellular level, body mass is composed of cells and substances outside of cells – extracellular fluids and extracellular solids. At present, methods are not available to measure solids within cells in vivo. The body cell mass is the metabolically active component of the body and therefore important in body composition research. Nevertheless, relatively little research has been directed at this level, perhaps because of the difficulty in quantifying some of the components. The tissue-system level of body composition focuses on skeletal muscle, adipose, bone, blood, viscera and brain tissues. This level is very complex and interfaces with several branches of human biology. Although several indirect techniques estimate major tissue compartments, only few in vivo direct methods are available. The whole body level of body composition concerns size, shape, proportions and exterior physical characteristics. Anthropometry is the basic tool for estimating body size and configuration, while the body mass index (BMI) and skinfolds are perhaps the most widely used anthropometric indicators at this level of body composition. Other whole-body properties which are important in the study of body composition are body volume and body density, which are described more in detail subsequently. (Claessens et al., 2008; Malina, 2007; Wang et al., 1992)

Body composition models: from a two-compartment model to multi-compartment models

Several models have been used to partition body mass into meaningful components or compartments. The traditional two-component model has evolved into more complex models with three, four, or more compartments. The models are described briefly; more detailed discussions of each and associated methods are available. (Heymsfield et al., 2005; Heyward and Wagner, 2004a; Roche et al., 1996; Shen et al., 2005; Wang et al., 2005)

The two-component model partitions body mass into a fat mass (FM) and a fat-free mass (FFM). This model has the widest application in the study of body composition. A shortcoming of this model is the heterogenious composition of the FFM, including water, protein, minerals, and glycogen. Because of the inaccurate assessment of the body compsoition (e.g. %fat), caused by the shortcoming of the two-component model, several multi-component approaches, i.e. three- and four-component models, have been developed in which two or more components of the fat-free mass (FFM) are measured.

The 3C-water- model takes into account the inter-individual variation of the hydration status of the FFM. This model subdivides the body in 3 components: a fat-component, a water-component, and a 'protein+mineral'-component. In this model a constant density for the protein/mineral ratio is assumed.

The 3C-mineral-model takes into account the inter-individual variation of the mineral content of the FFM. This model subdivides the body into the following components: a fat-component, a mineral-component, and a 'protein+water'-component. In this model a constant density for the protein/water ratio is assumed.

The four-component model is a logical extension of the three-component models since both bone mineral and water are now measured. This model subdivides the body into 4 components: a fat-component, a water-component, a mineral-component, and a protein-component.

Multiple component models are useful to minimize the potential errors in estimates of %fat associated with the variability in the FFM-composition.

Body composition methods: the densitometric approach

The variety of methods for measuring or estimating body composition is quite numerous and at times complex. Detailed overviews and discussions of the specific methods are available and are beyond the scope of this article. (Heymsfield et al., 2005; Heyward & Wagner, 2004a; Roche et al., 1996). Over the years, evaluation of athletes' body composition becomes more and more widely practised. This is mainly caused by the implicit assumption behind body composition assessment whereby the knowledge gained in the assessment will be useful - for the trainer, coach or the athlete themselfes - in either directly or indirectly enhancing athletic performance. Whatever the method is to be used to estimate an athletes' body composition, the technique chosen must be valid, i.e. measure what they are intended to measure and reliable, i.e. yield the same results with repeated applications within a test-retest situation. (Barr et al., 1994) Although body weight and its derivatives such as the body mass index (BMI) were often used to estimate an athletes' body composition, it is well understood that body weight, although probably the most reliable, it is also the least valid estimate of body composition. Neither body weight nor BMI can distinguish between the relative contributions of fat and lean body mass. (Barr et al., 1994; Marshall, 2005) Although in recent years more sofisticated criterion techniques are at hand to measure a subjects' body composition (e.g. Dual Energy X-ray Absorptiometry - DXA; Computer Tomography - CT; Magnetic Resonance Imaging - MRI), the densitometric approach is still widely used, especially with the advent of the more recent developed Bod Pod® technique, introduced by Dempster and Aitkens (1995).

Densitometry refers to the measurement of body density (BD), the ratio of body mass to body volume. Body volume (BV) can be measured either by underwater (or hydrostatic) weighing (UWW) or by air displacement plethysmography (ADP).

Densitometry by the underwater weighing technique

Body mass is determined by weighing the subject in the air in the usual manner. BV is measured underwater using the Archimedean principle that a body immersed in a fluid is acted upon by a buoyancy force that is evidenced by a loss of mass equal to the mass of the displaced fluid. Weight is thus measured with the subject fully submerged in the water. The difference between weight in the air and fully submerged in the water is the weight of the displaced volume of water, corrected for the density of the water at the time of measurement. Two other volumes affect the accurate measurement of body weight underwater, residual lung volume which is the air remaining in the lungs after full expiration, and the amount of gas in the gastrointestinal tract. Residual volume has to be measured independently; it varies during growth and is related to stature, sex and age. The amount of gastrointestinal gas is usually estimated at 100 ml. Although the underwater technique is often used, it has some limitations. The technique requires a high degree of subject cooperation; the subject must be able to exhale completely and hold their breath underwater for at least 10 seconds; and the process must be repeated several times. (Claessens et al., 2008; Going, 2005)

Densitometry by air displacement plethysmography

Air displacement plethysmography (ADP) has overcome many of the practical problems associated with the measurement of BV by UWW. (Fields et al., 2002; Going, 2005) With ADP, air displacement instead of water displacement is used to measure BV. At present, one commercial system, the Bod Pod Body Composition System, is available for measuring body density by ADP. (Dempster and Aitkens, 1995) The Bod Pod® is a large, egg-shaped fiberglass chamber that uses air displacement and pressure-volume relationships to derive BV. This equipment consists of a test chamber large enough (450 l) to hold an adult subject, separated by a diaphragm from a reference chamber. Vibration of the diaphragm induces pressure changes which allow determination of the test chamber volume, first with, then without, the subject, permitting the measurement of the subject's volume. The raw BV must be corrected for body surface area, clothing, and thoracic gas volume (TGV) which is similar to but not identical with residual volume. Body surface area is calculated from height and weight based on the –quite old – equations developed by Du Bois and Du Bois (1916). TGV is either directly measured or estimated by the Bod Pod® system using equations developed for adults, 17-91 years of age. Although ADP is a promising method, its validity and use in athletic populations needs further clarification. Research on the sensitivity of ADP for detecting changes in body composition in individuals over time is limited. (Secchiutti et al., 2007)

Converting body density to percentage body fat

Although BD can be measured with a high degree of precision, the derivation of estimated body composition vary with models and equations used. The two-component model has the longest tradition of use in sport sciences. The equations of Brozek et al. (1963) and Siri (1961) for converting BD to percentage fat, developed on adult males, have been used most often. The model assumes that the composition of FM and FFM is constant, with density values of 0.900 g/cc and 1.100 g/cc, respectively. In the densitometric approach, any deviation of BD from the fat-free mass density (dFFM = 1.100 gr/cc) is thus assumed to be due to the addition of body fat. However, it is clear from a number of investigations that the chemical composition of the FFM is not constant, but rather there is considerable variation among populations and individuals, and predictable changes in FFM-composition occur with growth, maturation, sex, aging and ethnicity. (Claessens et al., 2008; Going, 2005; Houtkooper and Going, 1994; Lohman et al., 2008; Malina, 2007) Also, long-term specialized training (e.g. regular resistance exercise) may also alter the composition of the FFM, by e.g. increasing musle and bone mass. Conversely, in some sports, competitors may have less than average muscle and bone mass. As a consequence, deviations from the assumed 'stable' chemical composition of the FFM will result in under- or over-estimation of body fat by the densitometric appoach, depending on whether the density of the FFM is greater than or

less than the assumend density of 1.100 gr/cc. (Houtkoper and Going, 1994) Although research since the recent advent of dual photon and dual energy X-ray absorptiometry suggests that training may affect the amount of bone mineral content (BMC), with the consequence that the composition of the FFM will be altered, results of different studies are nor equivocal about the fact that specialized training affect the dFFM as such. (Heyward and Wagner, 2004b) In this context, an important but often neglected issue is ethnic variation. It has long been known that the BMC of black males and females is greater than in whites, with the result that the dFFM is greater than the assumed 1.100 gr/cc. (Sinning, 1996; Heyward and Wagner, 2004b; Wagner and Heyward, 2000) Although not so much adressed in depth, variability in the dFFM seems more strongly related to the varying hydration states in athletes than to the mineral fraction within the FFM. Because the density of water is less than that of the other components of the FFM, an increase in the relative hydration of the FFM results in a decrease in the overall dFFM. This is especially so in weight-trained athletes with a large amount of muscle hypertrophy, and thus an increased water fraction in their FFM, with the consequence that their dFFM is less that that of other athletes or sedentary subjects. (Houtkooper and Going, 1994; Heyward and Wagner, 2004b) Based on an extended overview about the fat-free body composition of athletes, Heyward and Wagner (2004b) summarizes that athletes generally have a greater BMC, bone mineral density (BMD), and FFM than non-athletes. However, the dFFM of athletes may either higher or lower than the assumed reference value of 1.100 gr/cc. The cause of the variance in the dFFM is very complex and deviations from the reference value may be training dependent. Athletes who engage in high-intensity, explosive training (e.g. gymnastics) will have a higher mineral-to-FFM ratio and thus a greater dFFM, while athletes who train for muscular hypertrophy (e.g. body builders) will have an increased water-to-FFM ration and thus a lower dFFM. (Heyward and Wagner, 2004b)

Body composition in athletes: comparison between hydrostatic weighing and air displacement plethysmography.

In several studies on non-athletic (reference) samples it is demonstrated that ADP - as measured by the Bod Pod ® apparatus (BP) - was found to be highly valid and reliable for measuring body composition. (Fields et al., 2002) However, there is rather little data of this method in the subgroup of athletes. To our knowledge, there are two studies which compared percent fat using BP and UWW in female athletes. Vescovi et al. (2002) evaluated a group of 80 female college athletes with an average age of 20.2 ± 1.5 years. They participated in a diversity of sports like track and field, volleyball, softball, rowing and soccer. A lean subset (n=39, <18.3 % fat) of the sample was also examined. The results showed that percent fat measured with BP was significant higher than percent fat measured with UWW for both the entire sample and the lean subset. The mean difference between percent fat estimations obtained by the BP and UWW was greater in the lean subset (2.8 % fat) in comparison with the entire sample (1.8 % fat). In a recent study of Bentzur and co-workers (2008), the accuracy of the BP was examined in 30 Division I collegiate track and field female athletes. Their age ranged between 18 and 24 years. They performed in different disciplines, namely sprinting, jumping, throwing and distance running. The results show a significant overestimation of 3.9 percent fat by the BP compared with UWW. Moreover, similar to the study of Vescovi et al, differences between both methods are related to the grade of body fatness. In a recent study of 2009, Moon et al. (2009) determined the validity of various laboratory methods for estimating percent body fat in NCAA Division I college female athletes. Estimates of percent fat using UWW and ADP were compared to a multi-compartment model. Results showed an overestimation of 0.77 percent fat by the BP compared with UWW. There is less consistency in the studies on male athletes. Two studies reported similar BD, percent fat and FFM values when comparing BP with UWW in two samples of collegiate wrestlers. Utter et al. (2003) found no significant difference in percent fat between BP and UWW in 66 Division I collegiate wrestlers. Similarly, Dixon et al. (2005) found the same results for body composition in 25 Division III collegiate wrestlers. The study

of Moon et al. (2008) reported that percent fat in 30 athletic high school boys was significantly higher (2.1% fat) when measured with BP in contrast with UWW. The boys had an age between 14 and 18 years and participated in at least one organized sport e.g. baseball, football, basketball. In contrast, Collins et al. (1999) found an overestimation of BD and hence an underestimation of 1.9 percent fat measured with BP in comparison with UWW in a group of 69 Division I collegiate football players with an average age of 19.0 ± 1.1 years.

Estimating percent body fat in student university athletes by comparing UWW and ADP: preliminary results of an own study.

Subjects

The majority of the subjects were students from the Katholieke Universiteit Leuven (KULeuven) who had the certificate of 'elite athlete'. All the athletes received an e-mail with information about the study. Complete data were available for 31 men and 33 women, which vary in age between 17 and 36 years. The sample included a diversity of athletes which mainly practised in e.g. track and field (n=24), cycling (n=11), soccer (n=6), and triatlon (n=5). All the subjects (n=64) participated at the national competition level. Thirty-four athletes also competed at the international competition level. Most of the subjects (81.2%) had a current training volume of more than 11 hours a week.

Measuring procedures

The participants completed a questionnaire about their sports participation and training volume. They underwent the following measurements: height, weight, densitometry by the BP and the UWW techniques. For transferring BD to %fat, the Siri-equation was used. The subjects were measured at least one hour after eating, drinking and refraining from exercise during a laboratory visit which lasted approximately one hour. Each subject signed an informed consent form before participation, and the Medical Ethical Committee of the Katholieke Universiteit Leuven approved all experimental procedures.

Results

Descriptive statistics and body composition results measured by UWW and BP of female and male athletes are presented in Table 1.

In the group of female athletes, no significant difference between mean %fat measured by both methods could be observed (mean difference = -0.4 %fat). In the group of male athletes however, it is demonstrated that with the UWW method a significant lower mean percent fat (9.4 ± 2.4 %fat) is obtained compared to percent fat measured by ADP (11.2 + 3.3 %fat).

Table 1: Descriptive statistics and body composition results measured by underwater weighing (UWW) and Bod Pod (BP) of female and male athletes

	Female athletes (n=33)			Male athletes (n=31)		
Variable	**M**	**SD**	**Range**	**M**	**SD**	**Range**
Age (y)	20.7	2.0	17.9-25.2	21.6	3.5	18.5-36.4
Height (cm)	171.1	6.7	157.4-188.4	181.9	6.3	170.9-196.9
Weight (kg)	61.2	8.3	48.3-78.1	73.2	7.0	61.8-93.5
% fat UWW	19.1	2.4	14.7-24.1	9.4	2.4	5.1-14.2
% fat BP	19.5	3.6	11.5-24.8	11.2	3.3	6.0-17.3
diff. % fat UWW - % fat BP	-0.4	2.5	-5.9-5.2	-1.8*	1.8	-5.4-2.1

* $p \leq 0.05$

Pearson Product Moment correlations of r=0.84 and r=0.75, for the male and female athletes relatively, were found between both methods, meaning that for individual athletes the percent body fat assessment is not directly interchangeably.

This is also demonstrated by the Bland-Altman plots (results not shown) were significant individual differences between both methods could be clearly observed.

Conclusions

A considerable amount of research has focused on the development of methods to measure body composition accurately and reliable, and to describe percent body fat levels of athletes of different sports or events. However, besides some high-technological labo techniques (e.g. DXA, CT, MRI) and the use of multi-compartment models, there is a lack of a single body composition method for use in the field that can provide acceptable accurate measurements of every individual athlete in every sport.

It has to be stressed to the coaches and the athletes themselfes, that results must be always interpreted within the limitations of each method used. It is also important that everyone who evaluates and tests an athletes' body composition - whether the tester is a trainer, coach, physician, or other specialist - has to be very skilled and experienced and is aware of the underlying concepts of each body composition method when applied within the overall evaluation of the athlete. When a valid knowledge of an athletes' body composition is of importance, the use of multi-compartment models is necessary. Such models provide a more accurate estimate of body composition compared to the two-compartment model.

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THOUGHTS ABOUT FAIR PLAY

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Almost every sport leaders on the world stress in their speech the importance of Fair Play, however there are insufficient actions by us.

At the same time others distinctly suggest that Fair Play does not exist these days, this is a utopia and unnecessary to talk about it.

I, myself believe and confess that in the history of humanity has never been such necessity to universalize the idea of Fair Play than today. Not only in the sport, but in all fields of life.

What does fair play mean?

Was it born together with a human being? Has it always been? Does it have any relation to the culture of humanity at all? Does everyone understand the same always and everywhere on these two words: fair play?

No.

As we know since the beginning of the ancient Olympic Games through the dark Middle Ages to these days sport plays an important role in our society. Fair play was not always the part of sport from the start.

In the ancient times, on the ancient Olympic Games there was no such thing as fairness and honesty as we understand it today.

Assistance of one or other by the gods, mockery of losers, breaking rules by using trickery and deception was usual then. Use of brutality and physical violence was natural in the civil life and in sport as well.

And the standards within the warmongering society of the 13th century were not really that much better either. Tormenting and killing others was a source of great enjoyment. Cruel treatment in no way led to social ostracism. It follows that moral antipathy, feeling of guilt and shame, must have been far less pronounced than they are nowadays.

Humane ideas started to improve with the development of civilization and intelligence. Self-control had evolved which could compensate the compulsion from outside and could moderate brutality.

The cradle of modern sport is England. In the 18th century of England a kind of human ideal had developed to which the social elite wanted to resemble as an attitude of gentleman. The demand of this influence was shown in the English public schools and education. And the conscious fair play had appeared here.

According to our present knowledge, the expression of fair play was first used by Shakespeare in his play entitled ”King John” in 1597, but it didn’t become widespread until the XIXth century, namely in the atmosphere of civil liberalism.

At that time, the gentlemanlike, chivalrous attitude was considered to be a fundamental constituent of sport.

The glory of Lancelot, knight of the late Middle Ages, did not only rest on his victories, but rather on his fair way of fighting. He said: ”I never kill a knight who has fallen off his horse. God save me from such an inglorious act.” The spirit of fair play existed and was respected already in those times.

Pierre de Coubertin, the creator of modern day Olympic Games, regarded the Olympians as modern knights who protect the weak, fight in an honest and well-meaning way, are unconditionally loyal to the opponent, and observe the unwritten rules as well as the written ones.

The last century was not an ideal soil for these notions. Social tendencies influencing modern sport such as the world wars, crises, dictatorships, economic and political interests, chauvinism, nationalism and terrorism pushed the ideals of fair play into the background.

The principle of ”winning at all costs” became dominant and almost a rule. This doctrine led to such distortions in sport as brutalism, aggressiveness, drug use and racism. This time, if someone was named as a sportsman, he was a physical and moral ideal as well.

As we know today, the sport is the mirror of the society. Therefore the estimation and presence of Fair Play as a value changes from time to time, from society to society.

The more civilised a society is, the higher its moral consciousness and sense of responsibility. However we experience in practice that one would do anything for success. Namely, success brings social and material honour. This last one means a great temptation in sport. On this way fair play is an unnecessary difficulty according to some. Although fair play is more than a victory.

Monsieur Jean D’Ormesson, the French academician and philosopher, our dear friend and fellow Committee member expressed a fundamental truth when he said, “Morals are manifested more sincerely while playing”. Italo Santelli, the Italian-born founder of fencing in Hungary had something similar in mind when he admonished one of his trainees in heavily accented Hungarian, “You not say touché. You do this today; maybe tomorrow you forge a bill!”

Bizarre but to the point. While linking the non-admission of a touché to the possibility of forging a bill may seem far-fetched, the former act does in fact carry some of the unfairness, which may lead to any action. Contrary to bill forgery, even in the old days there was no written rule that would prescribe that a score by the opponent was to be announced by the party who had sustained it. Does that mean that the Maestro’s outburst was justified? It was indeed; for it was the “sportsman”, not the “gentleman”, protesting over a score that went unacknowledged.

So let us play with these two words, Ladies and Gentlemen!

“Fair play”: honesty and play – honest play. Or: a fair of play – a playfair. What a contrast: the more play is becoming a fair, the more significant the fairness of play. Fair play is a modern invention. When the word sport inherently denoted the idea of fair fight there was no need for a separate term. Sport meant what it actually is (or should be): noble contest, the primacy of “may the better win”. But the old equilibrium was beginning to be upset. There was too much at stake – too much to win or lose, and the athletes in the playing field were apt to make lesser or greater allowances to the detriment of highfaluting ideals.

Supporters make allowances and athletes, too, make allowances. There is no knowing which is worse. And which causes more harm. Harm to the play, harm to ourselves – to our human culture.

At a UEFA Cup match in Rotterdam Billy Nicholson, the coach of the visiting team shouted over the loudspeakers to pacify his enraged fellow countrymen who were ardent Hotspurs fans, “This is a football match not war!”

Not war?

Then what are we to make of the following inscription on the wall of an American football locker room: “Defeat is worse than death for you have to live with the knowledge of defeat day after day.” The words of a famous American pro coach were also reiterated by the papers: “For me victory is not everything – it is the ONLY thing…” Putting it in another way, “You must have fire in you to play football. Nothing stokes fire better than hatred.” Perhaps this is why a renowned American reporter thinks that “American football is like a nuclear war: there are no winners, only survivors.”

But do not think that it is only professional “play” that has got out of control. Sadly not. As a Hungarian sociologist put it, “Sport is part of culture. But similarly to art, sport is also becoming leached nutrient for mass culture – mere entertainment deprived of its very essence, ready-to-digest information material prepared and served for us. (…) At this stage, an athlete is no different from an artiste. His activity has more to do with manipulating the audience’s appreciation than with the beauty, excitement and essence of sport. The soccer player is a carefully trained fake. The fight near the goal posts is a circus act rammed into the players move by move. No anger, no rage: the players pay attention to each other’s acting …” these words were written thirty years ago, and even after removing the layers of exaggeration, intellectual scorn and aversion, unfortunately we cannot say that there isn’t a grain of truth in it. Indeed, there is something to it, particularly as regards the trends, as witnessed by the decades that have elapsed since. An increasing number of people are of the opinion that in today’s all-out sport there is no alternative to victory. If you don’t win, you are lost – in terms of health, wealth and morals. You will be trodden under if you don’t embrace the unspoken slogan: anything for winning.

Can we possibly accept this? There is only one answer, and I hope it is the answer outside this circle, too. The answer is no!

We say and believe the development of sport is unstoppable. What is this development nurtured on? New discoveries of science, even further increase of training loads, which already appears impossible to intensify? Or is it, after all, the moral strength of the athlete? Its reserves are inconceivable.

Let me again quote Monsieur D’Ormesson, who said when presenting the 1978 Fair Play Awards, “Sport is a transition between everyday activities and play in the course of which strength and justice are matched according to certain rules and moral measures, but in such a way that justice always wins over strength. The world is not yet prepared to regard the opponent as another self, giving him every opportunity to win. Today sport can be conceived of as an experimental ground to implement this beautiful utopia. A strange and paradoxical situation has emerged, as it appears that human activities in general (all kinds of achievement, efforts to make life better, etc.) are mostly based on strength and skill. We create an ideology by force while pointing at moral values. At this point we inserted the idea of fair play in the game, to bridge the gap. Fair play allows us to declare that sport shall not become a manifestation of brutality. Fair play helps sport to become a constituent of civilization. Sport is not about killing, humiliating and breaking the opponent; it is about playing with the opponent so that he can deploy all his human skills.” End of quotation.

Beautiful ideas.

The athlete who steps out in the playing field can choose between fair play – or playing with fairness. Maestro Santelli clearly saw this when he said, 'You do this today, you will forge a bill tomorrow".

Rules in sport are the result of consensus. Just like language. The starting point is in fact arbitrary: we may call 'bread' a 'spade', or say that 'spade' means 'climb', and so on. The same applies to sport. The size of the playing field, playtime, the tools – they all emerged together with the rules of the particular game or branch of sport, and constitute the commonly accepted link between those who pursued it in the course of its development. Infringement of the rules is sanctioned in sport, too. Adherence to the rules is supervised by specially designated officers.

"There is no institution which stands unchanged and without any distortion of its form over the course of millennia," wrote the baron Pierre de Coubertin, the father of the modern Olympic Games, in the chapter on "Extravagance and distortion" of his book titled Sport Pedagogy. He continues, "Nothing is more educative than tracing the twists and turns in the development of ancient sport. It evolves with natural gradation. One can see how success is followed by complication and the emergence of specialists, shortly after giving rise to professionalism and decline. 'Aidos', the sporting spirit, whose archenemy, according to Pindarus, is greed, and which will soon go astray…"

I am sure that like myself, all of you here were greatly impressed by the Oscar-winning film Chariots of Fire. On the surface, the film is about professionalism and amateurism, and the violability of religious commandments. But in fact it is about much, much more. It is about the possibilities of self-identification. Putting it simply, we all want to do something with ourselves, with our lives. The overarching philosophical systems seek answers to the eternal questions of life, or to explain the world, or – an even more daring attempt – try to change it. However, the individual is unable to look so far. He is lucky if he can recognize his own opportunities in the world. Everybody fosters the desire to be happy and do well. An indispensable precondition for happiness is "self-identity". The knowledge that my individual being, one way or another, fits in with the system of existence. I am a speck of dust, but an indispensable speck of dust. The only possible and necessary speck of dust.

It is for this awareness that the two athletes, Harold Abrahams and Eric Liddell fought in that wonderful film. These two young men, who left an outstanding mark in the history of the Olympic Games tried to reconcile their own capabilities and potentials with the true freedom of their desires. If in no other way, at least for the ten or fifty seconds from start to finish over a hundred or four hundred meters. This is the only stake in the film, and this is the root of the beautiful exaltation that filled all our hearts with joy.

Being the fastest over a hundred or four hundred meters is, of course, not a big deal in itself. It is only a big deal if the person runs "his own distance" in the race. And if he is driven by a real internal fire. The fire of faith, will, and readiness to fight. You can't even begin to understand it with a cold heart.

Finally, let me quote two other short examples:

At the Barcelona Olympic Games in 1992, in the last lap of the 10.000 m athletic final, Derartu Tulu (ETH) darted into the lead and went on to win. At the finish line, she, the first black African woman to earn an Olympic medal, waited for her opponent Elana Meyer, a white South African. They set off hand in hand for a victory lap that symbolized hope for a new Africa.

And the other:

In 1978, during the months before the Canoe World Championships, Tamas Wichmann (HUN) realized that the performance of his friend and most dangerous opponent, the Yugoslavian Matra Ljubeck, was declining. He was not happy about his friend's misfortune and suggested to him they could train together. Ljubeck gained back his physical and psychological well-being and won the world title defeating Wichmann.

Ladies and Gentlemen

In conclusion, let me thank you for your kind attention with the Fair Play film produced for CIFP for the Athens Olympic Games by Bud Greenspan.

TENDANCES ET INNOVATIONS DANS LE SPORT UNIVERSITAIRE: UNE NOUVELLE COHÉRENCE

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1. Dans le monde entier, le sport suit une évolution marquée par des abus liés
- aux problèmes financiers,
- à des fraudes,
- au dopage,
- à des compétitions truquées et des paris faussés.

La saine pratique sportive en est affectée.
Au début du XXème siècle, le sportif était caricaturé comme un homme possédant de gros muscles surmontés d'un petit cerveau. Il est aujourd'hui souvent considéré comme une entreprise financière ou de spectacle.
La femme a pris une place qui lui était refusée ou à tout le moins contestée à cette époque.
Le sport est-il condamné à poursuivre en ce XXIème siècle une évolution négative commencée à la fin du XXème siècle avec ses dérives financières, économiques et autres ?
Le sport universitaire offre-t-il d'autres possibilités, des solutions alternatives, d'autres options, ou est-il voué aux mêmes déviances ?
Le vécu et le passé
dans la pratique du sport
dans son organisation
dans sa direction
dans l'étude scientifique (en particulier en droit)

m'amènent à quelques réflexions personnelles.

2. Pour étudier le binôme sport-université, il importe de se mettre d'accord sur la signification des termes utilisés.
Le mot sport est en effet un bon exemple de mots qui ont plusieurs significations, en tous cas en français. A défaut d'accord sur le sens donné, le mot peut faire naître la confusion.
Après avoir repris

- le Dictionnaire de l'Académie Française (Hachette, Paris, après la 1ère édition de 1694, la 8ème édition 1932-1935 est disponible ; la 9ème édition est en cours d'élaboration)
- le Dictionnaire LE ROBERT (Paris, Le Robert, 2ème édition, 1986, p. 347),
- le Grand LAROUSSE encyclopédique (Grand Larousse encyclopédique, Paris, Prestige 1970),
- le Multi dictionnaire de français LAROUSSE (Multi dictionnaire de français Larousse, Paris 2008),

on peut affirmer que même mot « sport » a en français deux acceptations, puisqu'il qualifie

- d'une part une activité physique, dans le sens du jeu et de l'effort gratuits, d'autre part des exercices physiques similaires pratiqués en compétition en observant des règles précises et sans but utilitaire immédiat. Une forme particulière et réglementée de l'activité physique sous forme d'une compétition, parfois liée au profit.

En anglais, selon les définitions du WEBSTER'S THIRD NEW INTERNATIONAL DICTIONARY (Webster Third New International Dictionary, Britain, 1961) et du COMPACT OXFORD ENGLISH DICTIONARY (Compact Oxford English Dictionary, Oxford Unversity Press, 2009), il existe deux notions distinctes.

Le nom commun « sport » signifie en anglais l'activité physique, c'est à dire le sport dans sa première acception en français.
Pour qualifier le sport de compétition on utilise le plus souvent le mot « athletics ».
Le Québec a donné du sport une définition légale.
La "loi sur la sécurité dans les sports" (Loi sur la sécurité dans les sports, LRQ, Chapitre S.3.1., article 1) définit, dans son article premier une série de mots parmi lesquels le sport :
"Une activité physique exercée dans le sens de la compétition ou dont la pratique implique une certaine forme d'entraînement et le respect de certaines règles."
Bien qu'elle s'applique surtout, selon la loi québecquoise, aux "sports amateurs", cette définition se rapproche de notre deuxième acception.
La Charte européenne du sport (Annexe à la recommandation R(92) 13 du Comité des ministres aux Etats membres du 24 septembre 1992) du Conseil de l'Europe a défini le sport :
" toutes formes d'activités physiques qui à travers une participation organisée ou non ont pour objectif l'expression ou l'amélioration de la condition physique et psychique, le développement des relations sociales ou l'obtention de résultats en compétitions de tous niveaux."
En résumé on pourra trouver en français autant de définitions que de personnes consultées.

3. L'université était au Moyen Age une institution ecclésiastique, jouissant de privilèges royaux ou pontificaux et chargée de l'enseignement.
Elle était un corps de maîtres établi par l'autorité, jouissant de privilèges et ayant pour objet l'enseignement de la théologie, du droit, de la médecine et des sept arts que sont la grammaire, la rhétorique, la dialectique, l'arithmétique, la géométrie, la musique et l'astronomie.
L'université est, selon l'étymologie du mot, destinée à l'enseignement de l'universalité des connaissances humaines.
En 1088, avait été fondée l'université de Bologne, la plus ancienne du monde occidental. Elle a pris le nom de « Alma mater studiorum » par un décret de 2000.
Après celle d'Oxford en Angleterre, l'université de Paris, fondée en 1150 est la communauté (universitas) de tous les collèges, gradués et écoliers de la rive gauche (de la Seine) dans cette ville.
L'université est un centre d'enseignement supérieur, public ou privé, divisé en groupes appelés facultés, dont chacune délivre des grades au nom de l'Etat ou en son nom propre.
Le mot est cité pour la première fois en 1214, comme « communauté, corporation, assemblée », sous l'orthographe universiteit.

Au XIIIème siècle, il a pour sens : « totalité, universalité », dans le « Chartularium Universitatis Parisiensis »
Actuellement, pour le LAROUSSE c'est un « ensemble d'établissements scolaires relevant de l'enseignement supérieur, regroupés dans une circonscription administrative » (Larousse pratique. © 2005 Editions Larousse).
Aux Etats-Unis d'Amérique, en 1891, au moment où les universités de ce pays commençaient leur ascension, les menant à leur niveau actuel, Peirce, un philosophe américain a défini l'université comme « une association d'hommes … dotée et privilégiée par l'Etat, en sorte que le peuple puisse recevoir une formation (guidance) intellectuelle et que les problèmes théoriques qui surgissent au cours du développement de la civilisation puissent être résolus ».
L'entrée à l'université est généralement restreinte à ceux qui ont au préalable obtenu un diplôme d'enseignement secondaire.

4. Les systèmes d'études sont très différents et variaient d'université à université, en tout cas de pays à pays.
Chaque nation avait ses programmes universitaires, et les diplômes étaient décernés dans les différentes facultés selon des critères variant de pays à pays, de continent à continent.
Longtemps, les études universitaires ont été basées sur l'année académique.
Les systèmes ont changé. Ils sont basés le plus souvent sur des semestres ou des sessions de quatre mois, parfois trois sessions de deux mois et demi et les grades sont :

- associate,
- bachelor,
- master.

A l'occasion du 900ème anniversaire de l'université de Bologne, un groupe de recteurs d'université ont signé le 18 septembre 1988 la « Magna Charta Universitatum ».
Ils ont considéré que
« l'avenir de l'humanité en cette fin de millénaire dépend dans une large mesure du développement culturel, scientifique et technique »
Dans leur conception, il appartient aux universités de forger ce savoir.
La résolution signée à cette occasion a été suivie, lors du 800ème anniversaire de l'université de Paris, par l'adoption le 25 mai 1998, par les ministres en charge de l'enseignement supérieur en Allemagne, en France, en Italie et au Royaume Uni de Grande Bretagne, d'une déclaration conjointe appelée « déclaration de la Sorbonne » (Déclaration de la Sorbonne, http://.paris-lavillette.archi.fr/limado/Declaration_de_la Sorbonne.htm).
Elle vise à harmoniser l'architecture du système européen d'enseignement supérieur, en rappelant que
« l'Europe que nous bâtissons n'est pas seulement celle de l'euro, des banques et de l'économie, elle doit être aussi une Europe du savoir ».
La construction européenne faisait, à l'époque, des progrès importants, mais les signataires de la déclaration estimaient devoir renforcer et utiliser dans cette construction
« les dimensions intellectuelles, culturelles, sociales et techniques de notre continent. Elles ont été dans une large mesure modelées par ses universités qui continuent à jouer un rôle central dans leur développement ».
Le système envisagé devait faire preuve d'originalité et de souplesse, et passer dans une large mesure par l'utilisation de « crédits » et de semestres.
Dans le cycle conduisant à la licence, les étudiants devaient se voir offrir des programmes diversifiés, comprenant la possibilité de suivre des études pluridisciplinaires, d'acquérir une compétence en langues vivantes et d'utiliser les nouvelles technologie de l'information.
Dans ce contexte, le 19 juin 1999, les représentants de 29 pays européens, dont les quinze états, membres, à l'époque de l'Union européenne ont signé la déclaration de Bologne (Déclaration de Bologne, http://europa.eu/cgi-bin/etal.pl ; http://www.coe.int/t/dg4/highereducation/ehea2010/bolognapedestrians_fr).
Plus de 40 pays participent au processus de Bologne, après avoir rempli les conditions et les procédures d'adhésion.

Ils font partie de la Convention culturelle européenne, signée le 19 décembre 1954, sous l'égide du Conseil de l'Europe et sont éligibles pour être membres de l'EEES (espace européen de l'enseignement supérieur)
Le processus de Bologne vise à créer cet espace, l'EEES, pour 2010.
La déclaration de Bologne du 15 juin 1999 s'articule autour de six actions

- un système de grades académiques facilement lisibles et comparables
- un système fondé essentiellement sur deux cycles (licence ou bachelor et doctorat ou master)
- un système d'accumulation et de transfert de crédits
- la mobilité des étudiants, des enseignants et des chercheurs
- la coopération en matière d'assurance de la qualité
- la dimension européenne de l'enseignement supérieur.

Après la déclaration de Bologne de 1999, le « Communiqué de Prague » de mai 2001 définit les grandes orientations pour les deux années suivantes, jusqu'à la conférence ministérielle sur le processus de Bologne à Berlin en 2003.
A Londres, en mai 2007, le nombre de pays participants était passé à 46.

Dans tout ce processus concernant les études supérieures, nous n'avons pas trouvé une allusion au sport.

Les hautes études concernent le savoir en général, éventuellement les sciences du sport. Non sa pratique.
Il y a là, de notre point de vue, une lacune.
Il ne suffit pas d'harmoniser les études et leur contenu, de permettre par le système Erasmus aux étudiants d'étudier durant un an au moins dans une université étrangère.
Il faut permettre aux étudiants de pratiquer d'autres disciplines, parmi lesquelles le sport. Et leur donner le moyen, dans le temps et dans l'espace, de pratiquer le sport et d'avoir accès à la culture.
Ici, à Belgrade, ne se réunissent pas les ministres chargés de l'enseignement supérieur en Europe.
La réunion ne concerne que le sport universitaire. En réalité elle est plus large, puisqu'elle réunit des représentants du sport du monde entier.
Ne pensez-vous qu'il soit nécessaire d'attirer l'attention des ministres, non seulement en Europe, mais dans le monde, sur la nécessité de compléter le processus de Bologne et les déclarations des ministres européens par un appel à l'extension des « architectures » de l'enseignement supérieur à un élément devenu essentiel dans l'éducation et même dans la culture : la dimension sportive.

5. Après l'évolution récente de l'université, voyons l'organisation du sport.
Le sport pour tous ou sport loisir est en principe non organisé, la participation y est strictement volontaire.
Deux organisations groupent des adeptes du sport pour tous (Association internationale sport pour tous – Trim and Fitness et Fédération internationale du sport pour tous ; Conseil de l'Europe, Docteur REVILLE Ph., Sport pour tous, les activités physiques et la prévention des maladies, Strasbourg, 1970).
Qu'en est-il du sport de compétition ?
Dans sa forme actuelle, né en Angleterre au 19ème siècle, il comporte de nombreuses disciplines organisées de manière volontaire, par la création de clubs groupant des individus. Ces clubs se sont groupés par sport en fédérations.
Les fédérations nationales ont constitué dans chacune des disciplines une fédération internationale au sein de laquelle ont été élaborées les règles de ce sport (SILANCE Luc, Les sports et le droit, De Boeck et Larcier, Paris-Bruxelles 1998, p. 481).
Chaque sport est ainsi géré, sur le plan international par une fédération internationale qui ne reconnaît qu'une seule fédération nationale par pays. Elle définit les règles applicables.
Le mouvement olympique comprend, outre le Comité international olympique, des comités nationaux olympiques regroupant, mais par nation, les mêmes fédérations sportives (SILANCE Luc, id. p. 113).

Les jeux olympiques organisés tous les quatre ans sont confiés par le CIO à un comité d'organisation des jeux olympiques.
Dans chaque pays n'est reconnu qu'un comité national olympique, organisé selon les règles du CIO, contenues dans la charte olympique.
Certaines organisations sont reconnues par le CIO.
L'une d'entre elles est la Fédération Internationale du Sport Universitaire (FISU).
La FISU groupe, de la même manière que les fédérations internationales, les associations nationales sportives d'universités.
Au même titre que les fédérations nationales, dans chaque sport, la fédération universitaire nationale organise ses propres compétitions et délègue ses meilleurs athlètes aux Universiades et aux championnats universitaires.
Toutes ces organisations sont non gouvernementales et basées sur l'organisation volontaire.

6. A l'université comme ailleurs, les étudiants devraient avoir la possibilité de pratiquer, pour leur délassement et pour améliorer leur condition physique, des jeux, des sports de plein air ou en salle (BOREHAM C, RIDDOCH C., The physical activity, fitness and health of children, *J. Sports Sci* 2001 ; 19 :915-929 ; PAFFENBARGER RS Jr, HYDE RT, WING AL, LEE IM, JUNG DL, KAMPERT JB, The association of changes in physical-activity level and other lifestyle characteristics with mortality among men, *n Engl J Med* 1993 : 328 :538-545 ; BLAIR SN, KOHL HW, III, BARLOW CE, PAFFENBARGER RS Jr, GIBBONS LW, MACERA CA, Changes in physical fitness and all-cause mortality A prospective study of healthy and unhealthy men, *JAMA* 1995 ; 273 : 1093-1098 ; ROSENGREN A. WILHELMSEN L., Physical activity protects against coronary death and deaths from all causes in middle-aged men. Evidence from a 20-year follow-up of the primary prevention study in Goteborg, *Ann Epidemiol* 1997 ; 7:69-75 ; FOLSOM AR, ARNETT DK, HUTCHINSON RG, LIAO F, CLEGG LX, COOPER LS, Physical activity and incidence of coronary heart disease in middle-aged women and men. *Med Sci Sports Exerc* 1997 : 29-901-909 ; WANNAMETHEE SG, SHAPER AG, WALKER M., Changes in physical activity, mortality and incidence of coronary heart disease in older men. *Lancet* 1998 : 351:1603-1608).
L'université devrait leur donner cette possibilité en mettant à leur disposition des terrains, des salles de sport, des installations suffisantes, en fonction du nombre d'étudiants.
Une réflexion sur le sport dans l'enseignement supérieur et sur le binôme université et sport, peut se concevoir selon différentes pistes et prendre en considération deux aspects principaux :

- le rôle du sport dans l'enseignement supérieur et dans la vie à l'université.

- le rôle de l'université et de l'enseignement supérieur dans le sport.

Dans l'enseignement supérieur et à l'université la pratique sportive varie de manière fondamentale, de pays à pays, même d'université à université.
Des rencontres de prestige opposant les deux grandes universités anglaises, Oxford et Cambridge, se disputent depuis plus de 150 ans. Oxford a battu Cambridge en aviron le 28 mars 2009, remportant sa septième victoire au cours des dix dernières années. En 2009 Cambridge avait remporté 78 victoires contre 72 à Oxford, ce qui représente 150 ans de sport dans ces deux universités.
Cela ne signifie pas pour autant que le sport y joue un grand rôle.
Beaucoup d'étudiants ne se soucient pas le moins du monde de sport et ne font pas de sport.
Rien ne les y oblige. Certainement pas les autorités académiques ni les programmes.
Dans la plupart des facultés, les matières enseignées ou figurant au programme, ne font aucune allusion au sport ou à l'éducation physique.
Seule exception la formation spécifique concernant l'éducation physique. Elle n'a été étendue au sport que dans le cours des dernières années.
A l'université le sport est né de la même manière que dans la vie courante, au cours des 200 dernières années.
Organisé à l'origine sur des bases volontaires, par quelques « enthousiastes », comme l'était Pierre de Coubertin, rénovateur des Jeux Olympiques, le sport n'a pris une importance réelle

dans l'enseignement supérieur comme ailleurs qu'au moment où des compétitions ont dépassé le sein de l'université pour opposer les universités entre elles dans un même pays, puis entre plusieurs pays, enfin de manière mondiale.
Des jeux mondiaux universitaires avaient déjà été organisés

- à Paris, en mai 1923
- à Prague, en 1925
- à Rome, en 1927
- à Paris, en 1928
- à Darmstadt, en 1930
- à Turin, en 1933
- à Budapest, en 1935
- à Paris, en 1937
- à Monaco, en 1939

Après la guerre 1939-1945, en 1949, la FISU a été constituée à Luxembourg à l'initiative du docteur Paul SCHLEIMER.
Elle était à l'origine en concurrence avec l'Union internationale des Etudiants (UIE).
En 1959, elles ont participé ensemble aux jeux mondiaux universitaires organisés en Italie, sous le nom d' « Universiade ».
La Fédération internationale du sport universitaire a pour objet de promouvoir et d'organiser des compétitions sportives amateur au niveau mondial pour les étudiants des universités et les élèves de l'enseignement supérieur.
Elle avait son siège 11 avenue du Tremblay, 75012 Paris.
Elle a installé son siège depuis 2006, au Château de la Solitude, avenue Schaller 54, 1160 Bruxelles. Elle est membre de l'association générale des fédérations internationales de sport (AGFIS).
Pendant de nombreuses années, son président le docteur Primo NEBIOLO avait été son animateur et a contribué à son développement.

7.Le sport moderne, né de la pratique anglaise au début du 19ème siècle, s'est étendu au continent européen en commençant par les ports, comme Le Havre. Le sport universitaire a été inspiré par l'exemple anglais, au milieu du 19ème siècle en Europe et dans les universités d'élite de la côte est des Etats-Unis.
Le sport tient depuis toujours une place privilégiée dans les campus anglais et américains : les infrastructures y sont importantes et les équipes des universités bien connues des étudiants. Obtenir une place dans l'équipe universitaire y représente un honneur. La situation est très différente en Europe continentale.
La littérature anglaise fait mention de nombreuses courses et autres manifestations d'athlétisme. Des rois anglais étaient réputés sportifs. Henri V, qui régna de 1413 à 1422, était considéré comme le coureur le plus rapide de son temps.
A l'université et dans les public schools anglaises, existait depuis le 17ème siècle un intérêt marqué pour le sport tel qu'il était pratiqué en Grèce dans l'Antiquité.
Au début du 19ème siècle, le collège de Eton aurait organisé le premier « meeting » dans l'histoire du sport moderne pour une série de sports et de compétitions.
En 1837, ce collège aurait organisé un 100 yards haies, avec 10 haies à distances égales.
L'académie royale militaire de Woolwich a organisé des meetings en 1849 et 1850.
Durant cette même année, le collège Exeter d'Oxford a organisé pour ses étudiants un meeting ouvert, et imprimé un programme avec les noms des membres du jury (Dr. MISANGYI Otto, The renaissance of Ancient Athletics, 5ème session de l'Académie internationale olympique, Athènes – Olympie, 1965, éditions de l'Académie internationale olympique, rapport de la 5ème session d'été)
Les équipes universitaires ont été constituées le plus souvent par les étudiants eux-mêmes, et sont dirigées par des étudiants.
Un personnel administratif permanent assure la continuité puisque les étudiants ne restent, par définition, à l'université que pour le temps – limité - de leurs études.

Le personnel administratif dépend de l'université, mais le personnel académique proprement dit est le plus souvent étranger à l'administration et au fonctionnement du sport au sein de l'université.
Dans ces conditions peu favorables, on peut donc trouver étonnant de voir des équipes, et des individus atteindre un niveau appréciable, même un haut niveau et les voir atteindre et s'inscrire à des compétitions internationales, parmi lesquelles les Universiades ou les championnats universitaires. En Europe continentale, il semble que l'université ait pour seul mérite de permettre la pratique du sport appris et pratiqué dans des clubs étrangers à l'université.

8.La faculté où sont enseignées l'éducation physique, le sport et les matières relatives au sport représente un autre aspect du sport à l'université.
L'étude scientifique de ces matières est relativement récente.
Après l'idéal grec, l'éducation physique n'avait connu un renouveau, pour différents motifs, souvent politiques, qu'à la fin du 18ème siècle. Elle a fait depuis lors l'objet d'études systématiques et de mise en pratique en Allemagne : J.B. Basedow (1723-1790), K.G. Salzmann (1744-1811), puis J.K. Guthsmuths (1759-1839).
En Suède : Per Henrik Ling (1776-1839).
En Italie : J.H. Pestalozzi (1746-1827).
En France : Amoros ; plus tard, l'école de Joinville et la méthode Georges Hébert (1875-1957) ou méthode naturelle.
Thomas Arnold est souvent cité comme étant à la racine du sport anglais, comme directeur de l'école de Rugby.
Ses conceptions hygiénistes, qui connaissent plusieurs courants, ont contribué au développement du sport comme tel et à l'étude du phénomène, non seulement en Angleterre, mais dans le monde entier.
L'étude mécanique du mouvement, la motricité, la physiologie du mouvement et de l'effort, l'entraînement, puis la biochimie de l'effort, la sociologie, la psychologie et la philosophie du sport, ainsi que droit du sport ont fait leur entrée dans les sciences et par conséquent dans certaines facultés universitaires.
Le sport est donc pratiqué et également étudié à l'université.
Le problème de l'effort en altitude, d'abord chez les alpinistes ou les explorateurs de montagnes (Nous ne citerons chaque fois qu'un exemple parmi de très nombreux autres ; EMERSON, R. M. : Mount Everest : A case study of communication feedback and sustained group goal-striving, Sociometry 29, 213-227 (1966a), Mount Everest. In : Lüschen, G., 135-176 (1966b), a surtout été mis à l'honneur et a fait l'objet d'études systématiques après que les Jeux Olympiques eussent été confiés à Mexico, lors de la session du Comité international olympique de 1963 (ROSKAMM, H. , WEIDEMAN, W. , SAMEK, L., GöRNANDT, L., BAUMANN A., MELLEROWICZ, H., RENEMANN, H., LIMON-LASON, R. : Maximale Sauerstoffaufnahme, maximale Atemminutenvolumen und maximale Herzfrequenz bei Hochleistungssportlern im Verlaufe einer Akklimatisationsperiode in Font Romeu (1800 mètres) Mexico City (2240 mètres), Sportartz u. Sportmed. 3, 120 (1968) ; Damian M. BAILEY, Bruce DAVIS, Physiological implications of altitude training for endurance performance at sea level, a review, *BRJ Sports Med*, 1997 ; 31:183-190 ; FRIEDMANN-BETTE.B, Classical altitude training, Scand J. Med Sci Sports 2008, August ; 18, supplement 1 : 11-20 ; PUGH LG, GILL MB, LAHIRI S, MILLEDGE JS, WARD MP, WEST JB, Muscular exercise at great altitudes, *J Appl Physiol*, 1964 May ; 19:431-40 ; McSHARRY PE, Effect of altitude on physiological performance : a statistical analysis using results of international football games, *BMJ*, 2007 Dec 22; 335 (7633) ; 1278-81)
Certains pessimistes de mauvaise augure, apprenant la décision du CIO d'organiser les jeux olympiques à Mexico en 1968, à plus de 2.000 mètres d'altitude, avaient prédit ou en tous cas prétendu qu'il y aurait « des morts ».
Les études spécifiques concernent les conséquences de l'effort en altitude, en raison de la raréfaction de l'oxygène ont donc été poussées partout dans le monde, grâce à cette

décision du C.I.O. ,en vue de la préparation des athlètes à ces Jeux et l'entraînement a été adapté en conséquence.
Dans l'enseignement supérieur et dans la vie de l'université, le sport doit donc être appréhendé sous deux aspects différents

- la pratique du sport par les étudiants (éventuellement par les enseignants et par le personnel administratif)

- l'étude scientifique du sport, phénomène important de la société actuelle, sous ses différentes formes.

a. La participation des étudiants au sport
A défaut d'une intervention des autorités académique dans les cursus et programmes de différentes facultés, destinée à encourager les étudiants à la pratique du sport, au moins, l'université doit-elle permettre cette pratique, et à cette fin créer et entretenir des installations sportives permettant la pratique, à tous les niveaux,
soit comme loisirs
soit en compétition.
Les installations sont nécessaires ; elles doivent être assez importantes pour permettre l'exercice raisonnable, à un niveau suffisant dans tous les domaines, d'une pratique sportive conforme à la coutume dans la région.
Si au bord de la mer la natation doit être possible pour tous, en revanche, la pratique des sports de glace et de neige doit être encouragée et rendue possible dans les universités situées en altitude ou près de la montagne (Grenoble en France, Vancouver au Canada,…).
Outre les installations sportives universitaires, l'administration du sport doit être, sinon organisée par l'université, à tout le moins autorisée par elle, pour permettre aux étudiants désireux d'organiser la pratique du sport et les compétitions, d'y participer et de le faire dans le cadre de leurs études.

b. L'aspect scientifique
Dans la faculté ou partie de faculté, parfois rattachée à la faculté de médecine ou dans une faculté distincte, où sont formés de futurs enseignants d'éducation physique et de sport, le phénomène sportif est étudié de manière scientifique ou devrait l'être de manière systématique.
Ces études devraient trouver leur place au sein de l'université, en même temps que l'éducation physique.
La formation des entraîneurs sportifs, même des dirigeants sportifs pourrait relever des tâches incombant à l'université.
L'entraînement des sportifs a existé de toute éternité, mais n'a fait l'objet d'études approfondies et de publications scientifiques que depuis une époque récente (NOAKES TD, The limits of human endurance : what is the greatest endurance performance of all time ? Which factors regulate performance at extreme altitude ?, *Adv Exp Med Biol.* 2007 ; 618 :255-76).
De là, l'intérêt de l'université pour le sport dans ce domaine.
De là aussi l'intérêt que doit représenter l'université pour le monde du sport.
Certaines universités ont vu l'aspect attractif qu'il représentait pour les futurs étudiants et la publicité que les bons résultats sportifs de leurs étudiants peuvent représenter dans l'opinion publique.
Le sport fait son entrée dans l'université de deux manières, d'une part, en permettant aux étudiants de pratiquer une activité saine, de nature à les « former » physiquement, d'autre part sur le plan scientifique par les recherches faites à l'occasion du sport et sur le sport et les sportifs, analysant le phénomène du sport.
Si on a fêté le 150ème anniversaire des rencontres Oxford-Cambridge en aviron, l'aviron n'était cependant pas le premier sport pratiqué, puisqu'il a été précédé par la gymnastique. En Angleterre et aux Etats-Unis par l'athlétisme, le cricket et le baseball.
Le temps a passé. Le monde a évolué. Le sport aussi.
Il faut adapter les structures.

9. Le sport tient une place privilégiée dans les campus anglais et américains. Les infrastructures y sont importantes et les équipes des universités divertissent les étudiants, en organisant des compétitions entre eux au sein de l'université et entre universités.

En Amérique, le sport est souvent à l'origine du renom de l'université. Les étudiants y ont, comme en Angleterre, la possibilité de suivre les cours le matin et d'occuper leur après-midi à d'autres activités, parmi lesquelles le sport.
Les infrastructures sportives sont importantes, leur accès est le plus souvent gratuit pour les étudiants du campus.
En revanche, en Europe, les installations sont souvent déficientes. Il est rare de trouver une piscine de natation dans une université, encore plus une piscine olympique.
Le sport est denrée rare dans l'enseignement supérieur européen et y joue rarement un rôle.
La violence était considérée, au 19ème siècle, comme permettant aux jeunes Américains « de construire et d'attester leur identité masculine à travers une socialisation par le sport universitaire de haut niveau, alternative possible à une formation militaire » (KLEIN Jonathan, Sport universitaire, violence et construction de l'identité masculine aux Etats-Unis de l'ère progressite aux années 1930, Vingtième siècle, Revue d'histoire 2008/3, p. 221 ; La violence au hockey, rapport final de Gilles E. NERON, du comité d'étude sur la violence au hockey amateur au Québec, 15 novembre 1977, Haut commissariat à la jeunesse, aux loisirs et au sport du gouvernement du Québec, 1978).
Une des réponses à cette violence a été l'institutionalisation du sport universitaire.
Au printemps 1831, après des plaintes concernant le danger que courait la santé des étudiants aux Etats-Unis en raison de l'excès d'études, des exercices athlétiques et sportifs en général avaient été promus comme une des possibilités d'y mettre un terme.
Des problèmes concernant la diffusion et l'implantation du sport de manière équitable restent en discussion dans le sport et dans la société américaine.
Les problèmes liés à la qualité de l'enseignement et à l'intégrité des sports de collège, n'y sont qu'une partie d'un problème plus important et d'une crise de l'éducation.
Les équipes et les rencontres sont souvent télévisées et connues de tous, les étudiants y ont la possibilité de se rendre aux cours le matin, de manière à faire du sport ou à exercer une autre activité tout l'après-midi sur le campus : tennis, baseball, basketball, athlétisme, natation, volleyball, musculation, fitness,… , activités culturelles, théâtre,…
En Europe, en revanche, les sports ne sont organisés, au départ, que par les étudiants eux-mêmes.
Dans peu de pays, sauf les pays de l'est de l'Europe, à l'époque de l'URSS, le sport était encouragé dans tous les milieux, y compris à l'université.

10. Peut-on comparer l'évolution de la FISU depuis sa constitution à celle du CIO depuis le fin de la guerre 1939-1945 ?
Passant, après l'intermède de Sigfrid EDSTRÖM, à Avery BRUNDAGE et Lord KILLANIN, puis à Juan Antonio SAMARANCH, avant Jacques ROGGE, comme présidents, le CIO s'est orienté depuis 30 ans vers la professionnalisation du sport et a acquis, grâce aux droits de télévision, une confortable aisance financière.
La seule personnalité du président a-t-elle une influence suffisante pour déterminer la direction du mouvement tout entier pour le mouvement sportif universitaire, comme cela semble avoir été le cas du C.I.O. ? Rien n'est moins sûr, bien que les Universiades aient été développées par le président NEBIOLO à partir de son élection.
Pour le sport universitaire et pour les étudiants, un problème reste posé : celui du choix.
L'enseignement supérieur et la vie à l'université sont des réalités que le rôle du sport n'influence, pour la plupart, que dans une mesure limitée.
Le sport peut jouer un rôle dans l'enseignement supérieur, mais l'université et l'enseignement supérieur ont de tous temps dans le monde, y compris celui du sport, eu une influence de loin plus importante que l'inverse.

Le sport universitaire, de compétition ou de récréation, centré sur la santé et le bien être, s'adresse à une élite : des étudiants qui ont atteint le degré supérieur de leurs études.
Le sport lui-même doit-il, à ce niveau, être élitiste ou accessible à tous ?
Nous pensons que les deux options doivent être développées, en même temps.
11. Sur le plan international, mondial et continental, la compétition entre universités ou entre étudiants de l'enseignement supérieur est-elle plus attractive et stimulante que la compétition opposant des équipes sportives nationales ?
Le problème n'est pas là, même s'il pourrait être posé en ces termes ; le but de l'université n'est pas de créer des équipes sportives, même de haut niveau.
Dans chaque nation, l'objectif de l'enseignement supérieur est de former des élites intellectuelles.
Y ajouter le plaisir, l'effort, que représente le sport et les bienfaits de l'exercice physique est plus qu'une possibilité, c'est une nécessité. Dans notre conception, le sport de haut niveau, ne peut cependant détourner l'université de son but, qui est de former les élites.
Raison pour que le sport à l'université soit géré dans l'intérêt des étudiants et leur donne, à tous, la possibilité de joindre l'effort physique aux études, et qu'il ne soit pas soumis aux mêmes dérives que le sport en général.
Le sportif universitaire doit-il ou peut-il poser la question du choix entre la profession et la voie qu'il a choisie en commençant et en poursuivant ses études universitaires et le sport qu'il a choisi de pratiquer ?
Ce problème se pose rarement et l'étudiant est maître de son choix.
Selon les règles de la FISU, les universiades et les championnats universitaires sont ouverts à tous les athlètes, étudiants, qui n'ont pas quitté l'université ou une école supérieure équivalente depuis plus d'un an et dont l'âge se situe entre 17 et 28 ans.
Toute association affiliée à la FISU peut inscrire une équipe ou un athlète individuel.
Les inscriptions sont acceptées de tout pays reconnu par le Comité international olympique et donc apte à participer aux jeux olympiques. De même de toute fédération nationale affiliée à la fédération internationale compétente.
Il importe de connaître et de garder à l'esprit la philosophie de la FISU : elle a pour but de promouvoir les valeurs du sport et d'encourager, dans l'harmonie, la pratique du sport à l'université ; d'exalter l'amitié, la fraternité, le fair-play, la persévérance, l'intégrité, la coopération et le sens de la responsabilité des étudiants, ceux qui tôt ou tard prendront place et occuperont des positions clefs dans la politique, l'économie, la culture, l'industrie, de leur pays et du monde.
Les valeurs du sport peuvent donner une nouvelle dimension à l'université, dans le cadre des études, des recherches, dans les différentes disciplines et dans le développement de l'individu, de l'humanisme et de la société en général.
Développement intellectuel, mais aussi moral et physique.
Tous les étudiants devraient faire du sport au sein de l'établissement qu'ils fréquentent. Ils doivent à tout le moins être mis en mesure de le faire.
Un sport adapté à leur niveau physique.
Pourquoi ne pas le prévoir dans les statuts de l'université et même dans ses programmes ?
Les championnats sportifs entre étudiants, même pour les athlètes de haut niveau, ne doivent, dans le cadre universitaire, pas être conçus comme une fin en soi, mais comme un élément du développement du potentiel personnel, au même titre que les étudiants se préparent à une carrière et à une profession.
Dans cette optique, le sport peut-il être considéré comme une profession à laquelle l'étudiant se prépare à l'université ?
Sans doute dans une faculté ouverte à ces étudiants-athlètes.
Dans sa dimension internationale, la FISU rassemble la communauté universitaire sportive dans le sens le plus large, au-delà des conflits qui divisent les pays, les peuples et les concepts, pour tenter de trouver une harmonie entre l'excellence académique et le sport, éventuellement conçu comme excellence physique.
Le mouvement mondial pour l'université et le sport a comme objectif de devenir un canal de communication.

Pour les universitaires sportifs de haut niveau la question peut se poser à un moment de leurs études : privilégier les études ou le sport ?
L'enseignement supérieur et la vie d'université sont des réalités que le rôle du sport peut influencer.
Pour nous, dans une mesure réduite et dans des cas exceptionnels.
Le sport peut jouer un rôle dans l'enseignement supérieur, mais le rôle de l'université et de l'enseignement supérieur dans le monde du sport reste plus important.
Le sport universitaire, compétitif, récréatif ou centré sur la santé et le bien être, s'adresse à une élite : les étudiants qui ont atteint le degré supérieur de leurs études, l'université.
A ce niveau, le sport ne doit pas être élitiste mais accessible à tous.
Son développement dans le monde crée de nouvelles directions pour les études : l'étude scientifique du phénomène sportif,

- la mécanique de l'effort
- la physiologie de l'effort (HUTCHINSON, J. : On capacity of lungs and on respiratory infunctions view of establishing precise and easy method of detecting diseases by spirometer. Trans. Med.Chir.Soc. (EDIMB.) 29, 137 (1846) ; HILL, A.V : Muscular movement in man, New York, 1927),
- l'effet de l'attitude sur la fonction cardiaque (VENRATH, H. ,BARWISCH, B : Untersuchungen zum Leistungsverhalten, in Mittlern Höhen, 1-3, Mittlg. Sportarzt U. Sportmed. 4, 137 (1966) ; 2, 66, 250 (1967))
- l'effet de l'entraînement sur le corps et sur la circulation (REINDELL, H. : Grösse, Form und Bewegungsbild des Sportherzens, Arch. Kreisl. Forsch. 7, 17 (1940))
- la biochimie de l'effort (POORTMANS, J. (ed.) : Biochemistry of exercise, Basel-New York 1969)
- les effets de l'entraînement (ROSKAMM, H. , WEIDEMAN, W. , SAMEK, L., GöRNANDT, L., BAUMANN A., MELLEROWICZ, H., RENEMANN, H., LIMON-LASON, R. : Maximale Sauerstoffaufnahme, maximale Atemminutenvolumen und maximale Herzfrequenz bei Hochleistungssportlern im Verlaufe einer Akklimatisationsperiode in Font Romeu (1800 mètres) Mexico City (2240 mètres), Sportartz u. Sportmed. 3, 120 (1968)
- la sociologie du sport (MAGNANE, G. : Sociologie du sport, Collection Idées, Gallimard ed., 1964 ; Michel BOUET, Signification du sport, Encyclopédie universitaire, Editions universitaires, Paris 1968 ; Michel BOUET, Les motivations des sportifs, Editions universitaires, Paris 1969)
- l'entraînement sportif
- la philosophie du sport (VANDERZWAAG, H. : Philosophy of sport, Journal of Sport and Social Issues, Mar 1977 ; vol. 1 : pp. 90-96)
- le droit du sport (SILANCE Luc : Les sports et le droit, loc. cit. 1998)

La formation à la gestion administrative du sport et à l'organisation des manifestations sportives et des grands événements peut, mieux que par d'autres canaux faire l'objet d'études supérieures.
Dans cette optique, l'université peut apporter au sport beaucoup plus que ce que les fédérations sportives y voient jusqu'à présent.

12. Sur le plan international, mondial ou continental : la compétition entre universités est-elle plus attractive et stimulante que la compétition opposant des équipes nationales ?
La question peut être posée, mais le but de l'université n'est pas de créer des équipes sportives, même de haut niveau. Dans chaque nation, elle forme les élites intellectuelles.
Y ajouter le plaisir, l'effort, que représente en outre le sport, même de haut niveau, ne peut détourner l'université de son véritable but, de formation.
Une partie de l'université doit cependant être consacrée au sport et préparer des élites – sportives – ou scientifiques spécialisés en sport ou des dirigeant sportifs de haut niveau.

Raison de plus pour considérer que le sport ne peut être soumis, dans sa partie universitaire, aux mêmes abus que le sport en général ou les subir.
Les étudiants qui participent aux compétitions sportives et portent les couleurs de leur université, se trouvent dans la même situation que les athlètes participant à des compétitions internationales.
Ils ne représentent pas leur pays, ou leur nation, mais la fédération nationale (éventuellement universitaire) dont ils font partie par le club auquel ils sont affiliés, éventuellement par un club dans un autre pays, et qui en raison des règles de la fédération internationale sont mis à la disposition de leur fédération nationale.
De la même manière, les étudiants ne représentent pas l'université comme telle, puisque ce ne sont pas les autorités académiques qui organisent les compétitions sportives ; ils font partie de l'équipe sportive de l'université et représentent l'université à travers ses clubs de sport. Ceux-ci doivent recevoir des autorités académiques l'autorisation et le droit de porter les couleurs de l'université et de les défendre dans le cadre des compétitions

- au sein de l'université
- entre universités d'un même pays
- entre sélections nationales universitaires.

Le rôle de l'université ne se limite pas à donner l'autorisation de porter ses couleurs pour des rencontres sportives.
Elle doit permettre et faciliter la pratique sportive et, en outre, sur le plan scientifique, étudier le problème, le phénomène sportif.
Les premières études sérieuses de cette matière rattachées à la médecine ont porté sur la mécanique et la physiologie de l'effort.
Ainsi s'est constituée une médecine sportive et les études doivent s'étendre aux autres sciences : chimie, physique, droit, sociologie, psychologie, philosophie.

13. Le rôle essentiel de l'université et des écoles supérieures est de former les élites intellectuelles, l'excellence des esprits.
Le rôle du sport est double, selon le niveau :

- professionnel, de haute compétition ou de haut niveau : l'excellence de la prestation,
- pour tous, sous ses différentes formes : atteindre ses buts de nature ludiques, moraux, de santé.

En combinant ces deux rôles, l'université complète l'excellence intellectuelle, par l'excellence sportive et physique.
Elle formerait l'homme idéal.
L'étudiant universitaire peut ajouter à sa formation intellectuelle, une formation physique, car le sport apporte à l'homme une dimension supplémentaire.
Pourquoi l'intellectuel devrait-il suivre d'autres voies, puisqu'au moins autant qu'un autre, il a besoin d'exercices physiques.
Les universités et les écoles supérieures devraient favoriser et même exiger des étudiants qu'ils participent à l'une ou l'autre forme de sport ou d'éducation physique.
Le choix personnel reste libre mais la pratique sportive devrait être non seulement encouragée, mais devrait figurer dans le cursus ou le programme.
Le sport estudiantin, pratique courante depuis la moitié du 19ème siècle et le début du 20ème siècle, doit être partie de la vie universitaire. Il est anormal qu'en Europe le processus de Bologne n'y fasse aucune allusion, sauf dans la mesure où des études d'éducation physique ou de sport font partie des programmes universitaires.
Le sport est plus qu'un simple délassement : il est une nécessité pour l'individu et doit être considéré comme tel par les autorités politiques et académiques.

14. L'opposition entre deux thèses, les contradictions entre deux manières de voir les choses sont révélatrices.

- le rôle du sport dans l'enseignement supérieur et dans la vie de l'université
- le rôle de l'université et de l'enseignement supérieur dans le monde du sport.

Les deux questions sont par essence différentes.

Beaucoup de professeurs, de dirigeants de l'enseignement et du monde politique estiment que l'enseignement supérieur et l'université peuvent exister sans que le sport y joue un rôle quelconque.
Le monde du sport est très éloigné des préoccupations de l'enseignement supérieur et du rôle de l'université.
Les deux points de vue,
- du monde de l'enseignement supérieur
- du monde du sport
peuvent cependant et devraient se rencontrer.
C'est le privilège et le rôle de la FISU d'orienter cette rencontre et d'appeler à cette réflexion.
Le sport universitaire présente des situations controversielles et place les individus devant des choix.
La professionnalisation du sport comme la spécialisation de la plupart des professions, basées sur des études universitaires ou non, font que dans la poursuite des études universitaires et dans la pratique du sport, les études d'une part, le sport d'autre part et l'excellence exigée des étudiants et des pratiquants sportifs de haut niveau, ne sont pas contradictoires, mais rendent l'emploi du temps consacré à l'une et à l'autre activité, de plus en plus difficile.
Les études universitaires sont de plus en plus spécialisées et plus ardues qu'il y a quelques dizaines d'années.
Les performances sportives sont telles que pour arriver à un haut niveau, le sportif doit consacrer de plus en plus de temps à son entraînement, et à sa préparation. L'accumulation des efforts présente une difficulté en raison du temps à consacrer à l'une et à l'autre activité, si elles sont concomitantes.

15. Le sport professionnel devrait être regroupé et organisé d'une manière distincte de la compétition.
Le sport universitaire ne peut, à lui seul, concurrencer valablement l'organisation existante dans les fédérations nationales et internationales.
Pour organiser le sport sur d'autres bases que les formes existantes, il devrait regrouper non seulement les universités dans les différentes nations, mais également le sport scolaire pour attirer les jeunes à l'activité sportive dès leur jeune âge. En outre organiser le sport post-universitaire, pour permettre à ceux qui ont terminé leurs cycles d'études de poursuivre la pratique sportive.
C'est difficilement réalisable.
Est-ce la vocation du sport universitaire de réorganiser la pratique du sport en général ? Ou se limite-t-elle à la pratique durant les études dans les écoles supérieures ?
Il ne faut par rêver : l'organisation du sport étant ce qu'elle est, il nous paraît irréalisable de la remplacer par une organisation différente, basée sur le sport scolaire, le sport universitaire et post-universitaire.
Le sport devrait être maintenu dans son organisation actuelle, mais en revanche, le sport professionnel devrait être organisé sur des bases différentes, comparables à l'organisation du basket-ball aux Etats-Unis : sport spectacle, le seul qui semble correspondre à la nature de cette profession. S'il ne faut pas le comparer au cirque, le spectacle que procure le sport au public est tel qu'il faut lui assurer une gestion et une diffusion particulières.

16. Une autre piste pourrait être suivie pour orienter le sport à l'université.
Le sport de haut niveau est différent et se distancie du sport de compétition ordinaire, encore plus du sport pour tous.
Le sport universitaire est, d'une autre manière, différent du sport de compétition ordinaire.
Regroupant une élite intellectuelle et sportive, il pourrait s'associer d'une certaine manière à de grandes équipes (on dit parfois « écuries ») ou à de grandes entreprises, exerçant leur activité dans la ville universitaire.
De tels partenariats présenteraient des avantages pour tous les partenaires.

Les équipes universitaires pourraient bénéficier des conseils et de l'organisation du club de haut niveau ou de l'entreprise.
Elles pourraient être en contact avec les sponsors et les groupes pratiquant le mécénat, en matière sportive, liés contractuellement à ces grandes équipes.
L'université pourrait, sur le plan académique, trouver chez ces partenaires des échanges sur le plan sportif et des formations adaptées à ses athlètes de haut niveau, leur ouvrant des voies au moment de leur conversion vers la vie professionnelle.
Les clubs et les sociétés pourraient trouver à l'intersité sur le plan scientifique des ouvertures dignes d'intérêt.
Des contacts et des partenariats de cette nature pourraient être trouvés dans différents sports, dans la mesure où des formations de haut niveau existent dans le même environnement que l'université.
La voie du partenariat ne concerne pas uniquement le sport. Elle pourrait être élargie et associer le sport à tous les domaines de la culture, de l'éducation et de la vie professionnelle.
Ces partenariats créeraient des situations d'interdépendance complexes dont l'utilité apparaît dès l'abord.
Elle serait double pour l'université :

- lui permettre d'avoir accès à de nouvelles sources de financement.

- lui donner une publicité plus grande dans des milieux qu'elle touche peu ou pas assez.

A titre de réciprocité, l'accès à l'université, à ses études et à son activité scientifique pourraient être élargi à des milieux qui n'y ont pas d'accès direct à l'heure actuelle.
Les clubs sportifs et les fédérations pourraient voir le niveau de leur direction s'améliorer au contact des élites universitaires.
Sur quelles bases organiser un tel partenariat ?
Il faut d'abord recevoir l'accord des autorités académiques et déterminer la place qu'occupe le sport à l'université, pour permettre au sport et à ses dirigeants de développer ce partenariat. D'abord par des contacts personnels et humains, puis en l'institutionnalisant et en le rédigeant sous forme de contrat ou de « charte », de manière qu'il devienne source de droits et d'obligations contractuelles dans le chef des partenaires.
Au niveau national et au niveau international, le sport universitaire devrait anticiper.
Expérimenter de nouvelles pratiques et de nouvelles règles complétant les activités sportives actuelles et leur réglementation.
Les équipes professionnelles, surtout de haut niveau, ont, elles-mêmes parfois des sources de financement insuffisantes.
L'appui de l'université ne serait pas destiné à trouver des financements pour elle-même, mais permettrait aux équipes de favoriser leur financement en donnant au partenariat, club de haut niveau-université, un lustre de nature à satisfaire les deux parties et leurs sponsors.
Le tout développerait des synergies.
Grâce à la formation académique, éventuellement adaptée en raison des circonstances, la voie pourrait être ouverte à la reconversion professionnelle des athlètes.
Les athlètes universitaires de haut niveau pourraient y trouver leur avantage, mais les sportifs de haut niveau du club partenaire pourraient trouver à l'université, par son biais et sa fréquentation, de nouvelles voies à la fin de leur carrière sportive.
Il faudrait constituer et rédiger un système juridique cohérent, adapté à ces nouvelles voies, et trouver et organiser des réglementations sur le plan académique, et sur le plan sportif.
Un tel système devrait s'adapter à la nature diversifiée du sport universitaire, pluraliste par nature, et du sport de haut niveau pratiqué dans les grandes équipes.
Le rôle de l'université ne s'arrêterait pas là, puisque l'étude des sciences du sport, la médecine sportive et autres disciplines, pourraient progresser au contact des équipes et athlètes de haut niveau. Les scientifiques apporteraient au sport leur coopération, leur lustre, leurs connaissances, et permettraient au sport et à son environnement, entraîneurs et dirigeants de progresser dans le bon sens.

Le progrès pourrait exister dans les deux milieux devenant partenaires.
Ces partenariats ne seront sans doute pas très nombreux, au moins dans des temps proches.
Par un effet pervers de l'arrêt BOSMAN (Bosman / R.F.C. Liège – UEFA, Cour de Justice des Communautés Européennes, 15 décembre 1995, affaire C-415/93, J.T.T., 1996, p. 37) de la Cour de Justice des Communautés Européennes, les clubs riches sont devenus beaucoup plus riches, mais au contraire les autres ne peuvent progresser.
Il existe en sport des problèmes de financement, même dans les grands clubs, sauf sans doute les plus grands et les plus riches.
Le phénomène est visible et sensible en football.
En revanche, en dehors des « Grand prix », l'athlétisme reste dans la plupart des pays un sport « pauvre » et ses pratiquants, sauf les meilleurs, qui participent à des tournées, n'ont que des sources de financement très limitées et peu variées.
Pour pouvoir entamer et poursuivre des études universitaires, les meilleurs athlètes européens, s'ils sont d'un niveau suffisant, envisagent souvent de poursuivre leurs études et leur entraînement dans une université américaine, car dans une université européenne ils ne reçoivent que peu de soutien.
De même pour la natation.
L'exil vers des régions où l'entraînement de natation en plein air est possible est un phénomène fréquent.
Dans le cours des vingt dernières années, le sport universitaire s'est développé et dans le même temps, le sport de haut niveau tout autant. En même temps, des problèmes liés à la professionnalisation : excès financiers, fraudes dans des paris, rencontres truquées, scandales de laboratoires spécialisés dans le dopage, etc.
A cause de la professionnalisation, pour les sports les plus touchés par le phénomène (football, basketball, tennis, même athlétisme), une distinction s'est creusée entre les vedettes, qui font partie d'une autre « branche » de leur sport, et les pratiquants, par millions qui sont la base du mouvement.
De manière artificielle les « vedettes » professionnelles et les clubs professionnels restent cependant liés aux mêmes fédérations. Aux Etats-Unis, en basketball, une formule spectaculaire, organisant des compétitions télévisées, attire un public important. Cette « branche » du sport pourrait être organisée de manière indépendante.

17. Il faut distinguer
- Le rôle de l'université dans le sport
  Non seulement autoriser la pratique du sport à l'université, dans le campus, mais en faire un droit pour tous les étudiants.
  A cette fin, mettre des installations suffisantes à leur disposition pour permettre la pratique du sport de leur choix dans de bonnes conditions
  L'université doit permettre la création et l'organisation de clubs sportifs en son sein
  Permettre l'organisation de compétitions à l'université et entre universités ou entre représentants des universités.
  Permettre aux étudiants régulièrement inscrits de représenter l'université dans des rencontres sportives.
  Sur le plan scientifique, au sein de l'une ou l'autre faculté, étudier le phénomène sportif
  - médecine sportive
  - sociologie du sport
  - droit du sport
  - …
  Former des entraîneurs sportifs
  Former des dirigeants sportifs

- Le rôle du sport dans l'université :

Organiser la pratique du sport comme divertissement et contribuer au bien-être des étudiants
Représenter l'université dans les rencontres sportives interuniversités.
Contribuer à la renommée de l'université
Participer à l'étude scientifique du phénomène
Devenir au sein de l'université, seul ou avec l'éducation physique une faculté ou à tout le moins une partie d'une faculté. Exemple : à la VUB, le recteur est professeur d'éducation physique et de sport à l'Institut d'éducation physique et de kinésithérapie.

Examinant, en Europe, le processus de Bologne, nous n'y trouvons pas trace de sport. Cette lacune doit être comblée.
Beaucoup d'universités américaines basent une partie de leurs efforts et de leur renommée sur la formation d'équipes sportives.
Le phénomène est hétéroclite, compte tenu de la diversité ou de l'absence d'efforts consacrés au phénomène sportif.
Des partenariats devraient être envisagés et poursuivis.
En Europe, l'attention des recteurs et des dirigeants politiques devrait être attirée sur les lacunes du processus de Bologne, en ce qu'il ne vise pas le sport.
Pourquoi ne pas clôturer le congrès organisé à l'occasion de l'Universiade de Belgrade par l'adoption d'une « résolution de Belgrade », réclamant plus de considération pour le sport, sous toutes ses formes, à l'université. En tous cas, en Europe, et l'addition de considérations relatives au sport dans le processus de Bologne.

MODERNISATION OF CONTEMPORARY UNIVERSITY SPORTS

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Introduction.

As theoretical analysis and empirical evidence both show, sports has enormous potential to affect positively the whole range of physical, psychic and spiritual capabilities of humans, and their interpersonal relationships. It also plays an ever increasing role in the educational system which is aimed, inter alia, at the student community.

However, during the last few decades, the humanistic and socio-cultural potential of sports encountered significant challenges in its actual realization as far as it relates to students.

First, in today's environment only a limited number of students actively engage in sports.

Second, this environment does not allow fulfilling sport's huge humanistic and cultural potential. Significant share of the student community have health issues or are underdeveloped physically. Students do not consider healthy lifestyle and sports as integral part of their lives, and are not so keen on sports as a result. During their studies the students see their level of physical and sports activity reduce from one term to the next, and graduates often score lower on key health indicators than new entrants. But it is in the areas of morality, culture of social relationships, young people's aesthetic perceptions, creativity and the like that the role of sports has diminished most.

Third, - and this is especially worrying – in today's student sports environment, as is often the case in sports in general, humanistic values become unimportant, the moral values are devalued. An increasing number of young people see sports primarily not as one of the forms of socialization, or as a stage where humane attitudes should flourish, or as a means of personal development in harmony. Young people tend to engage in sports in order to achieve personal prosperity or upgrade their social status.

These issues, their existence proven by multiple social studies (including the author's own work and work of his students), lead the author to conclude that the incumbent system of sports work in higher educational institutions needs to be repaired and modernized.

A central path towards resolution of those issues requires more active and structured search of new forms and methods of sports-related work with students. Such forms ideally should:

1) Make sports activities much more *attractive* to students compared to other pastimes, which are amply provided by today's cultural environment – TV, computer and other hypo-dynamic games;
2) Demonstrate the cultural and social importance of sports in full: for instance, benefits to health, positive effect on moral and aesthetic culture, creative potential, discouragement of drug use and other forms of anti-social behavior.

Theoretical assumptions

The first group of such assumptions, which in the author's opinion, need to be taken into account in discussions on issues of modernization of university and college sports, which is viable in today's environment, is to do with the *objectives* of university and college sports:

1. University and college sports should contribute towards:
   a. Young people's positive attitude to sports, active sports engagement, realization that there are values and cultural norms which applicable in sports as well as in other activities, on the whole – education in the area of sports culture.
   b. Achievement of other goals which stretch beyond sports boundaries and relate to university education in the area of personal qualities and social relationships.
2. University sports should promote participation and engagement of all students, not just the selected and talented few.
3. Students associate many and different values with sports, for instance an opportunity for financial improvement, an opportunity to prove that one person is better than another, or to achieve realization of other ends. Sports at college should educate students about the culture of social relationships, and be a medium for realization of people's best qualities. One of the central elements of sports culture is the *culture of competition*. This requires a person to actively compete and demonstrate will, courage, persistence and devotion. At the same time it emphasizes moral aspects of behaviour, rejection of violence, non-acceptance of means which may harm others or insult them.. Culture of competition is an element of the *world culture*, which has rejection of violence, democracy, freedom, equity, tolerance and mutual respect as its foundation values.
4. University sports must contribute to achievement of intellectual, aesthetical, moral and creative requirements of the student community. The Declaration "Young People and the Sports" adopted at the 8th European Conference of sports ministers in 1995, states that sports must be practised with humane attitudes and tolerance. Accordingly those who practise sports education must replicate such values and attitudes onto students as respect for others, self control, and tolerance.

The second group of theoretical assumptions is related to factors affecting social role of students' sports activities, and sports in general.

It is widely thought that active sports *automatically* ensure positive effect on personality and social relationships. More specifically it is taken for granted that sports activities necessarily and by themselves improve physical condition and breed new champions, preserve health, educate young people culturally and aesthetically, can win the fight against taking drugs and crime. Real practice proves this to be a serious mistake.

Analysis shows that sport's enormous potential for positive influence on humans and their social relationships is often underutilized, especially with regard to morality and culture. Evidence suggests that sports may affect negatively too. In order to win in a high level competition, the amount of exhaustive training is such that it may induce physical and mental sickness or injury. According to a few works of research in the Russian Federation, young people aged between 10 and 17, actively engaged in sports, fall ill with respiratory illnesses (angina, bronchitis etc) more frequently than their counterparts who do not have a structured or professional sports training. An astonishingly low 5% of sports school attendees pass medical checks with clean bill of health. Between 15% and 35% of the sample examined have anomalies or even illnesses which are not easily identified. According to the data provided by one of the sports medical offices, one of the leading sports schools in Rostov in South Russia had the proportion of healthy students reducing from 53% to less than 15%, and the proportion of athletes with chronic ailments increasing threefold. A full one sixth of the candidates for the Russian national youth or junior teams need medical attention. During the second athletics world championship in Budapest 118 out of 1032 participants had been injured and a further 71 athletes had raised health complaints, that means nearly one-fifth of the total number were unfit to compete. Sports activities alone and unaccompanied by others

often leads to disproportionate development of physical qualities at the expense of cultural deprivation of young people.

The above facts prove that sport's enormous positive socio-cultural potential does not materialize by itself. There are multiple factors, which determine social orientation, social functions, degree and specifics of sport's influence on personality and social relationships.

The ones which are usually quoted in this regard are subjective factors, those related to conscious decisions taken by individuals. Social meaning and importance of sports, its humanistic value is a direct relationship of people's behaviour and what objectives they set for themselves in sports, what are their sporting interests, what they see as important and what not, how they prepare themselves for competitions etc.

The role of coaching, organizers of competitions, sponsors cannot be underestimated. What their principles, coaching styles and values are determines their relationships with sportsmen, the objectives which these people set and try to achieve is thus also very important. Do they consider humanistic values in their work or is any price suitable to pay for the victory or commercial success? The views of politicians and statesmen, who set the overall direction of the social policies and their implementation in real life, also play a very significant role. The same goes for sports and social education, especially its humanistic content. Promotion of "fair play" principles and other humanistic ideals and values which encourage morality in sports should mitigate dysfunctional influence of the cult of victory, success and high or record achievements.

The second group of factors which affect social importance of sports are objective factors. First and foremost is general socio-economic, political and cultural environment prevailing in the society, its value system, norms and models of behaviour, and how individuals are motivated or demotivated. Sports, as well as any other social phenomenon, develops in close conjunction and interaction with other elements of social structure and is always in the context of specific economic, cultural and political conditions. These conditions and environment determine the society views on sports, its perceived objectives, organisational structure, and the resulting role of sports. Modern society to this day is de-facto oriented on pragmatic and technocratic set of values rather than humanistic and moral ones. Also individuals are put in such conditions that they have no choice but to specialise in a narrow range of activities, but have no time or energy to develop on a wider spectrum. This environment inevitably affects sports in the same manner, that is technocratic and pragmatic values prevail over others.

Factor analysis of humanistic value of sports has an inherent methodological error. Due to the fact that sports depends on conscious decisions and behaviours of individuals, this dependency is taken as absolute and its role is exaggerated. It is considered that social effect and influence of sports is the result of individual attitudes and applications rather than sport's intrinsic characteristics. It is considered that sports is good or at least neutral in nature but can be used in an unsociable or inappropriate manners and ways. To illustrate this opinion, here's a quote from the President of the International Council of Sports and Physical education, Mr. R. Bannister: "Sports as many other things in life is neither good nor bad, but we, the people, may use it for both good and bad purposes (Bannister, R. 368).

This view oversimplifies the issue and misrepresents the reality. First of all this view ignores the contradictory nature of sports, and its potential. One of the many proofs of this contradictory nature is the fact that sports competitions contain integrative and conflicting elements, and represents "antagonist co-operation", to use the term put forward by A. Hietanen and T. Varis (24, P. 215), or as G Simmel wrote, "unity in struggle". So sport can be both good and bad. It is never black and white.

The reporter puts forward the opinion that methods and models of organisation of sports competitions influences value orientation of sportsmen, coaches and others. For instance if the competition programme requires demonstration of only physical qualities and achievements, if training is also organised in a way that promotes physical superiority, if commercial success is the goal, then this inevitably reduces orientation on humanistic values. If on the contrary, training and competition is organised so that sportsmen have to

demonstrate moral behaviour, culture and intellect, and these qualities are rewarded, sportsmen will respond accordingly.

In modern college and university sports organisation of competitions has the following salient features:

- The programme is structured so that it assumes specialization of participants in one type of activity (e.g. running, swimming, chess playing, decathlon). Even where more than one type of activity is involved (decathlon, biathlon), only a single quality is demanded (more often physical). With this approach artistic, intellectual and other creative competition is being neglected, although it can be complemented by a certain cultural programme (a concert or an opening or closing ceremony.
- The winner is identified in a way which requires athletes to compete against each other. The task is to use very discrete and precise criteria to identify the winner and even a minimal difference in results and measurements is taken into account. This evaluation process only uses the rule book of a game, or a process. Moral and other aspects of behaviour are not taken into account. Following the evaluation process the participants take their “places”. Those at the top (usually the top three) get all the credit, including financial benefits, while those who did not score enough are somehow put aside.
- The participants are broken down into groups (according to their gender, age, extent of preparation etc.) and separate competitions are held for separate groups; for instance disabled have their separate competitions.
- The teams represent usually one country or one region, city, one work collective etc.
- The rule books for different sports are normally very prescriptive including as to the tools of the game (a ball, a racket, a bat etc).

This form of organisation of competitions is predominant today in university and college sports. It must be said that programmes of such competitions are quite diverse, as usually is the cast of participants. The methods of winner identification are also modified from time to time. But in the end, the principles of organisation stay the same.

The traditional way of organizing sports competitions serves a variety of educational objectives: it motivates the participants to strive continuously to improve their physical qualities, it builds character, and it excites the viewers.

Still this method does not allow full realization of sports humanistic and cultural potential. Alongside improvements in physical characteristics, it can negatively affect sportsmen’s health in other ways, and slows down people’s cultural development because it promotes winning at any cost – even at the expense of moral principles, winning is everything.

Recently a group of scientists posed a number of unusual questions to a test group of sportsmen, who were not top achievers but had very high potential in the eyes of their coaches. The principle question was the group’s attitude to taking performance improving substances so that in short space of time sportsmen could qualify for the Olympic games with a chance of winning a gold medal. On the other side, it was stated that there was a health risk of disability in 10-15 years’ time. The results were quite astonishing. 8 out 10 respondents said they viewed such option as acceptable for themselves. In order to find out how sports (including Olympics) influences moral behaviours, numerous researches have been undertaken, also at the international level. Research has shown that active and regular sports and competitions based on the traditional model have no impact on moral orientation. Those who do not regularly take part in competitions appear to view fair play principles and apply them more consistently, whereas professional sportsmen do not readily associate themselves with the fair play code.

To make a fair comparison of competition results the traditional method of competition organisation divides participants into groups based on certain criteria such as gender, age etc). Under this system those for example with spinal disabilities and mentally impaired even if they do engage in sports, do so in a separated manner. They have separate competitions. They compete in a different place and usually at a different point in time. This creates a certain social divide. There is division within physically impaired group itself, such as when

hearing or sight impaired sportsmen form one group and those with spinal dysfunctions for another. So here the traditional model of competition organisation does not really help social integration of these people because the sphere of their social contacts is artificially narrowed down and isolated from many others who do not have obvious physical disabilities.

It is important to note that also during the training process the traditional model of competition organisation motivates sportsmen towards high physical achievements and not necessarily healthy life or moral behaviour.

Factor analysis of educational role of sports answers the question on principal forms and methods of modernization of contemporary university and college sports.

Principal forms and methods of modernizing contemporary university and college sports.

Application of principles of humanistic teaching and psychology. Many specialists point to the fact that personal individual characteristics of sportsmen are often disregarded, in that active influence is delivered by the coach or promoter, and athletes play a passive role. Today we have a wider understanding of the concept that modern conditions dictate some reorganisation of this work along the principles of humanistic education and psychology, where more emphasis is on student's personality, democratisation of relationship between the coach and the student, making coach's work with students more individually oriented, matching the training programme with students' age rhythms. Also students should be allowed more freedom in making a choice of forms, modes and intensity of the training, which should contribute to overall health improvement.

Information exchange with students should be more active. The educational component of this information exchange is an obvious area for improvement.

Students need to be aware of the general positive health effects and benefits that sports can bring with it, plus know more about their own bodies, fitness or unfitness for certain activities, and how to work and not to work on themselves.

Another important method of modernization of sports work is propaganda among students and competition organizers of sports humanistic ideals and values, explanation of their meaning and application in sports, especially Olympics. We can even term this "Olympic education".

The importance of Olympic education of youth and children is being addressed in many recent international official publications. For example the Olympic Charter, which is the foundation document of today's Olympic movement, specifically says that the International Olympic Committee and country National Committees must promote Olympic education of young people, advertise the Olympic principles through all available channels.

Olympic education work promotes and encourages "Fair Play" principles. These principles are explained in detail in "Sports Manifesto" and "Fair Play Manifesto", which have been developed and published by the International Council of Physical Education and Sports. The latter document was updated by the International Fair Play Committee in 1992. Some countries such as Sweden, Canada and Germany have developed and implemented educational programmes, which have as their primary objective the promotion of "fair play" principles. These often take the form of situation analysis. For instance the participants are being asked to comment on a specific situation, such as analyzing different reaction of spectators when the team they support is winning or losing.

Recently the realization has set in that lectures and slogans alone are not sufficient to build adequate understanding and support of fair play principles and values with sportsmen. This is because sportsmen's behaviour and their orientation on certain values are a product of more than one factor. One of them, as was noted earlier, is the organisation of sports competitions. This is the reason why many scientists take the issue in conjunction with the necessary changes that need to be implemented in the organisation of sports competitions. However, more often than not, what is considered is a limited number of elements of the traditional method of organizing sports competitions (for example approach to the programme or selection of participants, how the winner is identified etc), or only *partial* modification.

A different approach to competition programme.

The reporter is of the opinion that we should overcome the *isolation between sport and art*, and encourage the process of the two coming closer together. It is believed that integration between sport and art will further increase sports moral and cultural potential.

Practical ways of doing it are different. In recent years it has become regular practice to hold joint musical and sports festivals, organise joint cultural and sports events.

Proposals for sport events programme changes on the basis of integration between sports, art and other activities naturally provide for other related changes in preparation and training techniques, both for specific events and on a more general scale. Training sessions in general are starting to have more musical components for instance.

A new approach to winner identification.

A typical example of such new approach is the motivation system for the participants which rewards moral and fair behaviour in the best “fair play” traditions. Especially interesting are attempts to reward sportsmanlike behaviour (although not in high achievement professional sport), including considerations of behavioural aspects of competitions in the process of identifying the winners.

A very interesting proposal was made by a German philosopher, and an Olympic rowing champion Mr G Lenk at the international symposium in Munich in 1977. This dealt with winner identification and reward system. He proposed to abandon the model which uses ever more precise indicators to identify a single winner or top three winners. The second part of the proposal was to replace this with a model which rewards all participants who demonstrated a deserving quality, and also ignores minute differences in performance indicators.

A new approach to participant selection.

Sometimes what is proposed is only a change in *number* of participants in traditional sports competitions. To illustrate, there are “mini” forms of traditional and popular sports. These “mini” games preserve the principal rules, including scorekeeping. But at the same time a game can be played with a much smaller number of players, than, say, football with 22 players, ice-hockey with 12, basketball with 10. Beach volleyball and street basketball can be played with as few as 2 people. There is also no need for coaching instructions.

In recent years more emphasis is put on enabling people of different ages, gender to participate in sports competitions. The first step along this path is organizing sporting events especially for those groups which were for one reason or another *excluded* from sports. Examples are Paralympics and other events for the disabled, Special Olympics for people with mental illnesses. A natural extension of this humanization path is modification and adaptation of the competitions and games to certain conditions, such as composition of participants, and to specific objectives of specific events.

In this respect there is a very interesting methodology developed by Mr GS Don Morris and Mr Jim Stiehl. This methodology takes already existing games and sports and by modification of the rules and tools new games are created, which can be played without limitations by young and old, in the gym or outdoors.

Promotion of co-operation among participants.

Research shows that a common goal which is important to all participants tends to unite them, humanizes the relationships in the team. Conversely, individual goals especially when achievement by one person automatically means failure to achieve by another, tend to divide groups and create envy (Sherif, 1976). From this, many colleagues conclude that part of the humanization process is to *reduce* the content of the *competition*, and *increase* the content of *co-operation*.

Often it is advised that a winner should be identified during *team* competitions and not in the *individual* ones. The team’s result could be determined by reference to a number of participants in the team who coped with the proposed challenge. (Karatassakis, 1980).

Another suggestion is to rotate team members between teams in the process. ***Intra-team*** rotation involves role interchange among the players so that each participant takes on more than one role in the course of the game as opposed to long-predetermined roles (goalkeeper, defender or midfield). ***Inter-team*** rotation involves transfers of players from one team to another. When such rotation happens, chances are that hostility is reduced to a minimum because anyone can be on either team's side at any time.

The co-operation is also made easier if the objective is self-improvement, that is an individual tries to improve his own previous results and not the results of others, with corresponding shift of motivation and reward.

Mr P Hopkins of the Waterloo University proposes to have competitions organised according to the principle of "semi-cooperation": there are no official referees or judges, the process is self-controlled or mutually-controlled, minimum rules, and what rules there are, are agreed in advance and can be modified, no official scorekeeping, flexible number of team players, flexible rules for participation, flexible substitution rules. Because of all this there is a lot of fun in the game and the participants from all teams are more relaxed, and due to the flexibility of rules the score does not matter (Orlick, 1978, pp. 70-71).

This approach is recommended for implementation in different kinds of sports competitions and different games. For example, in volleyball and basketball, in order to promote co-operation and to prevent situations where goals are scored predominantly by just a few individuals, the scorekeeping rules are changed completely.

The emphasis of co-operation underlies the so-called "co-operative games", where team performance is more important than individual performances. In volleyball for example the objective would be to keep the ball in the air for as long as possible. In multi-disciplinary competitions the results would be aggregated for all the players and then compared for the team as a whole to the score previously recorded (Deacove, 1981).

This approach taken to extreme would logically lead to the model where competition is taken out of the process altogether, and the competitional model of sport is replaced by non-competitional. The latter does not distinguish between the winner and the loser, and the accent is on the fun component. Because this model is now also reality, a term also emerged for "*unsporty sport*" (Dietrich, Heinemann, 1989). The New Games which are now widely popular in the United States, Canada, Germany and some other countries demonstrate this approach most fully (Le Fevre, 2002). In Japan these competitions are termed "TROPS" which is the "SPORT" spelled backwards (Kageyama, 1988).

All the above proposals serve the objective to humanize the university and college sports and have been tested and applied in practice at multiple higher educational institutions in the Russian Federation.

The reporter in 1990 developed and implemented a new humanization project called "**SpArt**" which is the product of **Sp**irituality, **Sp**ort and **Art** (VI Stolyarov, 1991, 1955a, b; Stolyarov, 1991, 1998). On the basis of this project an innovation model for competition in games has been developed. This model is being implemented in practice during Spartian Games, when all elements of the traditional method of organizing the competition are modified.

Spartian Games.

These games have the following in common:

1. <u>A special competition programme</u>. The following principles should be observed:

- The competition shall not be included in the program if it is in breach of the *principles and ideals of humanism*: for instance those which have the risk of health damage or injury, personal insult;
- The disciplines in the competition programme must have metrics allowing to evaluate team and individual performance from a *variety of angles*;

- The programme should be balanced in a way that different disciplines test different abilities and performance: physical qualities, creativity and artistic content, sense of humour, intellectual level etc.
- The Games should contain disciplines which allow participation of different gender groups, age groups etc. including people with disabilities.
- The Games should on the one hand promote patriotism and on the other, self-respect and mutual respect of others' values and culture, religious beliefs and so on.

2. A new way to identify winners and reward them.

- Behaviour is more important than scores and results. This is also reflected in the SpArt Organisation's and the Games' motto and slogans.
- Participants are rewarded for their performance cultural content, as well as for their cultural visibility.
- Aesthetic, moral and spiritual considerations are taken into account in the performance evaluation process.
- The participants are rewarded for exceeding their past performance indicators.
- The objective for the Games is set for all the participants to become the winners in one way or another. To this end they are encouraged to demonstrate their talents in a variety of ways. The reward system broadly works as follows:
- Any participant who demonstrated deserving qualities is nominated a winner.
- Immaterial differences in results are *not* taken into account in performance assessment.
- More than one participant or team can win gold medals or take the first place depending on in which area they performed best.
- Individual differences are being taken into account in performance evaluation (such as age, gender, any disabilities).
- The prizes are not differentiated in value from first place to second or third or fourth. The rewards have more symbolic or sentimental value than financial benefit.

3. The main objective of the Spartian Games is to promote personality development in harmony. Therefore the most prestigious awards are for those who demonstrate beauty, spirituality and culture.

Encouraging co-operation.

The concept of Spartian Games is based on the premise that for the participants the events are primarily a game. Therefore co-operation takes center stage and the spirit of co-operation is visible in the following:

A. *Competition* is complemented by *alternative games*. Alternative games differ in ideology from competition: participants are not classified as winners or losers, the emphasis is on the process rather than on the result, creativity is encouraged.

B. *Innovation in selection of teams and participants*. Traditional approach to selection has it in such a way that teams contain representatives from one country (one nation, one city, one region, club, university or work collective). This of course ensures that the competition is exciting for spectators and participants. However, it is very tempting then for any team to find ways to prove to others that they are the best. This is one of the main reasons for fierce opposition between teams and their fans which can become evident on the field and on the stadium benches. The Spartian Games teams are composed so that every team has participants from many walks of life and occupations. This inevitably somewhat reduces level of excitement. However, the objective is to increase the number of participants and not the number of spectators.

C. *Intermediate approach*. Not everybody is in favour of the approach outlined above. For this reason in many instances intermediate approach is taken: the Programme will mainly be based around the teams selected in the traditional way but one or more elements of the programme will require mixing of the teams.

Selection of the teams and participants.

Anyone from age 6 and up can participate without regard to gender, special interests, any disabilities etc. So it can really be anyone – students and schoolchildren, professional sportsmen, artists, pensioners, disabled, mentally impaired and so on.

Organisation of the Games.

The Games are quite straightforward to organise. They can take place in any kind of locality – be it a big city or a small village. The Games do not require expensive setups or any special equipment and can be held both indoors and outdoors.

Social importance of Spartian Games.

Spartian Games have been organised for many years now since 1991. This long experience shows that the Games contribute to fulfillment of many of the socio-cultural and educational objectives with regard to schoolchildren, their parents and university and college students:

- The Games prove the attractiveness of sports to these groups especially when integrated with art and other creative activities;
- The Games are an additional benefit to students' occupations in their leisure time as they both entertain artistically and demonstrate how healthy lifestyle improves the overall quality of life.
- The Games represent an additional medium through which the students can better identify and appreciate their strengths and talents which they can develop and exploit to their benefit.
- The Spartian Games contribute to bridging the social divide as they encourage participation from special groups such as disabled people.
- The Games actively discourage such anti-social behaviours as drug usage.

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DOPING, BEHAVIOR, SOCIETY, SPORT AND SUSTAINABLE EDUCATION

Rob Koehler
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In all facets of society cheating is wrong. You would be hard pressed to find people advocating that cheating is acceptable and a satisfactory way to achieve success. But are we living in a society where cheating is more acceptable? Or more importantly, are we living in an era that believes everyone else is bending the rules to get ahead therefore it is justified to bend the rules oneself? We see more than ever banking investors breaking the rules, professional athletes breaking the rules and arguably there has not been a huge outcry from society looking for radical change. Yes, measures have been introduced to prevent such cheating from persisting but the real issues of why someone chooses the quick and easy path to success, and the values surrounding such choices have arguably not been addressed to the full extent. The question remains that if we see more people cheating does it become more acceptable? Can sport play a role in reinforcing values in society? Aren't ethics and fair play central to the success of sport? Isn't this what makes sport so powerful?

One approach is to look at anti-doping programs that are in place to seek to preserve what is intrinsically valuable about sport. This intrinsic value is often referred to as the "spirit of sport" and is the essence of Olympism. The sport movement and governments invest money in the detection of prohibited substances. Although more can be done, the resources allocated in this area are very much needed. The detection of sport cheats needs to be increased to demonstrate to the elite athlete and, possibly more importantly, to the young athlete that doping has no place in sport. However it is important to point out that testing is not the only answer to change the attitudes of sporting people and the general public. It is now time for all sports and all governments to focus on prevention.

When we look at the difference between detection and prevention, we must consider that the majority of elite athletes have already shaped their attitudes and values about doping by the time they have reached top of the national or world stage. Young athletes, on the other hand, are still impressionable, developing their values and looking for information to guide them in making difficult decisions. This underscores the need for increasing global efforts on prevention with the young athlete.

We need to start promoting a new generation of athletes - the Play True Generation. The Play True Generation is one that supports and believes doping and cheating has no place in sport. While it may be easy to organize lectures encouraging athletes to promote the values of clean sport and to reject doping, a single event will probably not changes their attitudes. We need to ensure multiple messages and programs are in place to continuously promote clean sport among young athletes. We need to invest resources in developing programs for schools and sports clubs, addressing:

- Core values of sport and why doping is wrong;
- Information on the harmful side effects of using prohibited substances.

When referring to educating young athletes it is important to distinguish between programs that simply provide information from prevention programs that both inform and empower the athlete. In general terms the provision of information is viewed as more of a here and now process, working with facts to increase knowledge while prevention is more of a long term process working with values to change behaviour. In fact preventive action in fields of communicable diseases, child abuse, delinquency, smoking, drunk-driving, and work-place accidents has consistently shown to yield a positive cost-benefit ratio.

The key to a successful prevention program is getting everyone involved. This involvement should be coordinated and evaluated on a continuous basis. As the Nigerian proverb says, “it takes a village to raise a child,” therefore everyone has a role to play in an individual’s upbringing and development.

While the majority of our focus should remain on the young athlete we cannot ignore the direct influences parents, coaches, doctors and sport administrators have on the athlete. All of these players have a role in shaping the young athlete’s values therefore prevention campaign need to be extended to them. Resources need to be made available to them to ensure they are sending the right messages to athletes and that they are encouraging athletes to compete without doping.

In order to captivate the attention of the young athlete, programs must be interactive and provide all the necessary tools and knowledge to allow them to make well informed decisions. It is therefore important to listen to the youth through avenues such as focus group sessions, to ensure that programs are innovative, interactive and relevant.

The big question is how do we effectively implement prevention programs? The ideal answer would be for every primary school and secondary school to implement values based anti-doping education programs. The reality is there are so many institutions at these levels in each country that it may be next to impossible to achieve this goal. In Australia, for example, while there are approximately 9,000 primary and secondary schools there are approximately 38 universities in the country. Would it be more manageable if we began introducing values-based messages in universities, so that future educators would understand the essence and importance that sport values can play in society?

It in fact maybe an ideal time to partner with universities to develop curriculum designed to further educate and address the issues sport is facing and how it relates to societal issues. Arguably the university environment can provide a unique opportunity to educate future parents, teachers, coaches, doctors and sport administrators all of which have immediate or future direct influence on the young population. While the introduction of such a program would not change attitudes overnight it will lead to a process of change.

In conclusion, I put out the challenge to explore the possibility of how we can effectively work with universities worldwide to affect change to promote and protect the spirit of sport values.

WORLD DYNAMICS, UNIVERSITY SPORTS AND ETHICS

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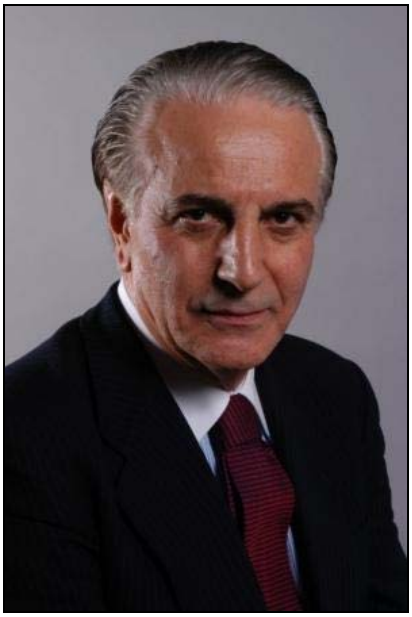

Abstract:
In "Systems Dynamics" approach, a brief analysis of the operational and decision making structures of the world dynamics.

Ethics is a necessary condition for world stability, sustainability, wealth and peace. The role of "University Sports" in realizing these ethical values and contributing to the "World Optimal".

Keywords:
World Dynamics, University Sports, Ethical Values

Introduction

The aim of this paper is to analyze briefly the world dynamics, the institutions and decision making structures. Dealing with "University Sports" which covers the international sphere, it becomes a necessary condition, to situate "University Sports" as a subset of world dynamics in the set structure of global world dynamics. This requires understanding the linkages between the "University Sports" and the initial signal of the decision making structures concerning science, socio-economic phenomena, human behavior, environment world stability, peace.

Within this complex system, sports and the "University Sports" can bring a great value added, not only through its many contributions to the human community but at the same time, transmitting ethical values, not only to those who practice it but also to the human society, since sports reaches billions of human beings.

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I. Some comments on world dynamics and decision making structures

The basic instincts of the individuals, converges to survival and search for a "power driven system" behavior.

In the search of the power, humans created institutions throughout the history. In terms of decision systems the following institutions can be considered as the most influential ones:

Nation States,
International Organizations,
Transnational Companies and corporations,
Non-governmental Organizations,
The individual which represents the core of the socio-economic systems.

These institutions are the main decision making actors that are effective in the current world dynamics. The "individual" remains the core, as the "initial signal" provider of the system.

Individuals have started to become exponentially more effective through the use of information technologies in the 21st century. We may expect the interactions of new variables and complexities in our world system in the time dynamics. Welfare conditions of the whole world are determined by the mutual complex interactions of these institutions through competition, cooperation, complementarity and coordination.

A quick analysis of the distribution and time series pattern of the main statistical indicators may show us that there are big discrepancies in the world.

On some basic issues we may observe inverse correlations. The total world GDP exceeds 66 trillion dollars in term of purchasing power parity (2008)[xlv], while income distribution is worsening on the average at the world level, given the "Gini Coefficients" and "Lorenz Curve" trends for the last decades.

Figure1 shows the direct interactions between the world systems. "System 1" (S1) represents a radical change from power-driven systems to science, "global consciousness", culture, value systems, decision-processing and action-driven systems.

(S1) represents what should be. In science methodology term, it is a "normative" approach.

"System 2" (S2) represents the power-driven system in actual world dynamics. In the context of (S1), expected decisions should lead to a positive global action. Academia, government, corporations, non-governmental organizations, citizen's decisions and actions should converge to the realization of a sustainable society, life and peace.

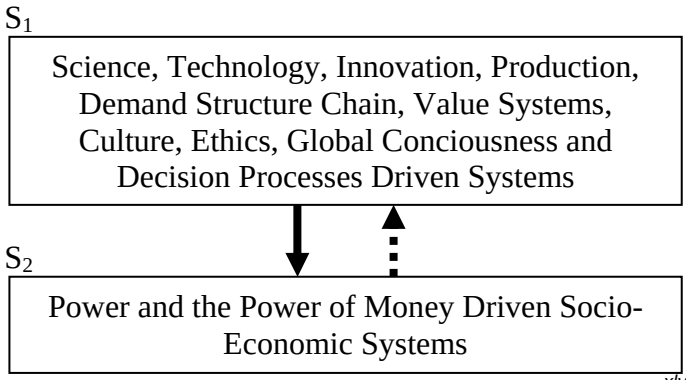


Figure1: Direct Interactions between World Systems[xlvi]

[xlv] World Bank Development Indicators, 2008

[xlvi] Güvenen, O., (2007), "Science, Knowledge, Culture, Economic and Society Prosperity: International Comparisons", Conference on Statistics, Science and Public Policy, Vol. XII, Queen's University, Ontario, ISBN 978-1-55339-152-4, p. 49.

As mentioned in the first part, the individual is the major actor in the world dynamics. Decisions and actions of an individual shape the society and these are shaped by value systems, culture, ethics, and global consciousness which are the inevitable parts of S1. Society's behaviors define the actions of public and corporate governance. The subsystems that are showed in Figure 2 are shaped by the individuals relatively. In this chain, value systems, culture, ethics, and global consciousness of an individual represents the society and represents the whole system at the upper level.

Figure 2: represents the interactions of the "System 1" (S1).

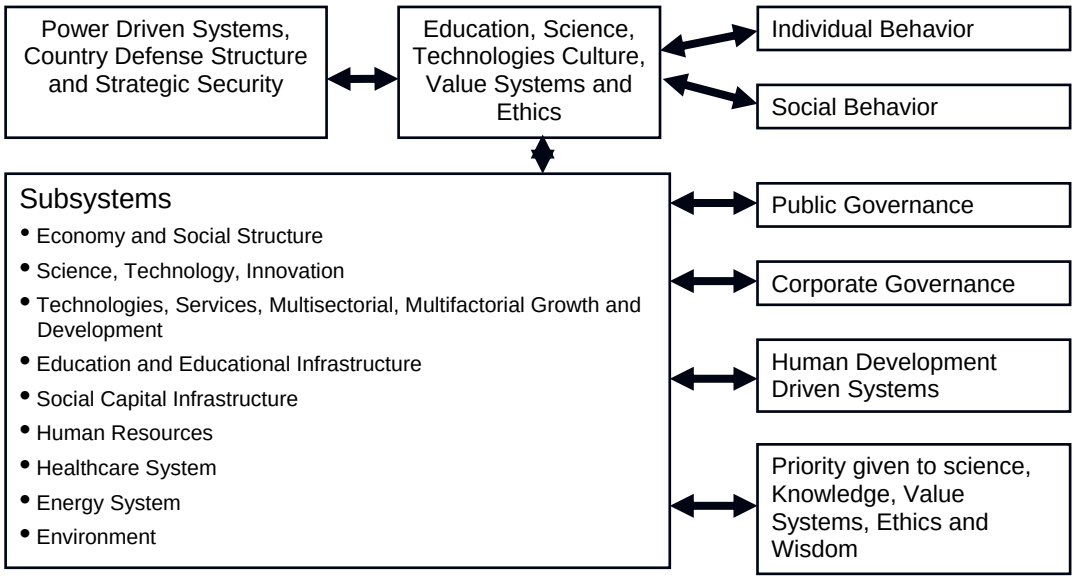


Figure 2: Interactions of the "System 1" (S1) (system1) elements[xlvii]

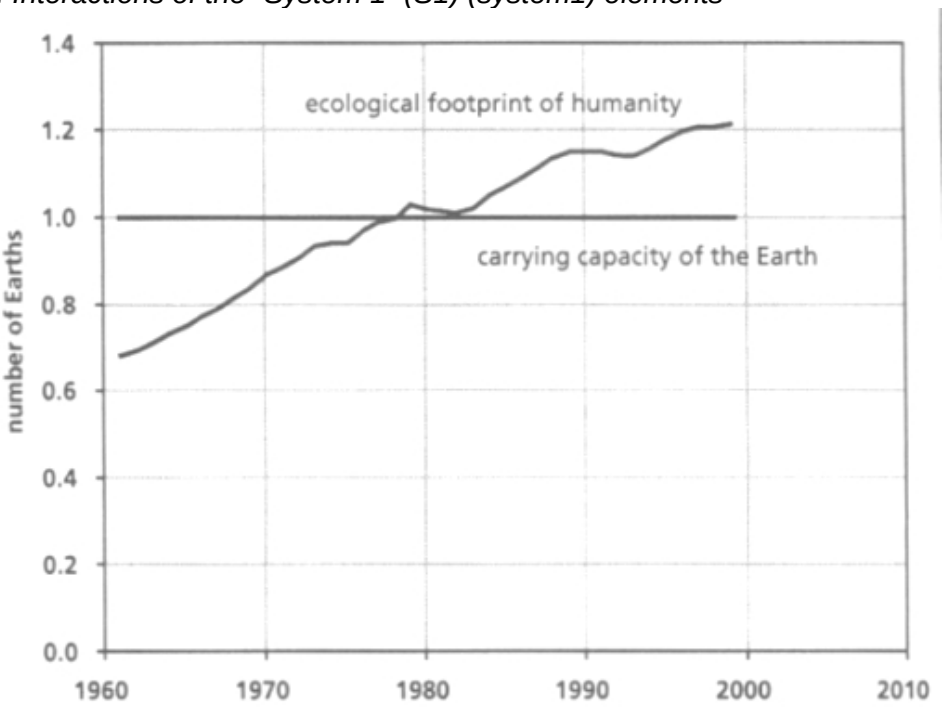


Figure 3: Ecological footprint of humanity[xlviii]

[xlvii] Güvenen, O., (2009), "World Dynamics and Science Methodology, Technologies, Innovation, Production Structures, Information Systems and Strategic Decion Making", Bilkent University, Institute of World Systems, Economies and Strategic Research (DSEE).

Figure 3 represents ecological footprint of humanity and carrying capacity of the Earth. It is clear that we exhausted well before 1980's, the carrying capacity of the Earth in terms of natural resources and environment.

Analysis of methodological aspects: transdisciplinary approach

We need to elaborate methodological capacity to analyze the interactions with various disciplines in science, art, culture, sports and life in order to understand, solve interpret and act on complex problems. Understanding and analysis of observable phenomena, iterative and continuous learning processes between theory and applications are necessary.

In this context the remarkable sentence of Albert Einstein;

"Imagination is more important than knowledge" brings us the wisdom dimension of the complexity.

Albert Einstein

Science, transdisciplinary and poly-math renaissance man

Science and transdisciplinary methodology in science requires continuous curiosity and passion to obtain knowledge. It may cover the following points: [xlix]

Trying to understand the initial signals of the complex phenomena,
Observing,
Hermeneutics (H.G. Gadamer),
Continuous questioning,
Filtering as much as possible information distortion and minimizing the error margins
Modeling,
Analyzing,
Value systems and ethics,
Explanatory conclusions.

Mechanistic and short-termist incentives lead to high alternative costs in the human society.

The following points needs to be endoginized in the context of transdisciplinarity.

Network and Chain effects of intellectual arrogance: "becoming ideologists of partialist and insufficient school of thoughts",
Conservatism and limits in science and life,
Capability of self-expression to scientific community as well as to public,
Simplicity and intelligence,
Unbiased curiosity, analysis and explanatory approach,
Keeping the system complexity endogenous,
The dynamics of converging negative impacts to positive impacts,
Iterative, networking and team work skills,

II. University sports, ethical values and global consciousness

In "University Sports", the practices have goals of excellence; they relate dominantly, the virtues of durable structures. [l] The value of "University Sports" remains important both in playing and watching.

Fair play, sporting behavior, cultivation of moral attitudes impact to the development of ethical norms must be endogenous to sport and to the "University Sports" in terms of realizing ethical values.

[xlviii] Source: Meadows, D. , J. Randers, D. Meadows, 2004, Limits to Growth, Chelsia Green Publishing Ld. White River Junctşon, USA, (ISBN 1-931498-51-2)

[xlix] Güvenen, O, M.H. Öztürk, (2008), Transdisciplinarity in Decision Sciences: A Discourse on Poly-Math Renaissance Man Methodology", presented at the Institute of Operations Research and the Management Sciences, INFORMS, Washington, USA

[l] Me Fee, G., (), Sport, Rules and Values, Rout ledge, New York, p.75

The view that sport is instrumental, considers that we can achieve certain ends, goals or purposes. In this context we need to analyze social and cultural meanings of sport.

"An Ethics of sport therefore is not confined to sport's own system; its responsibilities reach beyond its own boundaries. The sporting world has to indulge in a dialogue with other sectors of society. Like art, sciences or architecture, sport is a practice because it is a specifically co-operative human activity in the course of which goods, internal to that activity are realized to achieve a specific state of affairs" [li]

We observe a certain identity crisis in sport. This may due to its exponentially increasing popularity and pluralism. Thinking an ethical question of sport becomes urgent in order to transform negative trends to positive ones and achieve higher human value added.

Intercultural macro level can lead to cultural evolution for enhancing mutual understanding, dialogue and solutions between nation states and communities. Hence it will contribute to individual ethical values. The very important contribution of the "International University Sports Federation" (FISU), can be expressed only by a deep esteem for its continuous efforts and achieved results at the international sphere.

Knowledge generates opportunity and power. It requires "responsibility" and "accountability". Discrepancies created by access to knowledge and technology needs to be minimized.

Making "ethics and value systems" endogenous to the decision systems is a necessary condition. Value systems, ethics are necessary for the global sphere and "University Sports" in order to realize world stability, sustainability and peace.

The 21st Century requires convergences towards transdisciplinarity and poly-math renaissance man incentives, ethics and value systems to be considered endogenous to decision sciences and decision making. In the general sense and in the context of "University Sports" "Global consciousness", ethical values are necessary conditions in the realization of "Human Optimal" and "World Optimal".

[li] Mc Name, M.Y. and S.J. Parry (), Rout ledge, London, p. xii, p. 41, p.43, p.44

SPORTS IN CENTRAL AMERICAN AND CARIBBEAN UNIVERSITIES: TRENDS, CHANGES AND OPPORTUNITIES

Lea Azucena Cruz Cruz
President of the Universidad Pedagógica Nacional Francisco Morazán Honduras, C.A.
Tegucigalpa, Honduras

"The strength of intelligence increases in a healthy body; in a sick body your brain cannot think"

Democrito, Greek philosopher

Trends

Throughout the history of most Latin American Universities, we can observe that their main concern has been the development of cultural and professional aspects, ignoring the psychosomatic.

This has led to a more informative rather than formative approach. There has not been a reasonable amount of time and space invested in the development of the humanistic side of students.

Evidence of what has previously been stated can be observed in the behavior of students who were outstanding athletes in highschool, but quit sports once they entered university. They could not cope with the high demands that studying and research required while practicing a sport.

This leads us to think that we have not heard of the thoughts of the English educator Stanley Hall (1904) who stated: " All human work has been elaborated with muscles". Therefore, all professionals who have graduated from university are committed to enrich the common future. In order to be able to do so, he/she has to have good psychomotor skills developed through constant physical training.

Therefore, the actual university education should be an integral development of the individual, taking into consideration his/her surroundings as well as his/her psychic, emotional and spiritual conditions to compensate for all the gaps that previous educational processes have left and balance the efects that technology and the industrialization have over the individual.

We have to educate students so that once they finish their university studies they can easily integrate into society and become sensitive to humanism. This will result from the inclusion of sports, physical and recreational activities alongside academic, scientific and research education.

We can all agree that sports is a powerful tool through which personal and social values can be transmitted

As a result of this context, universities are presently have committed to the development and integration of sports in order to strengthen the development of the inividual as a whole and at the same time to the development of society.

Changes

We are aware that a progressive and modern university should consider physical activities and sports as a service offered to the educational community.

Any action developed within this field will have as a mayor role the improvement of the educational process. Furthermore, all academics have to be sensitized in this issue since sports are considered a social phenomena that occupies a considerable dimension within the social structure, according to human behaviour research.

If we agree with the above, then our universities have the challenge to develop all the required sports facilities, train coaches with a flexible schedule and offer a well balanced diet. All of this can be done if there is a budget.

In addition to these factors, we also need to take into account that throughout our history there has been little interest in sports, reflected in our countries´ lack of a sports culture.

If we take a closer look at this topic, we can reflect on how sports have a positive incidence in the academic performance of students reducing the number of dropouts. This will also assure higher levels of success in their academic, professional, personal and social lives.

Therefore, access to sports should not be limited to students of well equipped universities which have the resources or to those institutions which have a flexible curriculum which assures that all their students practice sports.

Universities in most of developing nations do not assign a budget for sports practice or facilities construction, even when it is becoming an area of interest in the university´s life.

However, within the limitations under which Central American state universities function, there has been a development of sports through the creation of offices in charge of students body and sports scholarships.

This office organizes sports tournaments on campus, annual national tournaments and regional competitions.For world tournaments the universities have to look for sponsors. The few participants in world tournaments have been sponsored by FISU which kindly funds outstanding university athletes.

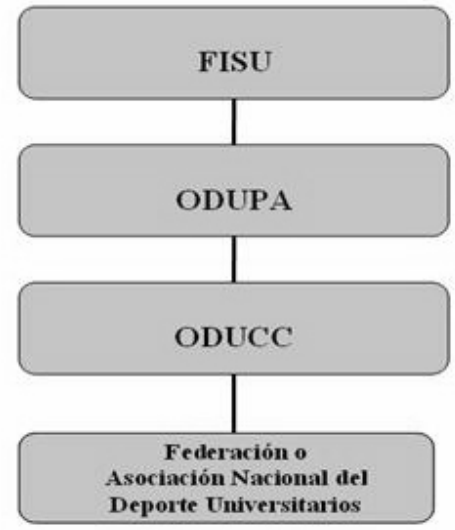
Opportunities

It is important to mention that many of the obstacles we have faced have been overcome. As time has passed, the integration of countries and regions, the emergence of different organisms of integration in the fields of economy, education and sports, have come to benefit university sports.

As an example we can mention the following organizations: ODUCC, ODUPA, FISU, CSUCA, among others. Later on I will explain their level of influence.

University sports Organizations in the region

The following are some of the organizations that are actively involved and significantly support the strategic development of sports at the university level:



A. LA ODUPA

Within Latin America, we are always in search of opportunities for developing and broadening university sports. FISU offers financial support leading to the creation of the continental federation (ODUPA).

This recent organization objective is to strengthen the importance of sports and in the essential development of the human being. It puts together the efforts of public and private agents at national, regional and continental levels in order to reach the objective.

ODUPA Members.

- Established the 11th of June 2007 (Blumenau-Brazil)
- First General Assembly August 2007 (Bangkok,Thailand)
- Main office of ODUPA (located in Montevideo, in the historical Centenary Stadium, where the University league of Uruguayan Sports operates.)

Country members of ODUPA:

- Antillas Holandesas
- Argentina
- Brasil
- Canadá
- Chile
- Colombia
- Costa Rica
- Cuba
- Ecuador
- U.S.A.
- El Salvador
- Guatemala
- Haití
- Honduras
- Islas Vírgenes
- Ecuador
- México
- Nicaragua
- Panamá
- Paraguay
- Perú
- Puerto Rico
- República Dominicana
- Uruguay

B.The influence of ODUCC in the region.

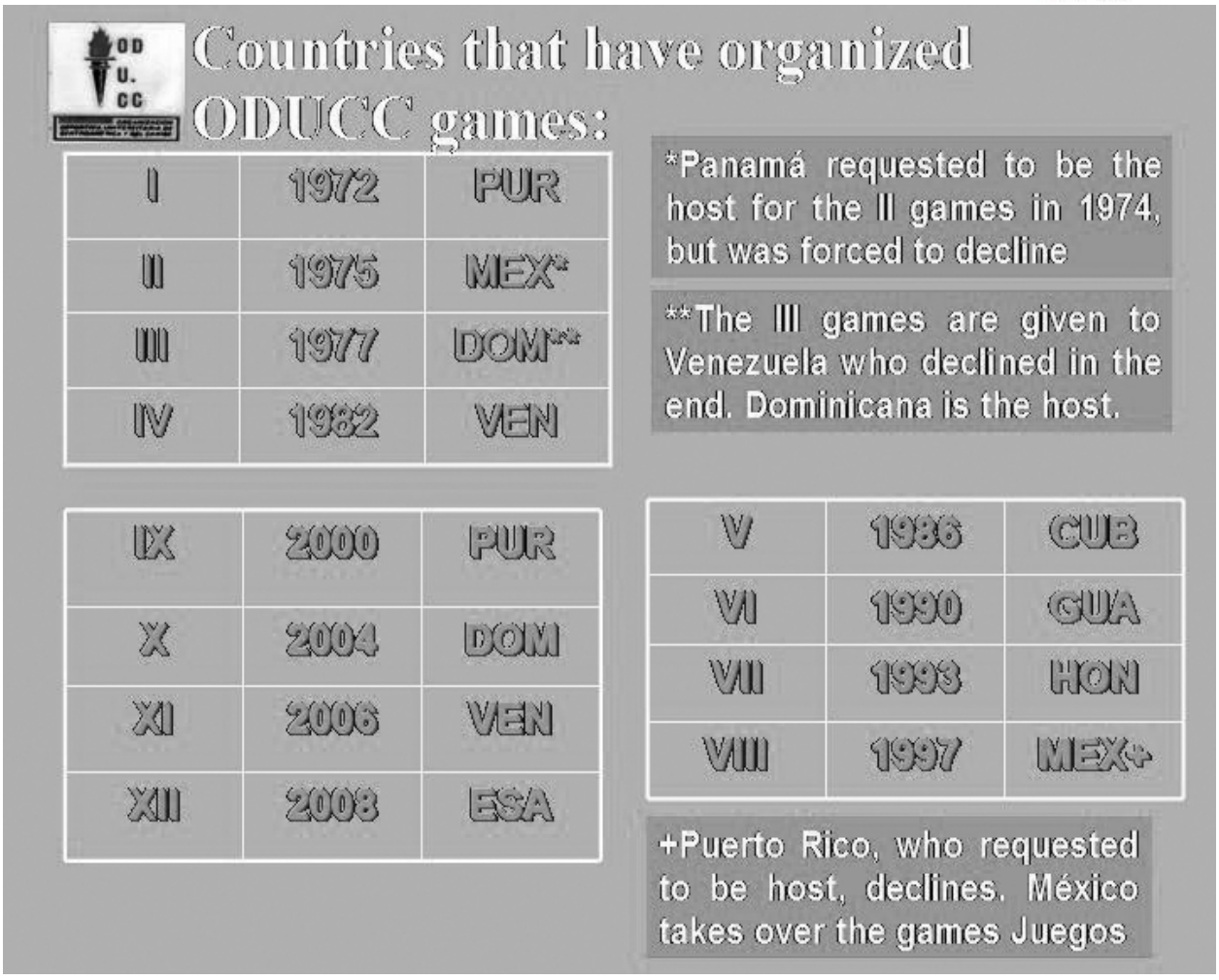
This organization has a long tradition in the region as a result of its role in the integration of university sports. Established in 1970 with the participation of 10 countries.

Over time ODUCC has become a more solid organization with the integration of other countries. There are 19 countries in all:

Members of ODUCC:

- Barbados
- Guatemala
- Jamaica
- Colombia
- Costa Rica
- Cuba
- El Salvador
- México
- Nicaragua
- Haití
- Honduras
- US Virgin Islands
- México
- Panamá
- República Dominicana
- Trinidad & Tobago
- Venezuela
- Surinam
- Antillas Holandesas

ODUCC Board Comittee



C. The national federations or associations of university sports

It is important to mention that each country has its own way of functioning which allows a more flexible managment but still focuses on the same objective: to promote, sustain and mantain university sports.

The achievements of each federation or association vary depending on the commitment each has as well as its sports culture and financial situation.

It is important to mention the lack of funds for sports in some universities and insufficient in others. Consequently, there are no facilities, sports equipment and training courses for specialized personnel (judges, coaches, managers). In addition, the training of the athletes is affected.

At present, the university presidents are aware of the importance of sports in the development of the individual as a whole and at the same time to the development of society.

JUDUCA

As an example, I will talk about the 19 universities of Central America, Panama, Belize and Dominican Republic members of the CSUCA. In 2006, these universities institutionalized the Central American University Sports Games and have developed two tournaments.

Tournaments:

Year	***UNIVERSITY***	***NUMBER OF ATHLETES***
2006	Universidad de El Salvador	1300
2008	Universidad de Costa Rica	1800
April 2010	Universidad Pedagógica Nacional Francisco Morazán	

Next tournament:

The university from which I am president (UPNFM) will host the III Central American Sports Game (JUDUCA 2010).

Conclusions

1. Our universities attend the traditional demands: education, research and proyection to the community

2. In addition to the traditional activities that our universities have developed which mainly focus in education (give information), it has been identified the need of the development of the individual as a whole from a humanistic approach.

3. As part of the university policies related to students and in consonance with the vision of sports specialists, a significant importance has been given to sports and their practice. We need to have a new approach focused in the development of humanism in students and society.

4. There is a need to create an atmosphere of " Fair Play" as part of a teammate spirit; The improvement of health conditions, well being and security as well as the enrichment of the personality.

Proposal

I have stated in several moments during my presentation the conditios under which our universities function. I therefore propose that from the University Presidents Forum FISU, we create a movement oriented in the structuring of university programs focused in sports in the two most active networks of ibero America, Central America and Dominican Republic.

Ibero American University Organization (OUI) with 380 institutions as members, and the Higher Council of Education of the Central American Universities (CSUCA) comprised of 19 state universities. This movement will be lead by ODUPA and ODUCC.

The above proposal was elaborated as a result of the conviction we university presidents have of considering this networks as a strategic alliance working for and cooperating with the universities.

We share common grounds and a vision of an America founded in solidarity, regional integration, mutual help and where university sports promote integration following the ideal of our people in the construction of a more inclusive and prosperous societies.

Likewise, I consider of vital importance the strategic alliance between FISU and UNESCO for the development of university sports as a tool to reach the overall development of the individual.

The objective of this alliance is to promote between both organizations the analysis, discussion and decision making from our governments in areas related to promotion, consolidation and financing of this educational perspective on a long term basis ,focusing in state universities.

"Sports create a series of habits and learning experiences that can be transferred to our daily life".

José María Cagigal, Escritor Español

ABOUT THE ADVANCED SCIENCE IN HIGH PERFORMANCE SPORT[lii]

Adrian Gagea[liii]
Romania

Introduction

The advanced sciences are based on the most recent huge increasing of technology and on interdisciplinary commencement of great interest topics, as top sport is considering. The main problem in top sport seems to be the obtaining high sport's performance in as short as possible time, having great efficiency and minimum risks.

The cell-engineering domain, in which the author of this paper has a modest contribution, is a means of genetic control for human performance, including sport, gene expression, molecular interactions within the cell, intracellular signalling, cell mechanics and motility etc.

The domain of Psyche, of controlling feelings and manifestations, is also, on the focus of top sport interest, especially for the reason that, from inside of this domain, is feasible to accede at the biological reserves unavoidable in normal conditions, but avoidable in emergency or surviving situations.

The new knowledge about energetic metabolism, about the rotation of ATP molecules, or coming out from scientifically experiments of association of nutrients or of reconsidering the recovery stimulants after effort, are providing, also, very useful information for top sport practitioners.

It is not to disregard the contribution of the new information about the human physical limits, biomechanics, tactics of doing and controls the physical effort by means of sensorial biofeedback or the performance's advantages coming from new high-minded techniques and materials of sport accessories.

[lii] Actualization of key-note speech: "The Application of Advanced Science in High Performance Sport", at Rector Forum, Bangkok, Thailand

[liii] Professor ADRIAN GAGEA, ScD, PhD, MEE, MA

- Auditor of International University Sports Federation since 1991
- Director of Interdisciplinary Research Center of NAPhES in Bucharest
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Stem Cell Engineering

In the beginning, the stem cells, so called "mother of all cells" are pluripotent, and are able to reproduce indefinitely. These cells are able to split into more than 200 cell types, such as heart, liver and muscle and so on until the nerve cells. It is hard to believe that, in the next few years, it will be possible to replace the devastated tissues of many terrible diseases, like Parkinson, diabetes or chronic heart dysfunction, as a result of stem cell-engineering. This development gives great hope and optimism to those involved in this science. For me, having seen under the microscope how the nervous cells multiplies and develops, it is not doubt that these predictions can become reality earlier. Some years ago, culture from these cells has been grown in nutritive three-dimensional medium by nanotechnologists, protein chemists and polymers experts, now the specifics stem cells are stimulated to multiply and grow in vivo, using ions pumps. Long time it was supposed that in the case of a very infrequent disease of uncontrolled hypertrophy of muscles should be a genetic ground. The patients of this terrible syndrome where obliged to made frequent complicated surgical rejections for to reduce own muscular mass. In our day the defected gene was identified. Let us imagine how grotesque will looking the spectacle of sport if the idea of voluntary modifying under genetic engineering of this gene would be putting in practice in high performance sport?

The surprising beneficial effects on human health start to come not only from dethroning the DNA myth or old scientific beliefs such as, for instance, the impossible multiplication of nervous cells, but also from the innovative designs of monoclonal antibodies, so called "magic bullets". This new source of potent therapeutic drugs, no longer allergenic, due to its human origin, will revolutionize the diagnosis, the prognosis and the treatment of many diseases considered incurable as AIDS was. Finally, for most natural molecules, these "magic bullets" will force our immune system to produce antibodies.

Following the experimental models on animals, it may be possible to identify some gene responsible for sport aptitudes and attitudes in top athletes.

We should not be surprised if, due to cell-engineering, it will be possible to control the multiplying of human blood cells, eliminating the use of the (prohibited) pseudo-transfusion techniques using one's own oxygenated blood.

At the moment, it is only the cost of surgery that makes it difficult to substitute a broken meniscus with a new one grown in vitro from a cell extracted previously from the injured sportsman. The cell, reproduced and developed into a nutritive medium and three-dimensionally designed on protein support, becomes mechanical process material, and finally, a "spare part" that will not be rejected by the body. All specialists in top sports know that speed (or velocity) is a native motoric skill and are sceptical of the vast improvements in an athlete’s speed during the training process. In other words, the stability of an innervating regime makes the skeletal muscles predominantly slow or fast (red or white). Will cell-engineering change our classical convictions about muscle contraction speed? The above-mentioned applications, more or less actual, do not represent an inventory, and are not a list of selected applications. They serve only to provoke and generate questions or controversies.

Long time it was supposed that in the case of a very infrequent disease of uncontrolled hypertrophy of muscles should be a genetic ground. The patients of this terrible syndrome where obliged to made frequent complicated surgical rejections for to reduce own muscular mass. In our day the defected gene was identified. Let us imagine how grotesque will looking the spectacle of sport if the idea of voluntary modifying under genetic engineering of this gene would be putting in practice in high performance sport?

Predictable models

Some shifting are to be observed regarding the scientifically methods of research; the competition between theory and practice becomes a strong and efficient collaboration, due the high powerful computers. Today, the frontiers of unknown are enquiring no more by opportunity, but conversely on the basics of modelling, looking direct to the scientific target.

A kind of modelling is using predictive logic-mathematical patterns. For instance, the predictive logic-mathematical pattern of the control of multiplication, growing or development

of the cells, on which the author of these lines consider himself a specialist, are the aptitude to decide the practical solutions, the kind of exciting. Regarding this idea, we also addressing, the conviction, due to different reasons, religion included, do not accepted that the nature and the life can be copy at all, saying that we are on the same estimation. The reason is not so much the models, which can't replace the originals, indifferent of its performances, but the reason can be the fact that the eutrophy is not in our human systemic mode of thinking.

May we add that, if we attribute in our logic-mathematical models a rudimental intelligence to the cell, holographic to human intelligence, always is coming out the necessity of taking into account of a paratyping factor, different as genotyping or phenotyping ones. It is the same as, in spite of chromosomal information, of medium stimuli that produces adaptation or mutation reactions, might be necessary a strange supply, non-definite as energetically or informational entropy.

Drugs support

As particularly in this paper, the approach of doping topic[liv] is different from the general one due to the fact that we are not referring to its combating, but to its prevention, putting into attention that cell engineering and hormonal sustain can be used, besides noble meaning, for the artificial amplification of sport performance (by increasing of physiological aptitudes and psychical attitudes).

From the wholesome and humanitarian desiderates of using of cell engineering to the production of oxihemoglobin conveyer blood cells for athletes, to the mutation of cells which can accelerate the re-synthesis of ATP or to the modification of the phasic-tonics contraction regime of muscle, is only a step, but a step over one deep crevasse… one ethical crevasse which diverge virtuous using of hormonal support for medical purpose from immorally using of it for instrumental doping.

Some stimulants (e.g. caffeine, methylphenidate and the amphetamines) are considering doping substances, but ampakines do not seem to have unpleasant, long-lasting side effects. They are currently being investigated as potential treatment for a range of conditions involving mental disability such as Alzheimer's disease, Parkinson's disease or neurological disorders as Attention Deficit Hyperactivity Disorder (ADHD), among others. Lately, study they were shown to have an effect after they had left the body, continuing to enhance learning and memory. More recently developed ampakine compounds are much more potent and selective for the AMPA receptors used in sport activity, fact that becomes in the attention of sport specialists.

Well, we are trying to use the about mentioned idea to alert and prevent on time the family of sport friends about the possibilities of unfair destination of advanced research results like these from cell engineering, not post factum as it happened before with many doping substances, first find out in athletes, and after reached on the prohibits list.

It is well know that nutrition has significantly contributed to the success and outgoing improvement of performance in health and sport. Surprising is the fact that scientists are still focus their attention on new formulae of energizing nutriments. Theoretically saying, science of nutrition has not yet riches his limits; some examples are good arguments but not enough for demonstration, maybe commercial interest is involves

The feeling of tiredness, exhaustion, ache, physical and psychical uncomforting can be signs or signals of excessive mechanical energy consummation upon a weighty physical sport effort. These states are beneficial for the body, sustaining the homeostasis effect of defence. Their complex mechanisms of action include chemical and hormonal mediators.

No far ago, some neurotransmitters, like analgesic endorphins discharged by explicit organs or tissues, where discovered. The analgesic endorphins break the homeostasis effect and can produce a euphoric sensation and ecstasy of success. Recently, scienctists have

[liv] Knowing that doping is both unhealthy and dangerous for the athlete as much as it is immoral and unethical; usually the discussions about doping are focuses over the records by anti-doping control and over the sanctions by applying the anti-doping code.

hypothesized that the release of endorphins is the neurochemical cause for the feeling of pleasure. For example, a marathon runner's "high," which has been compared to the "rush" following opioid use, is the product of endorphin release[lv]. After a physical injury, endorphins activate opiate receptors and produce an analgesic effect, alleviating severe pain. During times of emotional stress, endorphins are released in the limbic system of the brain and produce a euphoria that lessens anxiety and melancholy[lvi]

It can be questionable the practice of the artificial stimulation of the effect of analgesic endorphins for pushing the limits of sport's performance, but, certainly, the exogenous takings of these neurotransmitters is a doping demarche, not yet being of the "black list" and probable not easy for detecting.

In our assays for to vectorize the potential of disposable energy in physical sport effort, we have placed up a hypothetical orthogonal constituent of this potential, called "nervous energy". We have sufficient reasons to consider that analgesic endorphins diminish the symptomatic effect of the nervous component of the potential of energy.

As well as in medicine where the joining of two drugs can produce a different effect as a summation of the each solitary effect, on nutrition, the mix of two or more nutrients can be sometimes favourably or detrimentally for the efficiency of training practice. As for instance, in the trivial combination of cheese and tomatoes, besides delicious, some acids from tomatoes makes insoluble gastric the calcium from cheese, diminish the returns of ionic calcium for compensation of the calcium used in effort process.

For a good function of the muscular effectors, it is necessary some correlation and equilibrium between minerals, as for instance, between those containing calcium and those containing magnesium.

One of the top technology of testing, dosing and control of the de disequilibrium of the corporal minerals is TMA (Tissue Mineral Analysis), on which by analysis of a hairbreadth, a some weeks mineral history can be recognized. Many top athletes are using TMA for dynamic correction of the diet and mineral supplements. In some scientifically acknowledgment of nutrition for athletes is mentioned not only the mix way, but also the correctly successive management of the nutrients.

Psychological instruments

The high sport's performance is closely depending of efficiency of emotions control and of resistance at stress factors. There are many psychological methods of sport training on which the level of emotions are wherever controlled and the mechanism of reducing the stress effect is ameliorated. The most recent way of controlling the nervous instances involved in producing emotions and stress effects refers to sensorial feed-back; on which the inadequate reactions are vanished.

We successfully tried an acoustic feed-back of the cortical activity level, sounding the cerebral rhythms during the psychological training. After some applications, the athlete learns itself how to control the cortical activity level, and circuitously, how to reduce the supplementary emotions and exaggerated reactions at stress factors. The process can be committed to memory and used in competition, without any reactive feed-back.

Between well-known natural human being instincts, recently, was accepted also the competitive instinct. At some infrahuman species, this instinct is very evident, as for instance at very young vultures or farrows, which are fighting till to the end for food. From human being point of view, this fight is apparently very cruel, but the nature have created this instinct as a necessity for survive competition. The competitive instinct can easily confounded with well-known belligerent comportment of human male, but it is to mention that the competitive instinct is something else as an effect of male hormones. Humans periodically attempt to raise the standard of their competition closer to the way nature intended, by playing sport. Then they can compete for fun, and according to rules and rituals, in a similar vein to those that are so widespread throughout nature. Of course, they often take their sport too seriously,

[lv] Hawkes, 1992
[lvi] Rang et al., 1995

especially when money is involved or when they allow their pitiful sense of struggle to get the better of them.

We joint to whoever scientist accept that the competitive instinct is a characteristic of a sequence from the common genome of evaluated beings. The genetic structure responsible for competitive instinct came under focus because of medical interest, but it's easily to suppose that sport interest can come soon. It is to observe that people who are bodily undersized strive to be more aggressive and to have improved spirit of competition as gigantic persons. Maybe, it is a kind of instinctive compensation using dynamics and speedy reaction against force or impressive sizes. The Galton theory of regression, meanings that the human being soma trend to middling, seems to have a scientific explanation on competitive instinct. Otherwise, the human race could come polarized; meaning that from massive pears would results massive descendents, having dominative tendency and vice-versa.

Tele-suggestion and hypnosis are considered doping instruments and are forbidden. It is not yet clear how much self-suggestion influents the high sport's performance and if self-suggestion can be harmful that need to be not allowed.

In some practice based on belief as religious conviction, the self-suggestion can have the same effect as tele-suggestion, inducing spectacular morpho-functional modifications and, much more; can contribute to cure oneself some maladies. By other hand, we have measured 5-7 times bigger isometric forces in athlete, in the case of cataleptic state (a kind of body rigidity) by voluntary hypnosis, than in normal conscious state. It is known that the liver can ensure survival with only l0% of its functional potential, that the heart of top athletes can execute 5-7 times its normal work, that normally, we use only 8-12% of our brain capacity and so on. It is to suppose that self-suggestion can also open access to the corporal reserve of energy. The true problem seems to regard to the cost and the consequence of the access to the corporal reserve of energy; taking into account the fact that nature does not give us anything without us having to pay.

In sport, the method of autogenic training use some means of self-suggestion as mental training and relaxation exercises. The mental picture of the biomechanics of sport techniques is at this moment a current practice for the autogenic training (or so calls theoretical sport grounding).

Today self-suggestion use advanced techniques of sensorial control, on which the movement is not only mental representation, but also executed and perceived at the effector's level as mechanical tensions in successive sequences. The consciously movement seems to become a means of psycho-somatic training. There are sufficient reasons for us to consider that psycho-somatic training can help a lot in the case of sport event where the executing techniques are important.

Biomechanics and materials

We have extended the biomechanical analyze to analytical biomechanics, meaning that some similarity, as for instance, the relationship between the debit of the fluids and their hydrostatic pressure, can be call up in mechanical work of an athlete.

In most sports, performance is based upon maximal speed and the time the former or a similar speed can be maintained. From a causal point of view, maximal speed is determined by the difference between the active force and the resultant of the resistive forces (i.e. net force), using as a means the personalized measure called (like in electricity) admittance. In our opinion, admittance (the manner in which speed depends upon force), is conditional upon several factors, as are the forces resisting movement, gravitational acceleration, duration of the action, promptness of neuro-muscular commands, the condition of the contractile effectors, the manner in which the energetic substrate is resynthesized, etc. Admittance has, as regards biomechanics, the dimension [T·M-1] and appears as a variable coefficient or an individual constant (in case of maximal speed).

The modern technology extended from military research, as high speed video recorders of movements, today don't needs markers for to recognize a point trajectory, fact

that simplify the analyze of sport technique by quickly offering the velocity, accelerations and force graphics. Any body segment or sport object can be recognized on each frame by a group of pixels having small differences of color, contrast or brightness, compared by surrounds.

Without detailing the calculation and without invoking the premises of the logical-mathematical model which connects the execution speed with the active force, we may say that maximal speed depends especially on the value of active force, the weight of the body segment or the object set into motion, the load or the opposing forces, the distance of the mechanical work, and the an individual factor included into the admittance. In this case the aspiration of analytical biomechanics is to find a way for to increase the admittance.

In some kind of sports are useful elastic adaptable bandages, tourniquets or malleable equipment twisted on corporal parts. A new material enclosed in these accessories; the intelligent polymers[lvii] has the enquiring propriety to self-adjust on mechanical tension or temperature gradient, being named intelligent[lviii] just because of the fact that its stretchy is variable and controllable. The intelligent polymers enlarge their aria of application from medicine to top sport.

The corporal equipment or clothes having the propriety of conducting humidity only in one way are already classics, but the materials of equipment that force the water to flood linear on its surface, without any turbulence, imitating the dolphin skin, seems to be inspirited from science-fiction, in the spite of the fact that, by now, some athlete or sport devices are used it. Only the expensive prices of this material make taboo, not yet enough sport or ethics rules.

We have to observe, that lately the designation of training periodization and selection of appropriate number of repetition and sets are based on short feed-back of biological reaction in sportsman. It's meaning that efficiency of sport preparation needs to enlarge the classical training team-work.

[lvii] IPRI; Wallace, Gordon, University of Wollongong

[lviii] Stimuli-responsive, "intelligent" polymers are polymers that respond with large property changes to small physical or chemical stimuli. They are also known as "smart", "stimuli-responsive", or "environmentally sensitive" polymers. These polymers can take many forms; they may be dissolved in aqueous solution, adsorbed or grafted on aqueous-solid interfaces, or cross-linked in the form of hydrogels....

PHYSICAL ACTIVITY AND HEALTHY QUALITY OF LIFE IN STUDENTS

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Introduction

Movement is one of specifications of human life, an intention and origin in human nature and a factor for his/her growth, health and freshness. Sedentary life style causes not only failure in development, but depression, abnormal behavior and removing life freshness (4). As indicated in frequent evidences, physical activity is one of the most important factors keeping personal and social health, and those simply ignore this issue haven't yet learnt the art of life (3).

Physical Activity & Life Quality

Operationally, physical activity is defined as follows: Physical activity includes all routine life movements such as work, leisure, exercise and all sport activities (3). Also, Health Development Center of University of Toronto defined the life quality as facilities, opportunities and limits which any person has in his/her life and showing interaction of human and environmental factors (2).

Nowadays, continuous physical activity and suitable nutrition to achieve spiritual and mental health are a part of national health goals in developed countries, emphasizing in different declarations and encouraging all people to perform these programs to enjoy its privileges, namely increasing life time and improving life quality (1).

Our society is characterized by a fast-paced lifestyle, with obligations and stresses that affect our physical and emotional fitness. One of the most obvious reasons for becoming physically active is the benefit you may derive from a healthy lifestyle that includes proper exercise and nutrition. Have you noticed that it is virtually impossible to go through a day without being exposed to something involving physical fitness? We eat, sleep and go to class and some of us even try to include some form of exercise in our busy schedules. All of these make our lifestyle (5). When I talk about life style, do you know what the meaning of that is? Life style, include collection of ideas, values, manner styles, elegances, tempers and all the things about music, art, gardening and decoration. Life styles of people are not components of their personal manners. Hence, they are not unusual. But most of the people believe that

they should choose their life style, freely shoal which had most essays about ….believes that, almost there is no agreement about “what are the constituents of life styles”. Also in relation to this idea, Roberts believes that no are has the right to determine what explanation of this concept is. Therefore enjoying a well healthy life style has a worthy importance (7).

Researchers show that Physical fitness affects the total person, including intellect, emotional stability, physical conditioning, and stress levels. Human beings are designed to be active creatures. In active man is like a still mater that falls into lassitude and indolence get sear (6).

Although changes in civilization have resulted in a decrease in the amount of activity needed to accomplish the basic tasks associated with living, the human body has not changed. Therefore, it is important to be aware of the requirements for good health and recognize the importance of vigorous physical activity in your life. If you do not, your health, productivity, and effectiveness are likely to suffer to response this question that “why people should be careful about their activity?” we refer to many reasons like physical, social and psychology advantage.) From one hand, many people suppose joyful activities as a recourse for their mentally calmness. Nowadays, it’s obvious that physical activities specially sport activities, can act as a mail role in reducing mentally pressures and prompt body increase capabilities in facing of pressuring (8).

If you are not willing to participate in physical activities that help keep you fit, you may be depriving yourself of the social outlets, companionship, and feeling inherent in such activities. Participation in physical activity provides an opportunity for socializing. All of these are main reasons that encourage people to be more active. It is often the case that people who become physically active will pay more attention to such things as proper nutrition, rest, and relaxation and may also drink less alcohol and stop smoking(healthy lifestyle) because they do not want to undo the benefits gained through physical activity. They are likely to be committed to engaging in health-promoting, rather than health-harming, behavior. It is possible for you to maintain a relatively high level of physical function if you maintain an active and healthy lifestyle (6).

If you were active as a child, become fit as a teenager, and continue to stay fit throughout your lift, it is very likely that you will have greater strength, flexible, and cardio respiratory health and a lower percentage of body fat than if you chose a more sedentary lifestyle. For example we know that an excess of fat in the body is unhealthy because it causes the body to expend more energy for movement, and it may reflect a diet in which an individual is consuming more calories than he or she needs. The demand on the cardio respiratory system is greater when the percentage of body fat is high. Furthermore, it is believed that obesity contributes to degenerative diseases such as high blood pressure and atherosclerosis. Obesity can also result in psychological maladjustments and may shorten life. Note that There is no shortcut to fitness; it takes time. You should not expect results in a matter of hours or even days. After a month of appropriate activity on a regular basis, some improvement should be noted, depending on what your physical condition was when you started. Make a commitment to your fitness program and keep at it; you will feel better, and this will in turn motivate you to continue. Once you have attained a desirable physical fitness level, you will be strongly motivated to maintain this level through regular workouts. Therefore any physical fitness program requires effort to produce results. Too often, people look for the easy way to achieve their goals. Steam baths, sauna baths, fitness machines, massages, and gimmicks such as body wraps or fad diets may be relaxing or produce short- term effects, but it is necessary to exert effort to achieve the lasting benefits of physical fitness. The body must do the work. You can’t sit and be fit!

Lose weight Feel better, lessen the risk of heart attack, Have a better self-image, be more successful in sports, Have more strength, Relieve stress, Increase efficiency for study, work and other responsibilities, Help my sleep pattern, Reduce tension, Increase energy, Have a better looking figure, Contribute to my health, Have a greater resistance to illness and disease, Improve cardio respiratory function, Increase flexibility, Improve my posture and appearance, Improve my outlook on life, Increase my social outlets outlet for frustration/anger

Choosing a healthy lifestyle encourages you to prevent illness by improving your positive well-being in various ways, including developing yourself physically, expressing your emotions effectively, having good relations with those persons around you, being concerned about your decision-making abilities, and finally (5)paying attention to ethics, values, and spirituality(5).

A healthy lifestyle should reflect the integration of such components as regular and appropriate physical activity, stress management, and elimination of controllable risk factors such as alcohol, smoking, and drug abuse. Unhealthy lifestyles ultimately may be associated with diseases such as coronary artery disease, cancer, or sexually transmit ted infections. The lifestyle you choose plays a major role in determining whether you develop CAD. It is interesting you know that half of all people who die in the United States each year die of coronary artery disease (CAD).Coronary artery disease are related to personal lifestyle health habits known as risk factors. These risk factors cannot be labeled as causes but are instead characteristics that increase the probability of one's having CAD. Risk factors may be divided into those risk factors that cannot be changed, risk rectors that can be changed and contributing risk factors whose significance and prevalence have yet to be precisely determined. Some of them can be changed, treated, or modified, and some cannot. Also, each of these factors is, at least in part, a function of individual lifestyles and behavior patterns. Risk factors that cannot be changed, Family history, Age, Gender and Race Risk factors that can be changed, Cigarette smoking, Hypertension, High blood-cholesterol level, Physical inactivity, Contributing risk factors, Obesity, Diabetes, Stressful living.

Those individuals who lead a relatively sedentary style of living are more likely to suffer from CAD and are less survive a heart attack than are those who maintain an active lifestyle(9).

Recent evidence indicates that individuals, who expend a minimum of 2000 calories of energy a week in physical, significantly reduce death rates from heart disease when compared with those who do not exercise. There is little doubt that adopting a healthful style of living, which incorporates good exercise and dietary habits, has the greatest influence in reducing the incidence of CAD. Considering that nowadays cancer is the second leading cause of death in adults, falling behind coronary artery disease. Researchers have shown that physical activity has been associated with a reduced risk of certain types of cancer. Also eating a healthy diet also has the potential to reduce the risk of cancer. The American cancer Society recommends the following dietary precautions:

From this case stress has been linked to many diseases. It may also interfere with performance of daily tasks or the attainment of one's goals. Most importantly, poorly managed stress greatly reduces the quality of one's life and because everyone experiences stress, and some stress is needed to perform the daily tasks of life and, more importantly, to stimulate growth and development. In this case researches have shown that engaging in physical activity is widely used as a means for reducing or alleviating stress. Many people who exercise report the feeling of a "high" both during and immediately following exercise. This euphoric feeling may be attributed to the release of opiate-like chemicals called endorphins in the brain. Thus to be physically fit means that a person must develop lifestyle habits that exclude negative practice such as drinking excessive amounts of alcohol, abusing other drugs, and smoking. Physical fitness involves more than exercise. The pleasure derived from smoking may be due as much to the social ritual that is associated with it as to the physiologic effects. Certainly, many young people who begin to smoke do so because they regard it as symbolic of adulthood. It has been suggested that the habit-forming nature of tobacco is to a large extent psychologically and socially determined. As millions of smoker knows, smoking is a habit that becomes more difficult to break the more and the longer one smokes. It is known that nicotine is physically addictive (7).

Until now in many countries many steps have been taken to caution the nation's 53 million smokers about the dangers of tobacco. A warning from the U.S. surgeon general is printed on each package of cigarettes. Television commercials for cigarettes have been banned in some countries group therapy sessions have been organized to help people stop

smoking. Patches that deliver nicotine through the skin are often prescribed along with group sessions to help smokers “kick the habit.” Special cigarette holders and filter tips have been devised to cut down on tar and nicotine. Many public building have been designated as non-smoking areas. Municipalities are acting to ban smoking altogether in public places. In many states it is illegal to sell tobacco products to individuals less than 18 years of age. March 11th of every year WHO has called this day as without tobacco. yet millions of people of the world, including many college students, continue to smoke. Some people today think of health as the responsibility of doctors, hospital, clinics, insurance companies, and at last the government. It is important to realize, however, that health cannot be purchased or the responsibility relegated to some other person or agency. Health is an obligation on the part of each individual, and it is erroneous to equate more health services with better health. Instead, individuals must take responsibility for their own health. The decisions that people make relative to their lifestyle have an effect on their health. They are the ones who decide what to eat and when and whether to exercise, drink, engage in drug abuse, smoke, or see a doctor. Thus the decisions they make leave an imprint on their health and well-being. In many cases people who become sick have only themselves to blame. Thus consider that No one can do the job for us, nor should they. This is a responsibility each person should assume to the extent he or she is able, with pride and conviction. All of us want good health. But many of us do not know how to be as healthy as possible. Health experts now describe lifestyle as one of the most important factors affecting health .In fact, it is estimated that as many as seven of the ten leading causes of that could be reduced through common-sense changes in lifestyle (9).

* Reduce total fat intake, * Eat more high-fiber foods, * Eat foods rich in Vitamins A and C, * Include vegetable in your diet (broccoli, Brussels sprouts), *Avoid smoked, salt-cured foods, *Limit alcohol consumption, * Avoid obesity

Study of life quality of juveniles especially university students through participation in sport activities is an index effected by some various factors such as family, culture, educational, social-economic, physical, mental-psychological and other status, effective on accurate understanding of requirements, decisions and planning of this valuable social group. In this case, we tried to study relationship between physical activity and different aspects of life quality (physical health, mental condition, social communications), and domain of enjoying a health life which require sport movement and activities, described in many different researches. Researches represent that all persons will have good feelings and more satisfaction with life through physical activities, and even higher levels of physical activities positively affect emotions, personal conditions and life satisfaction.

Life quality is very important for students. Keeping fitness for having good life is a long way and university study period time is a part of it. The ages of 18-30 are period of construction and foundation of physical and mental fitness for a successful life, in which the persons achieve to top of adulthood and physiological performance. Therefore, youth and student periods are deemed an important period to base physical fitness throughout the life time. Juveniles and students consume much more time in training courses, studies, makeup activities, work and other responsibilities making them physically and mentally bored. Thus, many forget need to physical fitness. Physical disorder, mental depression and having inappropriate physical ability reduce mental effort, gradually leading performance decrease and educational decline in the universities. A student without sufficient physical fitness doesn’t intend to participate some activities including swimming, mountaineering, skiing, etc, and if does, his/her performance, self-confidence and enjoy will be considerably lower than those who have higher physical fitness. Therefore, if a person is in a good physical condition, he/she will have better chance to achieve educational goals and his/her life will be accompanied by more creativity, health, happiness and leisure. Chan Yen et al3 studied relationship between participation in sport activities in leisure times, satisfaction with leisure time and satisfaction with life in students of University of Taiwan, He showed that there was a significant relationship between sport activities, life quality and satisfaction in leisure time.

Methods

This research is of descriptive and correlation type, carried out through field method due to the method of data collection. Statistical population of this research involves all physically active male students in Iran from which 1352 students participated in the study as sample by using cluster sampling and sample random method .Collection data tools of this research were questionnaire according to its nature:

Sharkey Physical Activity Questionnaire and Life Quality Questionnaire (WHOQOL-BREF, 2204) were used after consultation to professors, guidance and advice of authorities. As all respondents were students BREF type was selected, including four aspects of life quality plus two general questions about life and health quality evaluation .Reliability of Physical Activity Questionnaires was r = 0.91 . After data collection and record, all data was analyzed by using SPSS software. Descriptive statistics was used for central tendency indices (mean, median) and distribution indices (Standard Deviation, Variance) and to draw different diagrams. Inferential statistics (Correlation coefficients) was also used.

Results

The research findings represented that from total 1354 subjects (18-30 years old), 61.66% were students of Bachelor's Degree and 38.34% of Master's Degree.

The records of participation in sport activities in students of Bachelor's Degree were reported as 79.19% and more than one year. Also, 78.7% students of Master's Degree were engaged to sport activities for more than one year which was the Least percentage.

Table (1) Percentile distribution of records of Sport Activities of Male Students

Records of Sport Activities	Men			
	Bachelor's Degree		Master's Degree	
	No.	%	No.	%
7-9 months	43	5.14	22	4.23
10-12 months	131	15.67	88	17.57
More than 1 year	660	79.19	408	78.7
Total	834	100	518	100

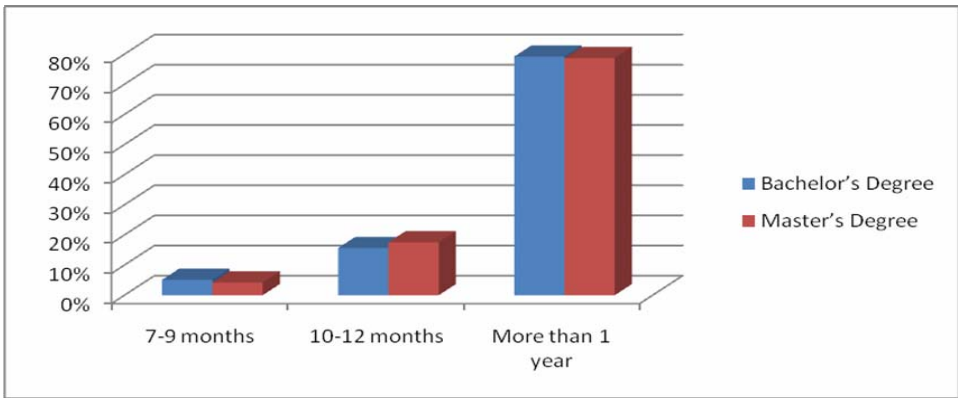

Figure (1) percentile distribution of records of Sport Activities of Male Students

Findings showed that the students of Bachelor's Degree practiced sport activities for more than one year by 79.19% and for 7-9 months by 5.14%. On the other hand, 78.7% students of Master's Degree were reported more than one year sport records.

Table (2) Percentile distribution of Sessions Number of Activity (Male Students)

No. of Sessions	Men			
	Bachelor's Degree		Master's Degree	
	No.	%	No.	%
Less than once/monthly	79	9.52	63	12.34
Several times/monthly	118	14.21	70	13.51
1-2 times/weekly	120	14.48	135	26.15
3-5 times/weekly	359	42.85	203	38.99
Everyday	158	19.04	47	9.1
Total	834	100	518	100

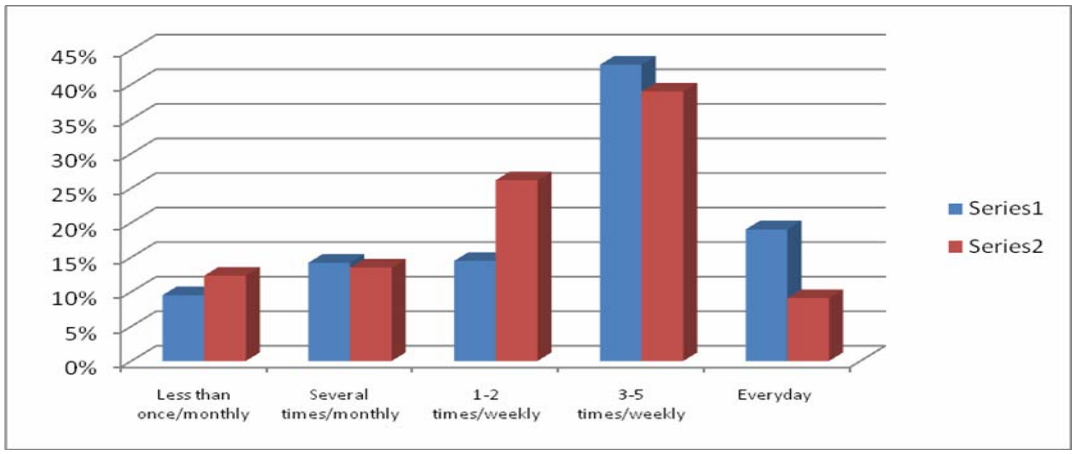

Figure (2) percentile distribution of Sessions Number of Activity (Male Students)

The findings showed that 9.52% of students of Bachelor's Degree practiced sport activities once per month and 42.85% for 3-5 times per week. In addition, 38.99% students of Master's Degree practiced sport more than 3 times per week.

Table (3) percentile distribution of duration of any session of sport activity of Male students

Duration	Men			
	Bachelor's Degree		Master's Degree	
	No.	%	No.	%
Less than 10 min	**79**	**9.52**	**63**	**12.09**
10-20 min	**159**	**19.04**	**57**	**11.10**
20-30 min	**123**	**14.76**	**86**	**16.60**
30-60 min	**175**	**21.04**	**160**	**30.88**
More than 1 hour	**298**	**35.64**	**152**	**29.33**
Total	**834**	**100**	**518**	**100**

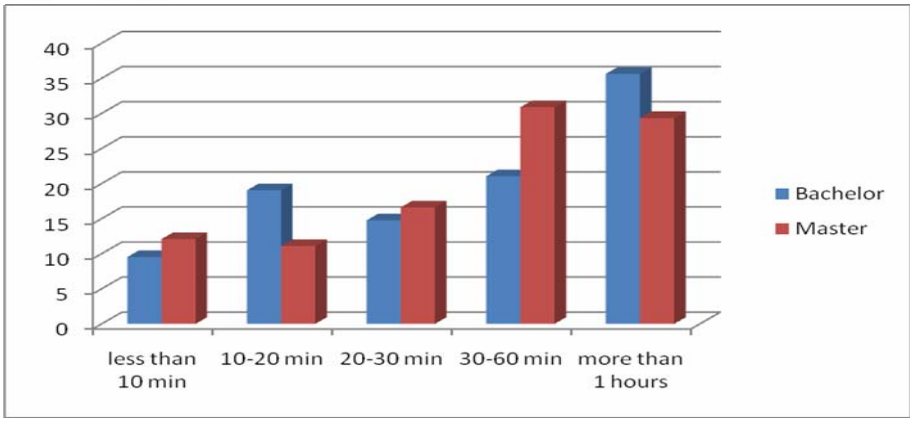

Figure (3) percentile distribution of sessions of sport activities of Male students

The findings showed that the duration of sport activities of male students of Bachelor's Degree more than 1 hour and students of Master's Degree for 30-60 min per session have the highest percentage.

Table (4) percentile distribution of intensity of sport activity of Male students

Activity Intensity	**Men**			
	Bachelor's Degree		**Master's Degree**	
	No.	**%**	**No.**	**%**
Light	188	22.58	196	37.77
Intermediate	382	45.85	167	32.22
Relatively Heavy	160	19.23	112	21.60
Rapid & Heavy Respiration & Sometimes Perspiration	61	7.23	27	5.26
Rapid Respiration & High & Continuous Perspiration	43	5.11	16	3.15
Total	834	100	518	100

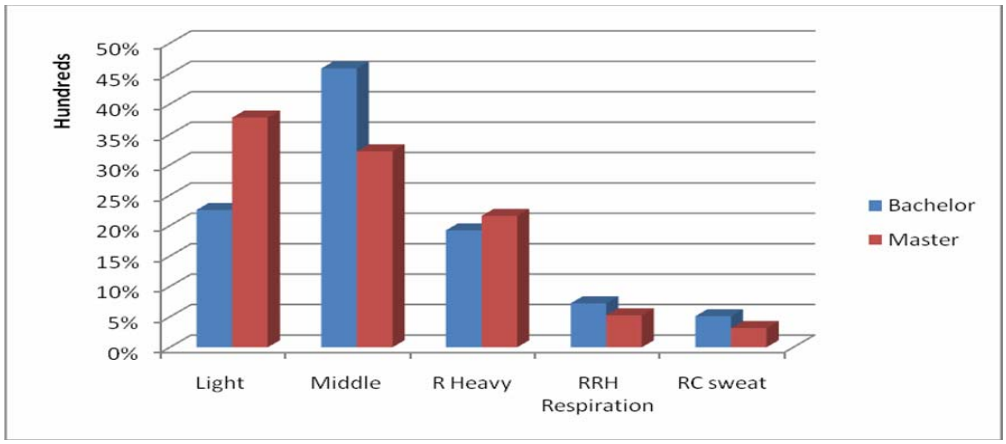

Figure (4) percentile distribution of intensity of sport activities of Male students

The highest percentage of intensity of sport activities of students of Bachelor's Degree (47.61%) were reported as intermediate level and students of Master's Degree (50%) as relatively heavy. According to the results of the table, no activity of heavy intensity with rapid respiration due to higher age of students of Master's Degree was reported.

Results showed that there was a significant relationship between participation in sport activities and physical health in active students (r= 0.38, p= 0.000).

There was a significant relationship between participation in sport activities and mental-psychological condition in active students (r= 0.27, p= 0.003).

In case of social communication, there was a significant and positive relationship between participation in sport activities in active students (r= 0.32, p= 0.000).

There was a significant relationship between participation in sport activities and environmental domain in active students (r= 0.05, p= 0.62).

Results showed also that there was a significant relationship between participation in sport activities and life quality in active students (r= 0.24, p= 0.008).

Discussion

In this research, the effect of sport activity on health and life quality in students of Bachelor's Degree was recorded positive and significant. The results of this research are compatible to the researches carried out by Chi Kouji et al (1999), Manz & Chad (1999), Coltine (2001), Shanon (2001), Tampson et al (2005), Edward et al (2006), Helen et al (2007), Ghahremanlou et al (2005) and Zamanzadeh (2008) in case of relationship between participation in sport activities and physical health, but incompatible to the results of Damoush (1999) and Sarvari Khorashad (2005) (5,6,9,11).

The results of these researches showed that performing different types of exercise has physical benefits and effects on removing neural and mental problems. Stringer reported that exercising sport activities, fast and slow running for one hour per day and 3 times per week causes develop of many physiological processes of body. Continuous engagement in sport and physical movement lead reducing blood triglyceride, increasing HDL, keeping body equilibrium, lowering blood pressure, preventing heart attacks and avoiding osteoporosis. It has been showed by many researches (3, 4, 9, 10, and 11).

Many evidences show that there is a significant relationship between physical activity and performance abilities and health condition, preventing special diseases or reducing its intensity. It is worthy to note that for gaining benefits of physical activity require continuous and orderly participation, and will have reverse condition by reverting to inactive condition (7).

In this case, continuous and orderly participation of active students in sport activities has caused reducing need of drug and treatment and students feel healthy and happy after performing sport activities. By aging, physical problems increase and role of physical activity is made considerable (8,10).

Another finding of this research was positive and singnificant the relationship between participation in sport activities and mental condition which was compatible to the researches carried out by Fountain et al (1999), Chi Kouji et al (1999), Shanon (2001), Kayer Kakaldi et al (2002), Edward et al (2006), Ghahremanlou et al (2005), and Zamanzadeh (2008), but incompatible to Sorenson et al (1999) and Damoush (1999) (25,26, 27). Ckelp et al (1999)1 declared that physical exercises effect on behavior in two direct ways: releasing Endorphin and reducing Cortisol (a hormone excreted in blood under neural pressure). According to the specialists in body physiology, endorphins are natural drugs for reducing pains, causing deliberate senses. Physical exercises lead increasing excretion of endorphin. In other words, Dilorinzo (1999)2 and some other researchers concluded that suitable physical exercises mainly effect on increasing Serotonin (effective hormone on behavior amendment). Thus it seems that exercise may help excretion of more endorphin and serotonin in the body and keep exercise for a more long time (11).

Sport medicine researchers have recently declared that sport exercises may stabilize physiological effects of mental pressures. Change in performance of hormones, neural transferors and other chemical reactions available in body cause body reaction to mental pressures (7, 10).

The results showed that in both age periods, participation in sport activities was more than one year. Regular and continuous exercise causes mental comfort, higher intentional power, increasing self-confidence, and more ability to make decision, all leading prevention of neural pressures especially upon problems, being deemed significance of this hypothesis.. In addition, dietary and exercise can be intervention factors on effects of sport.

In this research, the effect of sport activity on social communications in mid-aged persons was positive and significant, compatible to the researches of Chi Kouji et al (1999), Kayer Kakaldi et al (2002), Coltine (2002), Shanon (2001), Richard et al (2008), Sarvari Khorashad (2005) (1, 5,11).

Shanon declared in the results of his research that sport and physical exercise causes family reinforcement, development of friendly relations and growing social spirit students. Reasons of compatibility of current study results can be due to participation of mid-aged people in team sports, resulting satisfied social communications and ability for effective interactions to other persons.

Also, we found that there was a insignificant relationship between sport domain and environmental domain. The results of this research are incompatible to the researchers of Stringer et al (1998), Chi Kouji et al (1999), Coltine (2001), and Richard et al (2008). Traditions, views, insights, statistical population, different environmental areas in working place, house and place of practicing sport probably are some factors which cause this incompatibility in the results. In addition, financial condition of people can be a possible effective reason for failure in effect of sport and physical activity in environmental domain.

The results of current research are compatible to researches carried out by Diner et al (2005), Houtman et al (2005), Tornin et al (2007), Antony et al (2008) in case of relation between participation in sport activities and life quality. In this research, it was shown that the effect of sport activity on life quality of students as positive and significant, showing the positive relationship of sport to domains of life quality. The results represent that a suitable rate of sport activities is necessary for a healthy life and represent main reasons and intentions showing sport is a way towards life (7, 10, 11).

In can be said in general conclusion that performing sport activities during leisure time has physical benefits, and also effective influences on overcoming mental problems . As well as invulnerability to many diseases and disorders, those who train regularly enjoy disciplined life, more performance and social relationships by acquiring freshness and further enjoy of life.

Recommendations

-This research showed that there was a positive and significant relationship between sport exercise and physical health. Therefore, it is recommended all persons in any age shall consider sport and physical activity as a part of their leisure time;

-This research showed that there is was a positive and significant relationship between sport exercises and psychological condition. Therefore, it is recommended that all persons shall engage sport for more comfort at good feeling;

-This research showed that there was a positive and significant relationship between sport exercises and social communications. Therefore, it is recommended that team groups shall practice sport to provide further friendly and social relations.

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Sub Themes 1.

University Sports:
Trends, Opportunities and Challenges

The Development of "Physical Education Electronic Learning System" and the Study of Cooperative Learning Method (oral presentation)

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Introduction

The goal of physical education is to cultivate students' consciousness and skills of life-long participating in sports activities. With the development of study theory and cognitive theory in P.E., self and cooperative learning will be more and more applied in the situation of P.E. teaching and learning. Whereas, the "Physical Education Electronic Learning" has been developed as well as exploring the matching method - collaborative learning for the "Physical Education Electronic Learning".

Methods

Literature study, logical analysis and software engineering research methods have been used in the study of electronic learning and cooperative learning.

Results

Related Concepts

Physical Education Electronic Learning System (abbreviation PEELS): PEELS is a web-based online PE teaching and learning system. It is also a cooperative learning activity which PE teachers and students are able to cooperate each other based on this system with same learning objectives and certain stimulation. By dividing into teams or groups, students will have the ability to master the techniques, tactics and related knowledge of certain sport.

Structure and Function

PEELS consists of 3 modules (interactive module, resource modules and assisted module) and 7 sub-systems. Interactive module will be great help for users to facilitate and enrich the interactive tools. Resource module includes "network programs", "sport fashion", "download center", "photo center". Assisted modules provide the function of user management and back-stage management.

Development Technology

PEELS would be possible to achieve its dynamic page with the structure of Browser/Server (B/S), ASP technology of Access database and Windows NT Web Server with IIS.

Learning Process

Synchronizing and cooperative methods have been used to obtain a better teaching result.

Conclusion & Suggestion

Conclusion

The PEELS has been constructed because of this research. Cooperative learning set up a new PE teaching model, and creates multiple cooperative interactions between teachers and students. Moreover, cooperative learning will be able to fully exert students' initiative, subjective and cooperative. As a result, it will be huge impact on students learning abilities, attitude, passion, and experiences, and be useful for cultivating the consciousness of life-long participating in sports activities.

Suggestion

With the development of computer technology and improving of PEELS, PEELS can become an intelligent P.E. teaching system which can guide students to learn at the discretion of their personal interests which will realize individualized teaching.

Cooperative learning is student-centered self learning, but this does not mean that teachers can give them free rein to students. As the organizers and tutors of cooperative learning, teachers should not only enable students to develop the consciousness of self-learning and using the PEELS independently, but also actively help students to find suitable and effective learning methods for them in consequence of promoting students' abilities of self-learning and problem solving.

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The Study of Relationship between Leadership Styles and the Rate of Occupational Stress in the Physical Education Offices Managers of Khuzestan Province (poster presentation)

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Introduction
The purpose of the study was relationship between leadership styles and rate of Occupational stress in the managers of physical education offices of the Khuzestan Province.

Methodology
The method of the study was based on survey and by using of standard questionnaires of Hemphill & Cons (1966) leadership style and Spielberger Job Stress (1991). Their reliability was 0.84 & 0.95 respectively by using of Alpha Cronbach. Statistical sample was included of 59 managers and 260 assistant and staffs working at the physical education offices of the Khuzestan Province.This research studied 3 variables were include managers leadership style, managers job stress and individual characteristics. The Significant of this study was $p \leq 0.05$.

Results
Results showed that from point of view the staffs' 19% of managers have the task- oriented leadership style, 64% have the relationship leadership style and 17% have the mi**d**dell leadership style. There was a significant and positive relation between task-oriented leadership style with level of managers' job stress. But there was a significant and negative relation between relationship-oriented leadership style with level of managers' job stress. However there was a negative and weak relation between middle leadership style and managers job stress that it was not significant at the level of $p \leq 0.05$. There was a significant and positive relation between job stress and the level of education and also there was a significant relation between task-oriented leadership and relationship-oriented styles of managers with the level of education. Finally, there was a significant relation between mi**d**dell leadership style and record of managing at the level of ($p \leq 0.05$).

Discussions
The findings of the study emphasized that the almost of managers selected the relationship leadership style. Also task-oriented managers possess high job stress. Finally, according to the results of this research, it is suggested that an educational programs to increase knowledge level of managers about the leadership styles and selecting the most suitable style to increase the functional level and finally, to increase the efficiency at the offices and inhibitory of occupational stress by the expert should be edited. Also, the emergency of having workshops to avoid the manager's job stress by the psychologist and professional experts is recommended.

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The Significance of 2007 FISU Universiade to the Economy of Bangkok: Estimating the Sport Tourist Consumption (oral presentation)

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Introduction

Sport Tourism has become an important economic sector in many parts of the world. Major cities aggressively compete to host sport events with the expectation that participants and spectators will benefit the economy by spending money on lodging, meals, souvenirs, tickets, etc. (Booth, 2005). Some sport events appear to attract high-end consumer groups (i.e., America's Cup Yacht Race, Masters Golf Tournament, Kentucky Derby, etc.), and others, more thrifty visitors (Tang and Turco, 2001). One would surmise that the economic benefits from an up-scale event would be greater than events catering to less affluent consumers but several factors contribute to the net impacts of an event on the host economy including visitor length of stay, spatial distribution of visitor spending, and income leakage (Yu and Turco, 2000). While considerable research has been devoted to mega-sport events including the Olympic Games, FIFA World Cup, and Super Bowl, (Preuss, 2004; Baade and Mathieson, 2002), relatively little research has focused on smaller international events to understand participant consumption patterns and impacts. The purpose of this study was to profile participants of the 2007 Summer Universiade in terms of their consumer behaviors in Bangkok, Thailand. The 24th Summer Universiade was held in Bangkok 8-18 August 2007 and set a new attendance standard with 9,006 participants from 152 countries. Over 6,000 athletes competed in 18 sports. Thirty-six sites for competitive events and 43 practice sites were made available to Universiade participants in Bangkok.

Methods

A questionnaire modeled after the one used by Cox et al. (2007) was used to facilitate the purpose of the study. A total of 441 completed surveys were completed by participants on-site during selected days of the event. Athletes represented 69% of the total subjects, Officials and referees 12.3%, Coaches 10%, Medical staff 3.7% and Other 4.8%.

Results & Discussion

Participants stayed an average of 12 nights and traveled with 3.75 other persons. Sixty-percent of survey respondents were male; 40% were female. The average age of survey subjects was 27.5 years. Whites represented 66 percent of the respondents, 11.5% were Asian, 11% were Black, 6% Latino, and 3% Indian. On average, participants spent € 801.33 in Bangkok during the 2007 FISU Universiade, primarily for event tickets, shopping, transportation, and other goods and services. Most respondents (63%) were participating in the Universiade for the first time, 37% had participated previously. Fifty-one percent of participants would visit Bangkok in the future, 39.8% were not sure, and 9% would not visit again. Approximately 87% of participants would recommend visiting Bangkok to their friends, 13% would not. Consumer profiles are compared with those from previous international sport events to provide context and trend analysis. Recommendations for future research on the consumer behaviors of participants at international sport events are discussed.

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An Illustration of successful tournament organization as seen at the Belgrade open tennis tournament for University students (oral presentation)

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Introduction

The Belgrade Open tennis tournament has been an open competition for all university students which has been held for the past four years (up until four years ago, a similar competition was held for university students and professors). The organizers of the tournament today are the Univerzitetski Sportski Savez Beograda (The Sport University Association of Belgrade) and the Teniski Savez Beograda (The Tennis Association of Belgrade). Participation is granted to all students attending higher-education establishments, academies and university faculties, post-graduates and those who have graduated within the past six months. The tournament comprises of five categories: women's singles, men's singles, women's doubles, men's doubles and mixed doubles.

Methods

Using descriptive method, we are trying to illustrate growth of participants and better quality of the tournament over four years of organisation.

Results

A different approach to the organization of the tournament was taken in 2005. Thanks to the initiative of the students themselves who wanted to get together, make new friends, have a great time and, obviously, play some tennis. The first tournament of its kind was held at the SRC Olim' Sports Centre from the 27th to the 29th of July 2005. 23 men and 9 women from 18 different faculties and higher-schools entered the main draw. That tournament however did not include a women's doubles draw due to the lack of interest for the same at that stage. A first students' ranking list was compiled and the tournament winners received trophies, medals and certificates.

The following year (2006), the tournament was entered into the Belgrade tennis calendar not as one but as three separate tournaments (one of each taking place in the spring, summer and fall). For the first time that year, the tournament managed to get the aid of sponsors so that the players were able to play for valuable prizes adding a greater sense of competition to the tournament. Thanks to the media attention which the tournament attracted, the number of participants rose to about 70 per tournament. After the three tournaments in 2006. 94 men and 29 women from 30 different higher-learning establishments were to be found on the ranking list. Students from other Serbian cities such as Čačak, Niš, Valjevo and Novi Pazar and even other countries such as England, Slovenia and the USA attended subsequent tournaments. The level of play was also raised as former and current professional players (ranked on the Serbian ATP list) applied to play.

In 2007., the tournament progressed with tournament shirts being manufactured for the first time. The number of applicants rose to 85 students by the fall; 64 men and 21 women. The level of play was also increased with the attedance of players with rankings on the world doubles ATP list.

In 2008., the tournament reached a new level with the participation of different foreign nationals and the participation of ATP player Ilija Bozoljac. The same year, the tournament gained medical supervision from the Sector medicine sporta Republic Institute for Sport (The Sector of Sports Medicine of the National Institute of Sport).

The tournaments are financed entirely from the entry fees paid by the players but this is barely enough to pay for court time at the various clubs (120 hours' ±30 hours). The trophies, certificates and tennis balls are provided by the Tennis Association of Belgrade whilst the Sport University Association of Belgrade supplies medals and certificates of their own kind. Food and drinks for the participants as well as prizes for the winners are provided by tournament sponsors usually referred to as "friends of the tournament".

Discussion

In conclusion, the organization of this tournament has increased the interest for tennis amongst students and the average number of participants per tournament has risen from 32 to 90 students. The quality of tennis has also greatly increased. The participants are motivated more and more each year owing to both the quality of play and the prizes at stake. We hope that the positive development of the tournament will continue through 2009. and onwards.

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Women's Promotion to the management level in the Physical Education organization in the country: environmental and personal constraints

(oral presentation)

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Introduction

Women's sport and its development introduce the issue of women management in sport. Following Combination Plan, few women could achieve leadership positions in federations and sport committees across the provinces of the country. To increase the number of women in leadership positions, also to use the experiences and capabilities of female managers efficiently, a comprehensive account of the factors which prevents women from leadership positions in federations and sport committees would lead to the preparation of solutions that would pave the way for more involvement of women sport managers in the country.

Methods

In order to identify and then rank the factors which prevented the promotion of women to management positions a researcher-made questionnaire including environmental factors (professional sport, sport media coverage, cultural issues, male-oriented organizational culture and family roles), personal factors (inter-personal relations, political skills, knowledge of management and personal- psychological factors) was used. Descriptive statistics were used to estimate mean, standard deviation, minimum and maximum of scores and also to draw tables and diagrams for comparative purposes. Inferential statistics including one-sample t-test to determine preventing factors, Independent t-test for comparing male and female managers views on preventing factors, Friedman rank-ordered test for ranking women's preventing factors to management posts, were used.

Results

Findings of the research showed that from male and female managers' perspective, professional sport was counted as the most preventing factor. On the whole, while men managers had considered a preventing role for environmental and personal factors on women's promotion, women managers considered just the environmental factors as an obstacle in their way of promotion($P<0.05$).

Results of the present study indicate the differential views of men and women managers on some of the preventing factors. Also compared to personal factors variables, environmental factors variables had a more prominent role in preventing women's promotion in the idea of both male and female managers.

Discussion

According to the results of the present study, it is suggested that to begin change, key officials of the Physical Education Organization and also the general offices of physical education throughout the country, advocate the employment of capable women who had a glorious experience in management as the leaders of the federations and committees that are assumed as less professional (contest preparation, shooting, sport medicine, chess and special diseases).

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The study and influence of a leisure computer-tailored exercise activity intervention in a life excellent setting in adolescent Ahwaz people (poster present.)

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Introduction
The aim of this study was to evaluate the effectiveness of a computer -tailored physical activity intervention delivered through the Internet in a real-life setting.

Method
Healthy adults (n = 526), recruited in six worksites, between 25 and 55 years of age were randomized to one of three conditions receiving, respectively, (i) online-tailored physical activity advice + stage-based reinforcement e-mails, (ii) online-tailored physical activity advice only, (iii) online non-tailored standard physical activity advice.

Results
At 6-month follow-up, no differences in physical activity between study conditions were found; total physical activity, physical activity at moderate intensity and physical activity in leisure time significantly increased in all study conditions between baseline and follow-up. But when they compared two subgroups, 1,573 full-time workers and 508 part-time workers, a different picture emerged for those who spent the most time in sedentary activities. Mean of age 20/21 and average SD = 4/25.

Discussion
Further evaluation of the intervention materials showed that the tailored advice was more read, printed and discussed with others than the standard advice. Most of the respondents in the e-mail group indicated to be satisfied about the number, frequency and usefulness of the stage-based e-mails. In conclusion, although tailored advice was appreciated more than standard advice, no evidence was found that an online-tailored physical activity intervention program outperformed online standard information.

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Functional Strenght Training (oral presentation)

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Introduction

Aristotel said: » To be ignorant of motion is to be ignorant of nature.« if an athlete wants to keep his or hers body in balance, should be thinking about athletic movement, mobilitity and stability, strenght and endurance, power, speed and agility and at the end performance. In functional training we want to prove that in matter of strenght training is important how an athlete moves not how he looks. The traditional weigt training principles have more in common with body-bulinding then with sport performance.

Methods

We want to show you examples of balance training, core training, strenght and endurance training with some functional equipment such as BOSU, TRX, BALLAST BALL, FLOWIN, …components to insure functionality are: coordination, range of motion, type of contraction, speed of movement.

Results

Functional training defines efficiensy and effectivnes because we train athlets with full body funtional movement patterns. They don't train isolation, because this is not the way they perform.

Discussion

In the final analysis, it must be remembered that functional training is not an all-or-nothing concept. A continuum of functionality exists. The only entirely functional exercise is the actual activity one is training for.
So what are these 10 Rules that define functional training?
All movement begins by loading in the opposite direction
Muscles React they don’t contract
Function is Integrated not Isolated Movement
Functional movement requires the use of multiple joints
Functional movement is multi-planer
Function movement is a series of counter balance reactions
All movement in function is Core Training
Most Function movement is done on one limb at a time
Function is reciprocal.
The Rule of Specificity…Is it movement or speed specific???
How to prove it? Everthing have to start with testing.
We train the movement not the muscle, because movement isn't a solo it's a simphony.

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Comparative analysis of jumping abilities at specific and non-specific trained female students (oral presentation)

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Introduction
Volleyball is in category of sport games, where in relation to motoric structure movement activities, dominate varies types of jumps. Adequate level of preparation on aspect of jumping abilities is directly related to efficiency of realization basic elements of techniques- services, blocks, settings and spikes (Nešić, 2006). Consummation of this work is to suggest difference between jumping abilities in volleyball players (students) that take part in games in league of association rang as specifically trained population and students of Criminal-police academy as population which have been treated as target of physical fitness as for nonspecifically trained population.

Methods
Overall sample consist of 17 examinees of female athletes: 8 volleyball players (specific trained) and 9 students (nonspecific trained). Jumping abilities is valuated using by following test battery: counter movement jump – ABL +, Squat jump – ABL -, index of ABL + / ABL -, in favor of evaluation of jumping skills technique (% reactive influence of momentum of arms on height of jump), standing long jump – LJ+, index of ABL + / LJ +, as ratio of vertical and horizontal jump ability. All testing have been executed in standard condition, using methods of field testing. Statistical procedures have been done using software SPSS 10.0. by MANOVA. General difference level have been made using Wilks'Lambde, and for partial difference have been used Student t test.

Results
It has been established that in between treated groups there are general statistic difference – Wilks'Lambda Value 0.270, F value 5.934, p=0.007. Tests of between-subject effects have shown that on partial level of difference following data have been statistically significantly different: ABL +, F value 25.11, p=0.000; ABL -, F value 5.45, p=0.034; ABL + / ABL -, F value 8.59, p=0.010; and SJ +, F value 17.11, p=0.001;as for ABL+ / SJ + it had not been found statistical significantly difference, F value 3.69, p=0.074. High level of difference have been find in percents between treated groups is deduce in ABL +, 18.0 %,in ABL -, is 10.43%, in SJ +, is 12.93 %, and for ABL + / ABL, is 9.51%.

Discussion and Conclusion
Results have indicate that volleyball players, as specifically trained population have statistical important higher level of jumping abilities. To addition to it have been established that adaption from aspect of technique of jump (ABL +, i.e. elevation of jump with momentum of arms), is higher in specifically trained population versus nonspecifically trained for 7.61 %. In other words, volleyball players have better specific jumping coordination, in relationship on nonspecifically trained population for given 7.61%.

Discussion on Some Issues about University Sports Scientific Research Work in China (poster presentation)

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Introduction

Beijing Olympic 2008 is an important opportunity to promote development of China. It is a strong driver for development of university sports work in China. As the preceding and supporting work for university sports work, university sports scientific research work also has an important opportunity for development.

Methods

Using the method of literature, logical deduction and induction, this paper makes discussion on the status, contents, features and problems of university sports scientific research work in China, and proposes solutions for these issues. As an example, the advantages of The Scientific Research Center of Beijing Sport University in scientific research works supporting university sports are also discussed.

Results

1. Sports scientific research works play a critical role in promoting improvement of university sport. In China, many universities build up their unique features and enhance their operating level through sports research works, and have established teaching and training modes meeting their own sports campus.
2. University sports scientific research works mainly include university sports education scientific research work, scientific research works in university sport game training, university sports science & technology developing and research works, and scientific management of university sport.
3. University sports scientific research works in China have four features: the first is that sports scientific research works are clearly aimed at supporting university sports practice; the second is that university sports scientific research works absorb and apply more and more knowledge and methods from other disciplines; the third is that university sports scientific research works have a strong strength in talent and hardware; the fourth is that the research field of university sports scientific research works is continuously expanding.
4. University sports scientific research works in China are facing various challenges: the first - university sports scientific research facilities and personnel cannot meet the actual need; the second - the ability of sports scientific research works to resolve problems in university sports practice is not very strong; the third - university sports training science & technology security system needs further integration; the fourth - university sports scientific research results need a exchange, promotion and application system; the fifth - involvement of non-sports colleges and departments in university sports scientific research works is low.
5. Major measures to comprehensively improve university sports scientific research works. Firstly, change our minds and establish and improve university sports scientific research work management system. Secondly, build a stable university sports scientific research work supporting team. Thirdly, closely combine university sports scientific research works with sports practice. Fourthly, pay attention to cross-discipline permeation to improve level of scientific training. Fifthly, enhance international exchange and corporation in university sports scientific research works. Finally, continuously combine diversification with distinctiveness in sports science and technology service measures.
6. A security system meeting needs of university sports scientific research works – take The Scientific Research Center of Beijing Sport University (SRCBSU) as an example. Since established in 2007, SRCBSU has been adhering to a guiding policy of deriving from sport practice and serving sports practice. They aim at leveraging their discipline and talent advantages and every possible resource to meet high-level scientific training needs of sports teams. Their experiences include: integrating first-class resources to build a service platform; focusing on improving service level through administrating measures; building their scientific research team and enhancing scientific research activities; introducing cutting-edge techniques and methods; hold a science and technology lecture hall to educate teachers and coaches.

Discussion

Although facing various challenges, university sports scientific research works are developing toward becoming healthy and ripe. We shall treat current problems in a positive altitude, closely combine scientific research with university sports practice, enhance university sports science and technology service awarness, improve service quality, and promote continuous improvement of university sports scientific research works.

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The Grand Coalition Government in Kenya. A recipe for Sport Development in Kenyan Universities (poster presentation)

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Introduction

Numerous social theories have been explored to unearth the marriage between sports and politics but consensus remains remote. Political parties and politicians present their manifestos to the electorate on the eve of elections to solicit for political candidacy and eventual incumbency. This paper discusses pledges in sport development made during the controversial 2007 general elections by the two main political parties in Kenya, i.e. Party of National Unity (PNU) and Orange democratic Movement (ODM).

Methods

The study embraced documentary analysis and content analysis as the methods of data collection where the parties manifestos were weighted against sessional paper No. 3 of 2005 on sports development.

Results

Showed that both political parties made pledges which are too general, did not address any aspect of mass and traditional sport, did not address sports and women, sport for people with disabilities and elderly, did not appreciate the role of recreational and competitive sports in preventive health, did not recognize the special role played by sport in educational institutions and both parties did not appreciate that sports can be utilized for nation building and nation hood.

Discussion/Conclussion

The controversial 2007 general election outcomes led to deaths of over 1,200 Kenyans and internal displacement of over 350,000 persons. Consequently a grand coalition government was formed between PNU and ODM. Thus, the Grand coalition government can enhance sports development in Kenya by inter alia:

- Enacting the sessional paper No. 3 of 2005 on sport development into a bill of parliament (law).
- Adhoc rewarding of athletes should be a thing of the past.
- All the ministries of government should have relevant policy guidelines on the importance of sport to Kenyans.
- Ministry of Youth and sports need to champion the call for mass sports.
- Ministry of Education to ensure that P.E is properly taught supervised and evaluated.
- Relevant ministry to revive and revitalize traditional sports and games.
- All Federations/Associations open linkages with Universities which are training sport specialists.

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The Influence Anaerobic Test on Pulmonary Function Criteria in the Elite Basketball Players of Khuzestan province (oral presentation)

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Introduction

The purpose of the research is the cross comparison of criteria related to the pre and post anaerobic pulmonary function such as MVV, FEF25-75, PEF, FEV1/FVC, FVC, FEV1 based on the results obtained from the Running - Based anaerobic sprint test on the elite basketball players of the Khuzestan Province.

Method

The sample populations were 20 pro-basketball players from the eight professional basketball teams present in the Khuzestan Basketball league with an average age range of 26.55 and an average weigh and height of 82.34 kg and 186.35 cm respectively. The average BMI was 23.69 kg/m² and each player on average had played professional basketball for approximately five years. Before and after the running -Based anaerobic sprint test, the criteria for the pulmonary function were measured. The sample population was given light basketball practices for 10 minutes prior to the running -Based anaerobic sprint test. In order to compare the results obtained from the measuring of pre and post pulmonary functions, a t-test was used.

Results

The obtained results showed that there was no significant difference between the following values of Maximal Velontary Ventulation (MVV),Force Experator Volume 1 scecent / Force Vital Capacity (FEV1/FVC) ($p>0.05$); however there was a significant decrease in the values of Force Experatory Flow 25-75pr (FEF25-75), Peak Experatory Flow Rate (PEFR),Force Vital Capacity (FVC)and Force Experator Volume 1 scecent (FEV1) being respectively 12.60%, 10.28%, 7.82% and 5.41% ($p<0.05$),Mean +14 ,SD=0/23.

Discussion

The fact that bronchial spasms as a result of athletic activity are responsible for a 10% decrease in FEV1, a 15% decrease or more in PEFR and a 25% or more decrease in FEF25-75. In over 60% of the sample population, the existence of bronchial spasm due to athletic activity can be defined with one single value.

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Sub Themes 2.

University Sports:
a Foundation for Healthy Lifestyle

Cross In Function Of Education Of Students For Healthy Life Style

(oral presentation)

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Introduction.

Since cross as social sports event, affects health of all age categories, it has both national and cultural significance. Its integral influence refers not only to improvement of health, but also to acquisition of knowledge, opinion development, formation of personality, system of values, habits and necessity of permanent running outdoors. As motion activity, cross is used by all students of elementary and high schools in our country. It is natural that they continue to use it even later, because it has developmental formative role in creation of students' knowledge on its significance for human health. The alphabet of every healthy way of life is running outdoors. One of the most efficient ways to eliminate harmful consequences of today's sedentary way of life is using of running as natural form of movement necessary to everybody. Running provides necessary quantity of oxygen for the body, improves work of heart and lungs, activates blood circulation and metabolism. It reduces nervous tension, improves sleeping, working ability and plays a vital role in health prevention. Therefore, it is not necessary to stress its significance within the PE classes and thus in education of students to use cross running in function of healthy life style. Since 1983, the program of education of students, future experts, has been held at the Faculty of Sport and Physical Education, about application of cross in PE instruction. The aim of this program is to educate students through an individual approach, coordinated with didactic requests related to load components in function of health.

Methods.

We applied a program of cross running of 6 weeks (two training sessions a week). The sessions were carried out on an official track, appropriate for cross running in the Kosutnjak woods. After the introduction with the track, an initial measurement was carried at a distance of 3600m for males and 2400m for females. Afterwards, based on the obtained parameters, an individual program was structured and it was realized by each student. After the applied program, a final measurement was performed within the competition „Open championship of the Faculty of Sport and Physical Education in cross".

Results and Discussion.

The program was conducted in the period from 1983 to 2008, among the students' population N=2701, of which 1914 males and 787 females. The results achieved at the final measurement demonstrated that male students can be classified in the category of „good endurance" (Cupper, 1971) based on average running velocity which amounted 3,66 m/s. However, the female students are on the edge of category "moderate" towards "good endurance" because their running velocity was 2,98 m/s. The results of the students display certain decrease in the last decade, which can be explained by greater influence of sedentary way of life, opening thus the issue of further tendency and necessity to offer them a program to eliminate such situation.

Conclusion.

Thanks to many-year theoretical/practical instruction, which referred to education of students from the field of cross, at the Faculty of Sport and Physical Education of the University of Belgrade, a standpoint was reached on necessity of application of the presented program among the students of other faculties. The use of running programs outdoors and modern individual approach would contribute to elimination of consequences of sedentary life style and would influence the overall improvement of students' health.

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The effect of two different intensity of aerobic training on high density lipoprotein subfrections and apolipoproten A-1 on female collage students

(oral presentation)

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Introduction

The aim of the present study was to determine the effect of two different intensity of aerobic training on high density lipoprotein subfrections (HDL_2, HDL_3) and apolipoproten A-1 on female collage students. The sample populations were 42 female with avreage of age (20.59 ± 1.46), weight (59.23 ± 8.82), VO_2max (25.34 ± 3.96), body fat% (15.425 ± 3.85), height (160.29 ± 4.75)and BMI (22.08 ± 3.41) kg/m². They were voluntarily chosen and divided into theree groups accidentally: control and two training group then asked not to take any medicine during the investigation time for 8 weeks and did not have any physical exercise . Nevertheless, there is little information on the effect of different intensity of aerobic training on high density lipoprotein subfrections (HDL_2, HDL_3) and apolipoproten A-1 on female collage students .Previous reports have noted that high-intensity training may improve HDL-C sub fraction profiles and apolipoproten A-1. However, there are no data on the effect of low intensity endurance training on HDL-C sub fractions in female collage students. In this study, we investigated the effects of low-intensity aerobic training on serum lipid and lipoprotein concentrations, especially regarding the HDL-C sub fraction profiles and apolipoproten A-1.

Method

Two training group for 8 weeks, 3 time per week under effected two different intensity of aerobic training including 80-90**%**maximal heart rate and 65-75**%** maximal heart rate. programs of one session of training was 5-10 min , warm-up with two different intensity of aerobic training including 80-90**%**maximal heart rate and 65-75**%** maximal heart rate. by different running, calisthenicsand jumping. Then continuous running with 80-90**%** maximal heart rate intensity. Time of continuous running per session was 20 min that add to intensity of continuous running per week. Total cholesterol and triglyceride concentrations were determined by the enzymatic method. HDL-C sub fractions were measurements by dextral precipitation Direction and Immune turbid omtry method.

Results

Data were analysed through descriptive statistics and analysis of variance ANOVA, Bonferoni post-hoc test. The results showed a significant increase in VO_2max ($p<0.05$). And no significant difference ($p>0.05$) in the values of HDL_2, HDL_3, and Apolipoproten A-1 by two different intensity of aerobic training.

Discussion

Most studies suggest that aerobic training is positively associated with increases in HDL_2, HDL_3, and apolipoproten A-1 in men. However, in women the relationship is less clear. The response of HDL_2, HDL_3, and apolipoproten A-1 levels will differ for each individual depending on the intensity,duration and frequency of exercise, the initial HDL_2, HDL_3, and apolipoproten A-1 levels,and the length of the training period. There may be an exercise threshold for exersice intensity, weekly amount of exersice, and length of the training period, that must be met before changes in HDL_2, HDL_3, and apolipoproten A-1 are evident. This has yet to be acceptably elucidated.(Wallace **,** 2006, Madsen**,** 2004).

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Influence Of Continuous And Dozed Exercising On Students' Corporal Status

(oral presentation)

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Introduction

In the researches so far the dominant problem in the period of studying is a sudden aggravation of corporal status due to apparent sedentary way of life. The consequences are not measured only by the degree of deformity manifested but also by functional deficit which is an index of destruction of whole body.

Methods

This research encompassed the sample of 106 students enrolled in the first year of studies. It involves two groups of students monitored from the first to the third year of studies. The first group (56) exercised according to the program predicted as compulsory and the second one (60) did not go in for any organized and continuous form of exercising.

The tests encompassing assessment of postural status and foot status (method of inspection, motor and functional status were used for assessment corporal status of students.

Results

At the initial measurements the results that were obtained show that the group of students not having regular physical activity (over 90%), manifested deformities with accent on spinal column and feet, which presents significant disturbances in functioning of the entire body. The group of students who is regularly involved in physical activity at the initial measurement indicates to percentage (over 60%) of presence of deformities also with accent on spinal column and feet, but with reduced quantity of painful manifestations. In the group which practices the factor of previous exercising is dominant because it affects the selection when enrolling in the first year of the studies. In the assessment of physical status by applying a battery of tests in the group of those who do not do exercises, a bad physical status was diagnosed, measurable by a deficit formed in a longer time period. Measurability of deficit indicates to development of destruction which significantly affects corporal status of the students. The students who continuously and organized went in for exercises point out to corporal status which is not on a satisfactory level, but has a tendency of development and formation in shorter time interval (between 6 and 12 months).

The diagnosed deficits are indexes of formation of a criterion in application of training technology in achievement of appropriate corporal status. Motor status of the group of students who do not do exercises shows a reduced working field of the muscular group, sore bone-joint system and deficit in the number of repetition of a stereotype movement. In the group of students who regularly use physical activity, the working field of the muscular group, rough muscular power and training of stereotype motor actions is more expressed..

The functional status, measured by heart frequency in peace and load is directly linked to postural and motor status.

The final measurement in the group of students without activities showed the aggravation of all the measured parameters and presence of the symptoms which overcome the significance of general corporal status and enter in the zone of disturbed health. In the group of students with an obligation to regularly use physical activities (minimum twice a week) the obtained results demonstrate the quality of application of training technology expressed in mobility of bone-joints system, reduced pain and beginning of breaking of stereotypes of more coarse motor actions and formation of creative, diverse kinetic program.

Discussion

Inactivity as a phenomenon of behaviour of a modern man is a measurable risk factor that seriously damages health. Imminent need of the body to function is movement (physical activity). The applied physical activity must be planned, dosed, designed, professionally led, measurable, continuous in order to attain the desired result which is evident.

By applying training technologies the aim of sport is achieved and the sense of sport fully gains its completeness of value.

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An Investigation Into effect of lower extremity muscular fatigue on the static balance from electromyographic aspect (poster presentation)

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Introduction

Currently, there are four major factors that affect postural control. Injury, chronic ankle instability, foot biomechanics, and fatigue all have been shown to alter postural control. More recently, fatigue has become a popular focus of research, examining fatigue and the relationship to ankle sprains and knee injuries with regard to altered postural control. Johnston by using isokinetic fatigue on the ankle, knee, and hip noted that fatigued individuals are at greater risk for injury because of loss of balance, and suggested that avoidance of fatigue and preconditioning may help limit injury (Johnston et al., 1998).

As demonstrated by most of the studies, fatigue does in fact have an impact on postural control. How large of an impact it has is a question that is always under investigation. The studies also presented that fatigue can have an impact on static postural control and dynamic postural control. The effects of local or peripheral fatigue in that fatigued local muscles such as the ankle plantar flexors when standing on the tip toes is not clear exactly how local muscular fatigue affects postural control (Patikas et al., 2002). The purpose of this study was to examine the effect of fatigue on the static balance of non-athletes by checking the ratio of the gastrocnemius to the tibialis anterior Electromyographic activity and the ratio of the biceps femoris to the rectus femoris Electromyographic activity.

Methods

11 male non-athlete students with the height average of 176 ± 3.5 Cm, the weight average of 71 ± 6.5 Kg and the age average of 22.3 ± 4.1 years old from Tehran University's Dormitory voluntarily participated in this research. Single Leg Stance Test was used to measure the body balance of subjects. Then the Harvard Step Test fatigue protocol was performed and then Single Leg Stance Test was used again. During these tests, the Electromyographic activity of gastrocnemius, tibialis anterior, biceps femoris and rectus femoris muscles were recorded. The Paired Statistic Test was used to compare the balance time and the Electromyographic activity ratio of the muscles.

Results

The results showed that fatigue of the thigh and leg muscles caused significant decreases in the static balance time of the subjects (pre fatiguing protocol, 24.2±5.1 sec; post fatiguing protocol, 20.4±6.3 sec: $P<0.05$). Also, the Electromyographic activity ratio of gastrocnemius to tibialis anterior (-2.10±1.82) & biceps femoris to rectus femoris (-1.05±0.72) was significantly increased compared with the time before the fatigue ($P<0.05$).

Discussion

The result of study showed that both the gastrocnemius and tibialis anterior Electromyographic activity decreased after fatiguing protocol however the Electromyographic activity ratio of gastrocnemius to anterior tibialis increased significantly during the post-test. Similar results have been showed in EMG activity ratio of biceps femoris to rectus femoris. From these results, it could be stated that during a maximal fatiguing protocol, both the agonist and antagonist muscle activity declines; however, the faster rate of antagonist decline needs to be examined. Further, it can be suggested that this may reflect a higher level of agonist and antagonist co-activation and probably a relatively opposing torque from the antagonist muscles at the end of the fatiguing protocol. Considering the fact that sport injuries are most probable to occur during the fatigue, it is highly recommended to offer some instructions to prepare the athletes for collation and resistance against the fatigue.

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Comparison of medial longitude arch among various sports (poster present.)

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Introduction

The relation between foot arch morphology (flat foot and pes cavus) and lower extremity injuries is controversial. Some authors have determined a relation between foot morphology and the incidence of lower extremity injury in army recruits, whereas others were unable to obtain conclusive evidence in athletes. Although, there are some data showing that sport specific training and repeated movements may have an effect on the arch index (AI) of the sole. An increased incidence of flat foot in runners and alpine skiers and subnormal transverse foot arch in soccer and tennis players have been reported (Klingele et al., 1993). As there are very few published reports comparing sole AI of participants of different sports, we conducted this study. The purpose of this study was to comparison the foot arch index and the navicular height to foot length measurements among long distance runners, sprint runners, swimmers and non-athletes.

Methods

Subjects of present study were 135 national athletes, 35 athletes per each groups, and 35 non-athlete students (table 1). All subjects volunteered from the university population and surrounding community. All subjects were without lower-extremity abnormalities or injuries at the time of measurement. Subjects were included in the study after informed consent was obtained. The arch index measured by using foot print and based on Staheli (Staheli et al., 1987) instruction (AI was calculated by division of the narrowest part of the sole by the widest part of the heel, then multiplication of the ratio by 100). The navicular height to foot length assesses to nearest 1 mm and normalizing medial longitudinal arch height to foot length. Obtained data analyzed by one-way ANOVA and with Tukey's HSD post hoc test.

Results

The results of this study showed that the arch index significantly differs between long distance runners and non-athletes as well as between long distance and sprint runners ($P<0.05$). Also, a significantly difference in navicular height to foot length measurements exist between sprint and long distance runners ($p<0.05$).

Table 1. Subject Characteristics

	swimmers	sprint runners	long distance runners	non-athletes
Height (cm)	183 ±3/2	180 ± 3/8	171 ± 4/1	174±4/5
Weight (kg)	78/6 ± 2/5	73/5 ± 3/2	57/4 ± 2/7	68/1 ± 5/4
Age (years)	22/3±3/7	23/6 ± 4/1	22/9 ± 3/3	23/8 ±2/7
NH/FL	16/91±/07	18/11±/05	15/31±0/4	16/59±0/6
Arch index	64/58 ± 19/14	51/39 ± 17/14	71/14 ±20/28	60/77±22/20

Discussion

This study was designed to evaluate sole AI and navicular height to foot length measurements in different sports. The AI of long distance runners was found to be significantly different from those of sprint runners and non-athletes. The AI was lowest in sprint runners and highest in distance runners. Also the navicular height to foot length measurements of long distance runners was found to be significantly larger than those of sprint runners. We could not find any study in the literature documenting changes in AI or foot arch types in relation to particular sports. The reason for the differences in long distance and sprint runners may be a coincidental finding, a sports related adaptation or that a low or high AI favours long distance and sprint runners. So that, in training program and shoes selecting for runners these specific characters must be considered.

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An Investigation Into The Relationship Between The Maximum Electromyographic Activity And Fatigue Of The Erector Spinae Muscles With Thoracic And Lumbar Curvatures (poster presentation)

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Introduction

There has been too many researches regarding the relation of back extensor muscles strength and the Thoracic and Lumbar Curvature, but there are some obvious conflicts in the results of such researches. On the other hand, it seems that except the strength, the endurance of back extensor muscles also affect the people's posture, on which there has not been any research yet (McConnell., 1993). According to these facts, the present research intends to investigate the relation of Maximum Electromyographic Activity (as an indicator of strength) and Fatigue (as an indicator of muscles endurance) of Erector Spinae Muscles with Thoracic and Lumbar Curvature.

Methods

18 male, healthy non-athletes took part in this research. Height average: 176.4 ± 4.9 Cm, Weight Average: 73 ± 7.8 Kg and Age Average: 25 ± 3.3**.** At the beginning the Thoracic and Lumbar Curvature of these people was measured through Spinal Mouse Instrument (made by Idag Co., Switzerland). Then, applying MVC Isometric Trunk Extension method, the maximum Electromyographic activity of Erector Spinae muscles was collected through RMS. At the end, with Trunk Holding Test (Modified Biering-Sorensen Test) the Median Frequency Slope was calculated with raw EMG Signals and was considered as an Indicator of Muscles Fatigue. The Erector Spinae Muscles electrode placement was done on T10, L1 & L2 vertebrae.

Results

The results of Pierson Correlation Coefficient statistical test show that there is not a significant correlation between Maximum Electromyographic Activity of the Erector Spinae Muscles and the size of Thoracic Curvature. But, a positive significant correlation between the Fatigue indicator (MF Slope) of this muscles and the Thoracic Curvature was observed. ($p = 0.022$, $r = 0.535$).
In addition, there is another positive significant correlation between Maximum Electromyographic Activity of the Erector Spinae Muscles with the size of Lumbar Curvature ($P = 0.043$, $r = 0.527$). But there is no observable relation between the Fatigue indicator (MF Slope) of this muscles and the Lumbar Curvature).

Discussion & Conclusion

Considering the results of this research, it could be stated that in Thoracic region, as the Erector Spinae muscles should counter the flexion caused by the passing of line of gravity from the front side of Thoracic Spine through permanent activity (Levangie & Norkin., 2001), so this is the Muscle fatigue which depends on the Thoracic Curvature size, not the Maximum Electromyographic Activity of muscles as a strength indicator. But in Lumbar region the line of Gravity passes the vertebrae bodies, and the Lumbar Curvature is mostly affected by the current changes of the Pelvic position (Kendall et al., 2005). Therefore, the Erector Spinae muscles have to counter the current changes of Lumbar Curvature which is affected by the current changes of Pelvic position. So, there is a relation between the Maximum Electromyographic Activity (as a strength indicator) of Erector Spinae Muscles and the Lumbar Curvature; not the Fatigue indicator of these muscles.

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Evaluation of postural status and general health of Birjand university students

(oral presentation)

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Introduction

It is shown that incorrect motor habits, weaknesses of abdominal and back muscles usually result in postural abnormalities, and these undesired alterations may affect social and family comunications. It is believed that modification of these abnormalities, specially in youngers, can improve general health of them.

Methods

Aim of this research was to investigate posture and incidence of spine status of Birjnad university students, therefore 87 individuals (44 girls and 43 boys) were randomly selected and their spine status was evaluated at the sport medicine laboratory of physical education department by using posture screen, Conformator apparatus, flexible ruler, and NewYork test. In addition, we measured the general health of participants by GHQ-28 questionaire of Goldber & Hilier. Comparison of genders and correlation of variables was determined by using Chi Square test and Spearman correlation coefficient respectively.

Results

We observed that degree of scoliosis ($P<0.04$) and lumbar pain ($P<0.01$) of girls is higher than boys, but there are no differences between their kyphosis and lordosis. In total participants, there was a significant negative correlation between degree of kyphosis and general health ($r=-0.26$ & $P<0.01$) and a significant negative correlation between degree of lordosis and physical signs ($r=-0.33$ & $P<0.004$). In addition, there was a significant negative correlation between degree of lordosis and housework ($r=-0.30$ & $P<0.05$), degree of kyphosis and upstairs ($r=-0.22$ & $P<0.04$), degree of scoliosis and daily physical activity ($r=-0.30$ & $P<0.004$). These results are indicator of important roles of physical activity in the prevention of postural abnormalities.

Discussion

This study revealed the relative distribution of posture abnormalities in the students and existence of negative relationship between general health and physical activity with this indispositions. It is beleived that lack of physical activity and sedentary life style can lead to muscular weakness and thereby improvement in pstural abnormalities (Carpenter, 1999). It is, therefore, recommended that students should learn relevant motor patterns, use standardized and safe equipments, apply principles of proper daily movements, and they must try to carry out regular physical activity in order to remove weaknesses of the abdominal and back muscles.

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A Comparison between a Morning and Afternoon Exercise Session on the Amount of Dehydration of Elite Speed and Endurance Runners in the Khuzestan Province (poster presentation)

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Introduction
The purpose of the study was to compare the effects of a single track training session in the morning and evening on the extent of dehydration on elite speed and endurance runners in the Khuzestan province. This study compared the effects of dehydration on endurance exercise performance in temperate and cold air environments

Method
In this regards, ten speed and five endurance runners whom were participating in the Khuzestan tryouts for the National elite track and field teams were selected. All the members of the team were selected as our sample population was limited to the elite runners and there were few subjects available. A semi empirical study was performed and the variation of circadian rhythm was determined via a pre-test and post test. The training programs of the sample population consisted of one speed and endurance training session which was designed by their coaches and carried out under regular conditions in the morning and evening. The temperature of the training hall was controlled at approximately 32^0 C both in the morning and evening. The obtained results were analyzed using a correlated t-test at a meaningful level of 0.05($p \leq 0.05$).

Results
On four occasions, 8 men (age = 24 ± 6 yr, height = 170 ± 6 cm, weight = 72.9 ± 11.1 kg, peak O_2 consumption = 48 ± 9 ml·kg^{-1}·min^{-1}) were exposed to 3 h of passive heat stress (45°C) in the early morning with deuhydration (EUH)] or without ((DH; 3% body mass) fluid replacement. Later in the day, subjects sat in a cold (2°C) or temperate (20°C) environment with minimal clothing for 1 h before performing 30 min of cycle ergometry at 50% peak O_2 consumption followed immediately by a 30-min performance time trial. Mean skin temperatures, heart rate, and ratings of percieved exertion measurements were made at regular intervals. Performance was assessed by the total amount of work (kJ) completed in the 30-min time trial. Skin temperature was significantly lower in the cold compared with the temperate trial, but there was no independent effect of hydration.

Discussion
Body temperature in both trials was higher than EUH after 60 min of exercise, but the difference was only significant within the temperate trials ($P < 0.05$). Heart rate was significantly higher at 30 min within the temperate trial (DH > EUH) and at 60 min within the cold trial . ($P < 0.05$). Ratings of percieved exertion increased over time with no differences among trials. Total work performed during the 30-min time trial was not influenced by environment but was less ($P < 0.05$) for DH than EUH in the temperate trials. The corresponding change in performance (EUH – DH) was greater for temperate (–8%) than for cold (–3%) ($P < 0.05$). These data demonstrate that *1*) DH impairs endurance exercise performance in temperate but not cold air but *2*) cold stress per se does not.Mean + 8,SD=0/17

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The Study of the Incidence and Influential Causes of Leg Pain among Iranian Professional Female Sprint and Endurance Runners (poster presentation)

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Introduction

The extra pressure of competitive exercises in championship sports leads to osteo-muscular system injuries. The factors contributing to the etiology of running injuries can be divided into extrinsic and intrinsic factors. Extrinsic factors include running terrain, running surfaces and running shoes. Intrinsic factors include age, gender, growth, weight and height. The aim of this research is to describe the incidence and influential causes (extrinsic and intrinsic factors) of leg pain among Iranian professional female sprint and endurance runners.

Methods

This is a descriptive research in which the researcher describes the information raised out of questionnaire which has been answered by the sprint and endurance runners. The statistical sample was 40 female runners that have been selected randomly and equally in two groups of 20 (All of them have been the champions of national track and field team. They have been exercised for at least three years and about six times a week and two hours at each time). The research applied statistical-descriptive methods to determine some features like frequency, percentage, mean, standard deviation, most and least amount of any variable such as age, height, weight, the record of exercise activity, number of exercise section, exercise hours, present of coach in warming up training, field type, leg pain and shoes type. Team physicians provided medical reports describing the nature of each injury. χ^2 tests ($p \leq 0.05$) and 95% confidence intervals were used to assess differences in distribution and incidence of injury, respectively.

Results

Statistical explanation of the research shows that the average age of sprint and endurance runners is 24.5 and 24.25 respectively. The average height of sprint and endurance runners is 158.95 and 162.15 respectively. The average weight of sprint and endurance runners is 52.8 and 52.05 respectively. The average record of exercise activity of sprint and endurance runners is 6.56 and 6.8. The average number of exercise section of sprint and endurance runners is 7 sections at each week. The average exercise hours of sprint and endurance runners are 2 hours at each section. There is a significant difference between the leg pain of sprint and endurance runners in comparison with number of their exercise sections. There is no significant difference between the leg pain of sprint and endurance runners and Tartan. The statistical analysis of research data reveals that the type of shoes used by sprint and endurance runners has a significant effect on their leg pain, because they use inappropriate shoes. The most common site of injury is calf which is estimated to account for 47.4% of sprint and 60% endurance runners and sole which is estimated to account for 31.5% of sprint and 42.1% endurance runners. The field type of sprint and endurance runners has significant difference with leg pain.

Discussion

Many injuries in athletes are the result of improper playing techniques and can be reduced by teaching proper skills and enforcing safety promoting rules. Improved conditioning and careful medical supervision of athletes will also minimize this type of injury. Changing to an unsuitable running surface (artificial track surface), wearing old shoes that lack the necessary cushioning or Wearing shoes with high heel-tabs are often factors. Frequent running on a hard and unsuitable surface puts additional stress on the leg. This condition result in mechanical shock, with joint and tendon overload, increasing the susceptibility to injury.

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The Effect Of University Sport In The Assimilation To University Life: An Australian Perspective (oral presentation)

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Introduction

The main focus of this study is to define, explore and evaluate the impact that sport has on the well being of members of a university population, and to examine the influence that university sport has on the well being of the individual university student, where members of the university community are drawn from multiple cultural backgrounds.

Methods

The study focused on members of a university community in an inner city university in Sydney. Via an examination of collected data, the literature and using semi structured interviews, the author examined some of the factors influencing student participation in university sport and subsequent impact on the individual's well being, their approach to study, assimilation into university life, and sports contribution to the individual's university success.

Results

The finding of this study identified both the positive and negative elements in participating in university sport, and provides various institutions and teaching staff with the tools to assist students from of diverse cultural backgrounds to adapt to the new university environment via the introduction of university sport to assist in the provision of a well balanced university educational experience.

Discussion

Students in the Australian tertiary sector are drawn from two sources – either that of international or local markets. In the most, university offers are made to applicants based on either academic performance, related work experience or a combination of the both; and all applicants are expected to have met predetermined academic standards. Elite athletes seeking university entrance are also required to meet the same academic standards as non-athletic students.

Students would typically enroll in a course of study as either a full time, part-time or correspondence student. Those in the latter two categories would generally be working full time in a profession that is aligned to their studies, or in another profession, with the intention of moving to a profession aligned to their studies. Full time and international students are usually carrying a full study load and working part time to ensure that living and study expenses are met.

The demands on current day students stems from direct and indirect sources, of which the student may or may not have control. As such it is not uncommon for today's students to be working and studying harder, subsequently increasing the risk of health issues and the likelihood of not succeeding as desired in their course of studies. A combination of university expectations, industry and family attitudes, personal ambition and practical and cultural difficulties, are all factors that impact on the well being of the student and it is in the successful self management and maintenance of life balance that impacts on the success of the student's university experience.

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Student`S Camp Of Healthy Life Stile In Serbia (oral presentation)

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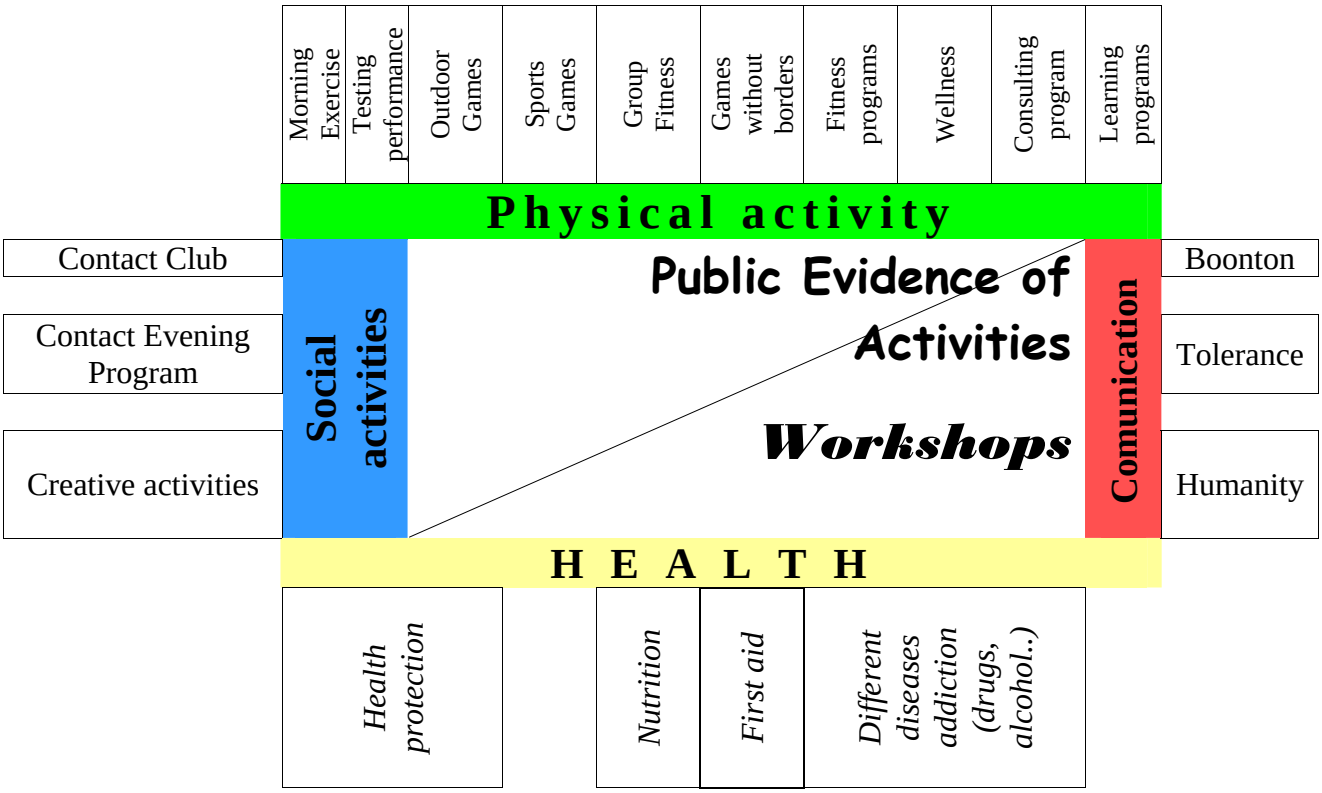
Today a big number of students are less using physical activities. Most of the time is dedicating to studies, exploring the literature, researches and exams. Preoccupation with the education and some exam obligations are not leaving a lot of time to do some sports recreational activities which can reduce stress, enlarge good mood and expand working capacity.
Main goal of student's camps is to promote healthy way of living where physical activity has dominant role. Attendance of the camps will be filled with large numbers of sports recreational programs in which students will have opportunity to overview their abilities and easer decide their real activity in their lives afterwards. Beside, the program has the role to make better communication, to increase religious and national tolerance, to increase humanity towards disabled, weak and old people. Educational and creative workshops are the basic ways of implementing day and evening programs. A concept of student's camps is shown in scheme 1, and is based to focus the energy of students in direction of active participation of creating and designing all programs with help of fully trained animators and instructors. Public evidence and active participation in creating a program are movers of activities and method to direct the energy of participants. Main target is that with expand number of activities we do the repositioning and stabilization of physical activities in one systematic regular exercising and to raze physical and mental abilities. Through health care and education they will get basic information about nutrition, first aid, different diseases addiction (drug, alcohol...). Project is based on cooperation of Ministry of education, youth and sport, and health, as government representative and Sports for All associations, Student parliament as non government representative. Faculty of sport and physical education and Association of experts in recreation, Student polyclinic with help of tourist agency would take care of direct realization of the project.



Sub Themes 3.

University Sports:
a Foundation for Fair Play and Ethical Values

Goal Orientations and Participation Motives for individual and team sport activity in University Students Athletes **(oral presentation)**

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Introduction

The sport and physical activity in life and for health points are very important, and when we are planning a program for students, need to better understand the motivation of young people in university for participation in sport and physical activity. Theoretical studies contribute to the understanding of motivation, and may also take into account the environmental and social parameters that influence sport participation or withdrawal (Biddle, Sallis, & Cavill, 1998; Kremer, Trew, & Ogle, 1997). The purposes of this study were 1) to identify gender-specific motivational factors associated with sports program participation and 2) identify participation motivation and goal orientation in individual and team sport and 3) relationship between goal orientation and participation motivation.

Methods

The sample of this study consisted of 480 university students (240 female, 240 male) that selected randomly. Instrument of this study were the Participation Motivation Questionnaire (PMQ) and Task and Ego Orientation in sport questionnaire (TEOSQ).

Results

The result of MANOVA showed that motives for participation in male and female athletes were the same only expect skill improvement. The finding showed that main motive of participants was affiliation. The result of MANOVA revealed that there were not differences between students (male and female) (Wilks'Lambada value= 0.980, F= 1.35, P= 0.224) of individual and team athletes in participation motivation and task goal orientation.

Discussion

So base on the findings, the most importance of athlete's motives for all participation in sport was affiliation. This finding is in accordance with the finding of Coetzee & Vilijoen(2002). It is therefore recommended that principals of extra curricular in the university pay more attention to provide opportunity for all of student especially athletes for doing physical activity and more participation in sports for affiliation needs.

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Case Study – Silvana Vukas, Clean and jerk Silver medalist at 1. Fisu World University Weightlifting Championship

(oral presentation)

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Introduction

Weightlifting is one of the oldest sport branches. The International Weightlifting Federation (IWF) was founded in 1905. At the first Olympic games in Athens, there were only male weightlifting competitions. Woman were included in the olympic program in 2000 (3). IWF organized ten world weightlifting universities championships, but 1. FISU World University Weightlifting Championship were organized at 2008. in Greece. Silvana Vukas from Serbia got silver medal in clean and jerk, and ranked fourth place at snatch and total. This is the highest success of our female weightlifting.

Method

Case study describes what had happened to someone at certain time and place. Our stady consists of five elements:

1. Identification of keynote about athletes
2. Athletes' history, development and actual situation
3. SWOT analysis
4. Identification of athletes' key problems
5. Recommendations on how to solve problems (2).

We used SWOT analyses (1) to discover internal (strenght, wikness) and external (opportunities, threts) factors that infuenced Silvana Vukas to get a medal.

Results

Silvana Vukas (category 63 kg), competitor of WL club „Partizan", national champion and records' holder, participated at First FISU World University Weightlifting Championship, held on 27.11.2008. in Komotini (Greece). Her result was: Snatch, 80 kg; Clean and jerk, 102 kg; Total, 182 kg.

Figure 1. Silvana Vukas (SRB), silver medal at 1. FISU World University Weightlifting Championship

Discussion/Conclusion

There are a few factors that influenced her results, out of which, the most important ones are reorganization of management and training proces.

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The Study of Leadership Behavioral Dimensions of Coaches in Vollyball championship of Iran Universities (poster presentation)

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Introduction

The purpose of this study is survey of leadership behavioral dimensions of Coaches in iran volleyball champion ship of Iran Universities.

Methods

The study was descriptive research and the statistical population included all of coaches and volleyball players. In the first stage of the development of the LSS (Chelladuri & Saleh, 1978) coaches and players responded to a standard questionnaire. SPSS software was used for analyze data. Statistical tests were Spearman Correlation Coefficient, Mann Whitney U, Tiny and Willcoxon test in the level of $\alpha \leq 0.05$.

Results

The greatest percentage of score was related to interpretation of player about coaches' leadership behavioral dimension which indicated positive behavioral dimension feedback during their training and instruction. Least score was related to dictatorial behavior dimension feedback of coaches. Table 1 shows these results.

Table 1. Results of difference between leadership behavioral dimensions of coaches about himself and view of players about behavioral dimensions of them.

Difference between Leadership Behavioral Dimensions of Coaches about himself and its comparison with view of athletics about Behavioral Dimensions of them					
Behavioral Dimensions	Exercise Behavior	Dictatorial Behavior	Democratic Behavior	Social Support Behavior	Positive Feed back Behavior
Test Results	Significant difference	Non-Significant difference	Significant difference	Significant difference	Significant difference
Difference between the view of athletics about Leadership Behavioral Dimensions Coaches and preferred Leadership Behavioral Dimensions of them					
Behavioral Dimensions	Exercise Behavior	Dictatorial Behavior	Democratic Behavior	Social Support Behavior	Positive Feed back Behavior
Test Results	Significant difference	Non-Significant difference	Significant difference	Significant difference	Significant difference

Discussions

The LSS could be used profitably in the analysis of coaching behavior and its effectiveness. For instance, leadership theory and research suggest that leadership behavior should be varied according to the situation and the needs of the individual. Because scales similar to the LSS are used in other fields, it would facilitate comparison with and extensions of research findings from those fields.

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Particular aspects of the students' as spectators at the handball games

(poster presentation)

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Introduction

The outcomes in the sport competition are influenced by few determinants. Courneya & Carron (1992) had developed a framework in which they try to include and organize these determinants, in the particular context of the home field advantage. In this idea one of the most powerful influenced is exerted by the spectators. The literature review presents few main topics developed by the researchers, and I want to mention here the motivation of being to the games, the emotions for the teams – attached or not, the aggressive behavior of the spectators, and the structure of the sport spectators. The first aim of this study is to identify the attitude of the students from the Physical Education Faculty toward the sport speciation, especially handball games, and than to compare the information with other traits presented in the literature.

Methods

The study was done by using the method of interviewing that is by applying a questionnaire with 15 items to a number of 282 students from three Physical Education and Sport Faculties from Romania, located in with well-known handball teams.

tzThe questionnaire topic represent a synthesis of the main topics on spectators in the literature of the filed, such as: the frequency reasons and the cost of participation to the games, the behavior of the students as spectator to the handball games, how do get the students get on the venue and where from do they get the information about the competition.

The information was analyzed with the statistical packages Excel and SPSS. So every item was developed together with socio-demographic aspects like age and gender. After this we compare the results from the three faculties and than with the traits of the whole population present on the venues at the handball games but not only.

Conclusions

As conclusions is interesting to mention that the student's attitude and behavior toward the handball competition is a little bit different, speaking about the level of the attachment for the own handball team, this in comparison with the population present on the venues.

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Comparison Anthropometric Characteristics of Bakhtiari, Arab and Roman ethnic groups Females students of the Khuzestan Province Universities

(poster presentation)

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Introduction
The objective of the current research is the cross- comparison of several anthropometric characteristics of non-athletic Females from the Khuzestan province selected from the Bakhtiari, Arab and Roman ethnic groups across various campuses across the city of Ahwaz and those of top-athletes from various fields.

Methods
The obtained results were then analyzed using descriptive analysis techniques in order to determine the frequency, the percentage, the means and the standard deviation of the group and inferential statistics such as multiple variances and MANOVA analysis in order to compare the study groups.

Results
There was a significant difference exists between the variables of height, extent of lower torso, and size of the hands and feet of the three groups selected.

Discussion
The obtained results indicated showed that the body suitability profile of female subjects from the Bakhtiyari tribe had a closer affinity to the profile of female swimmers and volleyball players.

Table 1. *Average of Variables for Female Students in the Khuzestan Province over All Three Ethnic Groups*

index			Arabs		Romans		Bakhtiyaris	
Variables		p	SD	SD	SD	Mean	SD	Mean
1	**Height(cm)**	0.043	5.613	159.6	4.889	158.5	5.018	160.0
2	**Weight (cm)**	0.070	8.566	56.63	8.703	54.35	9.384	56.53
3	**Extent of Upper Torso(cm)**	0.011	3.335	69.69	3.208	69.15	2.999	70.30
4	**Size of hands(cm)**	0.03	1.041	17.45	1.162	17.44	1.052	17.83
5	**Extent of lower**	0.151	5.493	95.58	4.010	94.78	4.738	95.88
6	**Length of foot(cm)**	0.023	1.542	23.77	1.441	23.50	1.377	23.99
7	**Shoulder Breadth(cm)**	0.525	1.857	36.10	20.006	36.19	1.671	36.35
8	**Ratio of upper torso to height**	0.971	0.022	0.04	0.017	0.04	0.019	0.04
9	**Body mass index(kg/m)**	0.274	2.964	22.21	2.882	21.60	3.240	22.03

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Students' Motivation For Participation In Physical Exercise And Sport Activities (poster presentation)

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Introduction

The fundamental changes that have occurred in the social and political life of our country have influenced generally our educational system, and particularly the physical education and sport at the higher schools. The purpose of this research was to analyze the students' motives to attend the classes in physical education and sport.

Methods

Pleven and the University of Architecture, Civil Engineering and Geodesy in Sofia. They participated in an Object of the research were 180 students (120 women and 60 men) at the Medical University in inquiry which included two sets of questions whose aim was to find out what the students' requests and motives to participate in physical exercise and sport activities are.

Results

In the first group the question "Would you like to take up sports and physical exercises?" was answered positively by 95.55% of the students and negatively only by 4.44% of the students predominantly women. When asked about their preferences for practicing sports, 54.44% of the students show interest in fitness, 47.77% - in swimming, 31.66% - in tennis and 24.44% - in sports games. In the second set of questions concerning the students' motivation for sport, the most highly rates the motive for preservation and strengthening of health, followed by development of physical qualities, relief from academic pressure, and avoiding the harmful consequences of immobility.

Discussion/Conclusion

On the whole the students want to attend the classes in physical education and sport, preferring fitness, swimming, tennis and the sports games such as basketball, volleyball and football . From the general motives the most highly rated are those for preservation of health, development of physical qualities, relief from academic pressure and having fun and pleasure during the classes in physical education and sport.

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Team Building - importance and application in the education of students as future managers (poster presentation)

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Introduction

In this time and age, physical activity is reduced to a minimum and, yet, it is well-known that insufficient amount of physical activity has been declared as a risk factor. (Mitić D. 2001). Students present a great risk group, as they are to enter the world of workforce. There is an increase in the so-called sedentary work habits, the monitor has become everything. In these stressful times, the contemporary man in this contemporary world has less and less time for himself and people around him. People are under the risk of becoming machines themselves. The life-style is such that physical activities have been reduced to the minimum, while some mental and psychological abilities are often abused to their maximum. There are various forms of student recreation which can lessen or annul the influence of negative factors the student population encounters on daily basis. In his work, Mitić D. (2001) defines the student recreation as a complex process capable of reducing the influence of negative life factors. Further, in practical work, it has several organizational forms, such as recreation over the semester (sports organizations, manifestations, field trips), summer holidays, winter holidays, camping, popular sport competitions... Various forms of TEAM BUILDING as a special form of student recreation are appearing more and more. Its primary goal is to develop team spirit, the feeling of belonging to a team and to bring communication to a higher level. At the same time, team bulding programmes prepare students as future experts to function in a team at their future work place. Content analysis of team building programmes indicates that each expert team should have an expert in physical education included in their programme (animators, fitness trainers, instructors of various activities). Physical culture experts are promoting healthy life styles, creating habits of excersising actively and regularly. In addition, as they are actively realising team building programmes, they must be acquainted with general and specific characteristics of the population they work with (age average, sex, the characteristics of work habits, the effects of team building programmes...).

Methods

Since there are various forms of team building programmes, there are also additional terms that provide a more accurate description of the programme content, for example FAMILY AND FRIENDS DAY, STAFF PARTY, TEAM BUILDING BRAKE, HAPPY HOUR. Characteristics and content of team building programmes were analysed.

Disscusion

Hence, it is possible to choose a programme for a suitable group of students, depending on the desired outcome of the programme. Based on the characteristics of the target group, there are programmes on water, programmes for increasing adrenaline level, competitive programmes, evening theme programmes.

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Sports Culture in College and Social Adaptability of the Youth

(oral presentation)

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Introduction

Social adaptability is an important part in talent training, because it is the combination of one's explicit behavior and intrinsic behavior. If one is good at social adaptability, he must be capable of being understood, being accepted by society, and his behavior going with his social status, himself being able to maintain a normal relationship with other people. An exploration into the influence of sports culture in college on social adaptability of the youth would be significantly valuable and of great importance for enriching college sports, promoting its social value and helping the youth in their socialization.

Methods

Taking sports culture of college students as the research subject, following biological, psychological and sociological theories, analyzing the influence of sports culture in college on social adaptability of the youth from the start point of social adaptability.

Results

Individual participation of college students in sports would not only help them improve their adaptability to the natural environment, but strengthen their psychological bearing capability, collective sense of honor and their sense of social responsibility, and promote harmonious development of human relationship as well. Sports culture in college contributes to learning and understanding of social behavior norms, providing more opportunities to take social roles, cultivating adaptability to social steps, and actively promoting individual socialization of the youth.

Conclusion

Sports culture in college is a conceptual work and behavioral pattern on campus aimed to improve physical and psychological well-being of the student, cultivating their social adaptability. Through physical and psychological participation, it would effectively help the youth improve their abilities modulating their emotions, forming a stable psychological state, maintaining normal human relations, and promoting their social adaptability.

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Challenges Facing Sport Development in Kenyan Universities

(oral presentation)

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Introduction

Sport is one of the characteristic features of a University calendar and the involvement in sport is both at recreational and competitive levels. However, the number of university students involved at either of the levels is very low due to a myriad of challenges. Thus, the purpose of this study was to unearth some of the challenges facing sport development in Kenyan Universities.

Methods

The study involved collecting data and information through documentary analysis and focus groups discussions (FGD'S) with sport tutors in 4 public and 3 private Universities in Kenya.

Results

Through the documentary analysis and FGD'S, It was evident that the following challenges have hindered the development of sport in Kenyan Universities. They include inadequate Human capital, Sport Infrastructure (facilities and equipment), Funding, Academic congestion, Rapid expansion of University education and the Kenya education system which is examination-oriented.

Discussin/Conclussion

In order for sporting activities in the Universities to meet their objectives, the following recommendations are made-: Sports to be equated with classroom work, Government and Universities to invest in sports infrastructure, Corporate sponsorship should be sought, Linkages with Universities should be explored and wholistic education should be emphasized at the Universities. Equally, Universities should open academic department which teach sport and government showed zero rate imported equipment for sport in the universities.

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Sociological aspects of University Sport in Albania

(oral presentation)

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Introduction

This study has the attempt to present the world of the physical culture and sport, as one of the possibilities offered to the new generations, for their reintegration in the contemporary society, to deal with most concerning problematic items in this area, also to suggest an optimal solution for all those problems of Albanian reality**.**This study, also tries to present the physical culture as the part of general individual culture and as a form of the social control and the socialization a democratic society.

Methods

This material, depending on items dealt with is traversed by the usage of the concrete sociologic methods, such as: testing, interviewing and questionnaire. These methods have been applied to the students of Tirana University, where have also been collected, selected and interpreted the various facts which directly have to do with the importance of physical culture and sport in the students life. What we aim is: having opinions and information on profitable effects that the physical education brings, not only for the individuals health, but also in the social plan and over.

Results

The questionnaire which has been completed by the students of Tirana University had the intention to emphasize the importance and the influence of sport and the physical culture in their lives, and to determine their relations with the different activities that students organize, including study preparations, walking out with your kith and kins, friends, watching TV, reading artistic fiction, etc. Since, the parietal's level and also the part taking of family members in the sport activities have their influence in youths forming process; the efforts are made to decode this report into young respondents. We have also defined the respective rubrics, to see what are the students' inclinations in certain sport disciplines, also the main motivations, which urge them toward the physical culture and sport. We have completed a rubric that shows us the reasons that impede students to join different sport activities.

Discussion

This study is divided into three parts, depending on the problematic issues dealt with.

In the first part are emphasized the principles of productivity, the principles of publicity and transparency, the hierarchical system or the organization aspects, as the essential characteristics of physical culture and sport, which is seen as a "mini" the social deflection of social relations", (Edwards,1973), that allow us to pass in an the objective sociologic analysis of this complex socio – cultural phenomenon.

The different classification of functions and the socio–cultural values (like those of the general and the universal character realized in special spacious and the temporal environments or the accomplishment of symbol of professional esthetic and total human attainment - Lenk,1971)or the consideration that we often meet in the literature of sport sociology, where the sport can be considered as a "microcosm of a big society", (Coakley,2001) or as a social institution, where many essential values of a society can be expressed through. All this occupies a considering of the second part.

In the third part, the special significance have: the problems which deal with the individual's opinions about free-time and the issues which deal with the cultural influences, about the leisure time attitudes; the individual education in order to manage their leisure-time in a creative way, for their relax and health benefits; the family influence in order to lead youths toward activities of an entertaining character, exploring different ways to keep them away from the contemporary bad habits.

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Sub Themes 4.

University Sports: a Foundation for Education and Academic Achievement

Choice of folk sporta and college sports in culture (poster presentation)

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Introduction

Physical Education is an important component of collegian, and is the optimal stage in which people could form the athletic habits and accomplishment. It has essential value for the formation of individual socialization. Folk Sports is an activity of culture heritage. The value orientation of College Sports should be based on social norms and individual needs and accord with humanity and moral standards. As the representative of Olympics, the Competitive Sports makes College Sports have a deviation. Multicultural selection is an effective way to maintain the development of sports.

Methods

Aiming at College Sports culture, from the perspective of Folk Sports culture, employing the methods of collecting materials and investigating and interviewing, analyze the common problems in the development of College Sports, study its essential connotation, and put forward the views on the development of its culture.

Results

As the Competitive Sports gradually becomes hotter, the problems of College Sports go into more complicated. It is the certain tendency to choose the multiplex directions in its development, and with great potential, Folk Sports is a cultural form which has being formed for a long period and accords with the basic elements of school sports. The feature of leisure and entertainment of Folk Sports can meet people's needs to relax themselves mentally and physically, since they are under the pressure of fierce competition. The traditional attribute of Folk Sports can easily be concerned and accepted by college students, and its spread in colleges' accords with the value orientation of college students and the formation of value of sports.

Conclusion

College Sports should try hard to expand its own influence, attract more students to join in, and set up school sports culture which suits the students' health mentally and physically. Folk Sports comes into the value orientation which accords with the individuals of students and coworks with the campus sports culture, which is beneficial for the students to establish the view of sports, and has practical and long-term significance.

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The Effect Of LPG Massage As A Complement Of Aerobics In Decreasing Womens Limb Circumferences (poster presentation)

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Introduction

Due to outstanding breakthroughs in science and development of industrial life in the last couple of years, the physical activities of human body have reached a minimum level and because of this we are facing various dilemmas. One of these maladies caused by industrial life is Obesity which is considered as one of the most important issues in the programs aiming to make a healthier community. The aim of this research was considering the effect of LPG massage as a complement of aerobics in decreasing limb circumferences.

Method & materials

For this purpose, 30 women from the western Tehran clubs who volunteered to take part in the research, according to Body Mass Indicator (BMI) , were classified into aerobics group and LPG massage along with aerobics group .The first group did aerobics for about 30 minutes with a maximum of 55 hearts beating in a minute (done increasingly, so that every two weeks the intensity of the exercises increased about 5 percent). The second group, after being massaged by LPG around their bellies, their sides, buttocks and thighs for about 30 minutes, they did aerobics for 30 minutes with a maximum of 55 hearts beating a minute (done increasingly). Each group did these exercises twice a week and through 8 weeks. Before and after these exercises, round the bodies (or limb circumferences) were measured by a tape-measure. For statistical analysis of these data, we used a statistical test called t-student (correlated) and a statistical test called (one-way ANOVA) at a meaningful level ($\alpha = 0.05$).

Results

The results indicated that both aerobics and LPG massage along with aerobics led to a meaningful decrease in limb circumference. Furthermore, these two groups had meaningful different effects so that LPG massage along with aerobics indicated more decrease in limb circumferences. Since aerobics had been done jointly by two groups, the main reason for decrease in limb circumferences is known to be these exercises effects because in such exercises, the more fat acids released in plasma, the fatter metabolism there would be, therefore the amount of fat decreases which leads to decrease in limb circumferences. But this decrease in limb circumferences, in group LPG massage along with aerobics has been more than aerobics alone. Since this mechanism facilitates the movement of inter – cellular liquid, so it's probably right if we say that the decrease in limb circumferences after using LPG mechanism is the result of decrease in inter- cellular liquid at mentioned areas.

Discussion

There is an outstanding difference between using LPG massaging device plus aerobic activity and aerobic activity alone, that is; getting aerobic exercises plus getting massage from LPG device is more effective in losing weight and eliminating that fats. We couldn't find a proper research connecting to this issue at hand but it seems that there are many factors in lessening the circumference of body organs.

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Strengthening PE Curriculum Reform, Promoting "Sunshine Sport Movement" The PE Curriculum Reform Theory and Practice of Harbin Engineering University (oral presentation)

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Introduction

In order to carry out the Acts--- The Decision of Developing Sunshine Sport Movement for Millions of Students Nationwide(Act1) and The Suggestion of Strengthening the Work for Youth P.E. and Promoting Youth Health(Act2) , all types of schools in China has carried out "Sunshine Sport Movement". This paper is speaking of the experiences of Harbin Engineering University (HEU) to promote the "Sunshine Sport Movement".

The History of PE Curriculum Reform and the Ideas of PE Curriculum of HEU

In 1978, HEU has carried out the Optional Courses for students to choose their favorite sport events. In 1998 and 2000, the first two rounds reforms have been carried out, focusing on which students should master one or two sport skills basically. In 2003, the third round reform has been carried out, exploring the "Curricular and Extra-Curricular Teaching Model" and "On and Off Campus Teaching Model" . In 2007, in order to carry out the Act 1 and Act 2, Club Teaching Model has been carried out to deepen the reform of P.E. curriculum in HEU.

The Practice of Harbin Engineering University

It cannot take effect without considering the actual situation and geographical characteristics of HEU to implement the "Sunshine Sport Movement". In the process of Sunshine Sport Movement", HEU complies with the ideas of which Sunshine Sport Movement" should synchronize teaching reform and should synchronize on and off campus sports activities.

To set up "Integration PE Courses" by implementing curricular teaching and extra-curricular teaching

Curricular teaching is that students according to their preferences and specialties to choose sports clubs where they have the rights to select teachers and class time. Extra-curricular teaching has different contents, such as rules learning, competitions, performances, skills improving. Students need to learn by themselves according to their preferences by using "Physical Education Electronic Learning System"

To set up teaching station for extra-curricular activities

To instruct students' learning, exercises and competitions by relying on teaching club and student's instructors.

To carry out on and off campus competitions in different levels

The PE department will guide sports associations and students organizations to carry out some small and diversified competitions in which a large number of students in different levels can involve.

To set up the outdoor club for students

By taking full advantage of the geographical and climatic characteristics of Harbin City, the PE department has set up canoe, mountain climbing, paintball, skating, skiing and other outdoor activities so that students may have the possibility to fully enjoy the nature and meet the needs of students' personality development.

To set up sport festival for students

Every year, HEU will celebrate a sport festival. Apart from common sports like football, basketball, swim, some Chinese recreational games will be held such as flying kite and campus orienteering. The festival will reach a climax when the HEU Sports Games takes place. In addition, sports science seminars, sports salon, sports photography show are also be held to enrich the cultural life for students.

Conclusion

In this paper, HEU would like to share the experiences of promoting „Sunshine Sport Movement" with FISU family members, international PE teachers and experts with the aim of creating a foundation for healthy lifestyle of students.

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The effects of Korean traditional dance on life stress, physique and physical fitness in adolescent female students (poster presentation)

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Introduction

In growing generation, It is important to keep genuine mental health for positive growth and well-matched growth of mind. Moreover, physical activities are indispensable proportion in youth for sorting out imbalance of development, an increase in stress and a decline in physical stamina.

Dancing activities affect growth enormously and attempt correct physical development. Furthermore, Those are effective exercise to make mental and physical health stable and promoted.

Even though, there are researchers about specific influence of dancing activities on mental and physical health(So byung-hyun, 2006), still insufficient about that effect of sustaining Korean traditional dance on adolescent female students' life stress and physical health. Therefore the purpose of this study is to examine how Korean traditional dance affects on life stress, physique and physical fitness in adolescent female students.

Method

Subject

For this purpose, subjects were sampled 76 healthy students without disease from female middle and high schools in B city, Korea. 38 students were Korean traditional dance majors who had done dance activities for more than one year and were practicing dance three times or more a week and over two hours a day and the other 38 students were not dance majors.

Table 1. The characteristic of subject

experience of dance(n)	year(yr)	height(cm)	weight(kg)	career(yr)
Korean dance(38)	16.6±0.54	160.55±5.71	53.91±5.83	5.23±3.6
non-dance(38)	16.4±0.66	159.46±4.53	54.13±5.96	0.00±0.00

Data processing

The data were collected by self-administered questionnaires to analyze reliability of questionaries, Cronbach's α was computed .85. In order to compare the two groups, paired t-test was performed using SPSS/WIN Ver. 12.0 and the significant level was set to α =.05.

Results and discussion

This study has found that low factors of life stress(personal problems, family problems, school problems and social problems) was significantly lower in the Korean traditional dance major group than in the dance non-major group(p<.05, p<.01). And Korean dance major group was superior to the non-dance major group in physique(sitting height : p<.05) and physical fitness(power, muscle endurance, Flexibility, cardiopulmonary endurance : p<.001).

Accordingly, this study has purposes as given below, to inquire effects of Korean traditional dance on life stress, physique and physical fitness in adolescent female students, to make them aware of importance and necessity of Korean traditional dance and to provide basic data to put self-management ability of health.

The results of study are congruous with opinion of Bae in-suk(2003) and Park sun-hee(2005). This study suggests that Korean traditional dance has an effect on adolescent female students' growth and development.

Conclusion

1. Korean traditional dance group was lower than non-dance group in Life stress(personal problems, family problems, school problems and social problems).
2. Korean traditional dance major group were higher than non-dance group in Physique(sitting height) and Physical fitness(power, muscle endurance, flexibility, cardiopulmonary endurance).

According to these conclusions, moderate dance activities for Secondary school students in their growth stage can have positive effects on their mental health(stress) and physique physical strength and ultimately develop abilities in self management of health.

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The Relation Somatotype Anthropometry To Physical And Motor Abilities In Girl Non-Athletic University Students (oral presentation)

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Introduction

Studies by Ross, Brown, Yu, and FauIkner(1977)Bale(1979,1980),Beunen,Ostyn,Renson and Vangervon(1977),Carter(1980),Gurses and Olgun(1984), Showed that the successful ones had somatotypes similar to those of outstanding older athletes. The purpose of this study is investigating relation between anthropometry and Body type endomorph, mesomoroph and Ectomorph with factors aerobic fitness, speed and power.

Method

The sample included 45 untrained girls, student Dezful Azad University (aged 19-28 years old) that invited to three groups 15, and each group indicate of the somatotype, 15 endo, 15 meso, 15 Ectomorph. Somatotype was measured through Sheldon and Heath-carter anthropometric somatotype method. Physical tests include: 45 meter dash; vertical jump; Medicinal ball throw; Havard step test. Data analysis was determined by the partial correlation coefficients.

Results

The results significantly demonstrated the negative relation Between Endomorph component with aerobic fitness and general speed respectively (r=-O/53; r=-50 P<O/05=0/043).The relation between body fat; body weight and aerobic fitness was negative (r=O/58; r=O/46 respectively P<O/05=0/001). The negative relation between body weight and foot and hand power is obtained (r=O/35; r=O/35; P<O/05=0/27).The negative relation skin fold fat with general speed is obtained (r=0/060; P<O/05=0/027).The Positive relation between body fat and hand power is obtained(r=O/049; P<O/05=0/027).The Positive relation between weight and hand power is obtained(r=O/049; P<O/05=0/027).

Discussion

The results indicate significant relations between somatotype and physical abilities in two items. Studies Fleshman, Reun,Claessens had verified negative relation between endomorphy and physical fitness factor except static strength and medicine ball put. endomorphy had negative relation with general body speed and foot power and no indicated significant correlation with aerobic fitness and hands power.it is expected negative relation between endomorphy and vo2max because overweight and high adipose are as restrictive factors of aerobic fitness but as noted no obtained significant relation between endomorphy and vo2max.however this correlation distincted in the relation body weight and skinfold fat with Harvard step test. Correlation coefficients 0/72 for fat and 0/62 for weight have indicated highly negative relation between body mass and aerobic fitness.

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Speed Running In The Athletic Event Of 100 M Flat To Students Faculty Of Physical Education And Sport (oral presentation)

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Introduction

In this research, we try to demonstrate of principal indicators in the 100m flat event, for to optimize the results in the sprint events. We believe that the evidence in the 100m flat girls' students, one of the indicators is the running speed 60m. The aim of this study was to examine, if there is a correlation between running the 100 meters for girls run by students and 7 seconds.

Methods

In the study we will see if the principals indicator's volume from the girls students from the Faculty of Physical Education and Sport sprint event, with an intensity of 95-100% influences or not the running speed on 7 seconds, in the preparatory period (autumn, 2008). The experiment was making on the group of 6 girls students in athletics, from Constanța, who has practice the athletics from 5-8 years ago from our faculty.

Results

The disperse of the values for the distance covered in maximal speed in 7 seconds and for the volume of the principal indicators from the sprint event realized on 30m., 40m, 50m, 60m and 80m, are normal (X±DS). In what CV is concern, we can notice that for the distance covered in maximal speed, the population of the values is homogenous and for the volume of the principal indicators in the sprint event, the population of the values is inhomogeneous; this can be due to the small number of the subjects which have been tested.

Table No. 1 Volumes in key indicators of the athletic event 100 m flat

Subjects	Age (yrs)	The distance covered in maximal speed on 7 seconds (m.)	The volume 30m (m.)	The volume 40m (m.)	The volume 50m (m.)	The volume 60m (m.)	The volume 80m (m)
A	18	58	2040	320	1500	1440	960
B	19	51	2040	320	1500	1440	960
C	19	48	1860	640	1200	960	960
D	20	49	600	160	1000	480	640
E	19	47	600	160	800	360	480
F	21	49	600	160	1000	480	640
$\bar{X}$±DS	19,3±1,03	50,3±3,98	1290±758,7 (*)	293,3±187,04 (*)	1166,6±287,51 (*)	860±494,2 (**)	773,3±212,66 (*)
CV		7,91%	58,8%	63,7%	24,6%	57,4%	27,5%

*) insignificant correlate with the distance covered in maximal speed on 7 seconds, p>0,05;
**) significant correlate with the distance covered in maximal speed on 7 seconds, p<0,05;

Discussion/Conclusions

In conclusion, we can say that the volume of the principal indicators from the sprint event 100m split (girl students), it's not sufficient in order to make the distance covered by the subjects in maximal speed in 7 seconds, longer; the 60m volume it's the only one that influence significant the speed on 7 seconds.

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Psychological training and informational adaptation in sport

(poster presentation)

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Introduction

During competitions, sportsmen might feel an emotional and intellectual mood that threatens all behaviors learned before. The aim of this kind of training is to prepare the sportsmen to competitive situations, by making them assimilate a number of operational and regulator techniques.

The theoretical and practical aspects concerning the psychological training and informational adaptation in sport are applicable to both sportsmen and students of the Faculty of Physical Education and Sport, which are at the same time components of University teams.

Objective

A new concept introduced in sports is the informational adaptation (F. Paraschiv, 2005, 2006).

Method

We often hear, especially during competitions, expressions like «over passed by the situation», «surprised», «speechless» etc. What do all this mean? That the competitor is physically unable to do it – maybe; that he is technically and tactically inferior to his opponent – that is possible too, although high performance sports it is quite unusual. But what do we do when the sportsman ends the competitions with resources of energy still available and with enough knowledge that would have permitted him to win?

We must find out the causes! One of them might be that sportsmen are unable to adapt to new and unknown situations, atypical in competitions.

Too much information kills information; while some reactions to unpredictable situations are involuntary, others are due to conscious thoughts. Those ones are influenced by one's capacity to receive, understand, evaluate and use the information given. That's why the rational and efficient behavior depends on the continuous flow of information and on the sportsman's capacity to predict the consequences of his own actions.

Discussion and Conclusions

The adaptation to this new situation is possible only if we know one's limits to assimilate information; if it's about the sportsman's informational adaptation; we have to be aware of certain parameters:

The quantity of information necessary in order to make a decision;

The speed of understanding information (information understood / time unit);

The exactitude of the information (the number of possible actions as a result of the treatment of information);

Accuracy (the quality of the decision made in connection with the objectives).

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The effect of exercise with low and high intensity on Changes of respiratory burst activities and neutrophils counts in judoiest (oral presentation)

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Introduction

Exercise has some known effects on immune system components and function but the reasons for and clinical significance of these effects remain largely unclear (Sean T Bryan,2001). Considerable advances have been made in exercise immunology over the last two decades, and it is becoming evident that many of the health benefits of regular physical activity may be directly related to activation of the immune system(Brian W Timmons, 2005). Purpose of this study was to compare the effect of exercise with moderate and high intensity on Changes of respiratory burst activities and neutrophils counts in college judoists.

Method

After obtaining Informed consent, 10 male college judoists of Shahid Beheshti University who had at least six months judo training did participate in this study**.**The (Means±SD) age, height, weight, body temperature, systole blood pressure, diastolic blood pressure and BMI of subjects were as follow: (23.65±1.66 yr, 176.10 4.98 cm, 75.80±9.89kg, 36.73±0.29 c˚, 11.99±0.24 mmhg, 7.83±0.25 mmhg and 24.35±2.15 kg/m-2). In this study, subjects, runs on a treadmill for 60 min at 45 % [low-intensity exercise] in first week and in second week run with 75 % [high -intensity exercise] Heart rate. Blood was drawn immediately before and after exercise. The data were analyzed using SPSS11.5 with dependent t-student test and statically significance was set at $P \leq 0/05$.

Results

The result showed that increase in neutrophil count was significantly after high-intensity exercise ($p<0/05$). But increase in neutrophil count was no significantly after low-intensity exercise ($p>0/05$). Increase in neutrophil respiratory burst activities was significantly after high intensity exercise ($p<0/05$). Whereas Increase in neutrophil respiratory burst activities was not significantly after low intensity exercise ($p>0/05$) (Figure1)**.**

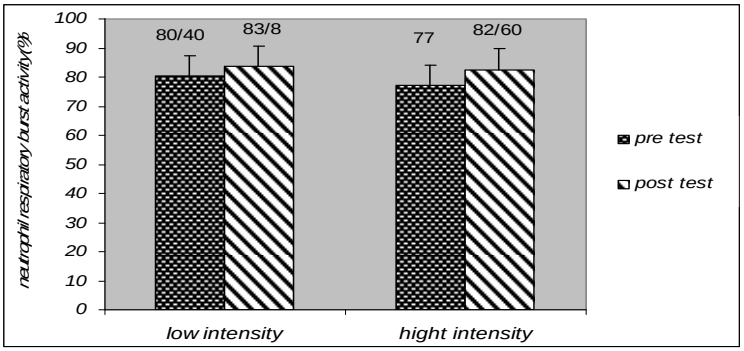

Figure1*. Neutrophil respiratory burst activity Pre and Post test*

Discussion

Physical exercise has numerous effects on the human body, including the immune system. Also high and low-intensity exercise make increase in neutrophil count and respiratory burst activities. Nevertheless increase in neutrophil count and respiratory burst activities in high intensity exercise is significant but effect of low intensity exercise on neutrophil count and respiratory burst activities is not significant.

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Comparative Study of Efficiency Evaluation in Physical Education and Sport Science Faculty with Other Human Science Faculties in Shahid Chamran University via Data Envelopment Analysis (oral presentation)

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Introduction
Main purpose of this research was efficiency evaluation of human science faculties in Shahid Chamran University via data envelopment analysis.

Methods
Methodology of this research was analytical descriptive, which was Performed field study. Five human science faculties of Shahid Chamran University including (physical education, economic, psychology, literature and theology) in a four years period were studied. The required quantitative data were collected from these units, after heightening were divided into input indices including “staff, budget” and three output indices including “education, research and services”. By performing the model in four different states, expected efficiency was calculated for each faculty.

Results
Results indicated that in the first state with two inputs and one output (education) was 100% efficient only for economic faculty, while for other four faculties this percentages was theology 82%, literature 78%, psychology 58% and physical education 50% respectively. In second state with two inputs and one output (research) was 100% efficient only for psychology faculty, while for other four faculties this percentages was economic 46%, theology 42%, literature 41% and physical education 20% respectively. In third state with two inputs and one output (services) was 100% efficient only for physical education faculty, while for other four faculties this percentages was literature 44%, economic 12%, theology 6/2% and psychology 4/3% respectively. In fourth state with two inputs and three outputs (education, research and service), all of five faculties including psychology, physical education, economic, literature and theology were efficient respectively.

Discussion
In spite of some limitation inherent in our physical education faculty, services presented to other section of university are much higher in comparison to above mentioned human faculties. This means significant role and social function of sport and physical education in university which can promote sport and physical activity in society and leading to development of public sport. Moreover, results of performing model in four different ways, indicated that this mathematical model (DEA) is capable of evaluating the performance of higher education correctly.

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Anthropo-morphological characteristics of students of the swimming specialization faculty of Physical Education and Sports Sciences of the Kapodistrian University with and without training or competitive experience

(oral presentation)

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Introduction

Apart from the other characteristics such as: physical ability, energy potential, swimming technique and tactics and so on, the morphological abilities constitute an important factor of success in swimming (Carter & Ackland, 1994; Thanopoulos et al., 2006). According to the studies planning and programming of the physical education and sports faculty of the Kapodistrian University of Athens, no previous training or competitive experience is required for the entry in the swimming specialization of the faculty. As the program of specialization of students is completed in two semesters with a total of 208 courses the success of this course depends also on other relative anthropo-morphological ($A_{nth}M_{orph}$) and functional parameters of the candidates. The purpose of this study is to establish the differences of the $A_{nth}M_{orph}$ characteristics of students of swimming specialization who had training and competitive experience in swimming (with experience) and those who had not (without experience).

Methods

The total sample of the research consisted of 67 students of the swimming specialization (males and females with and without experience). The structure of the sample was: 34 males (18 active male swimmers and 16 students without experience) and 33 females (11 active female swimmers and 22 female students without experience). The following variables were examined: Body Height (BH in cm), Body Mass (BM in kg), Body Mass Index (BMI in kg/m^2), Sitting Height (SH in cm), Arm Span (AS in cm), SH/BH and AS/BH Index (in Index Number). The candidates were measured in aquatic sports Laboratory using standardized anthropometrical procedures. Descriptive statistics, ANOVA and Student's t test were used for the statistic analysis.

Results and discussion

Referring to the male students, the results generally show that there is no statistically significant difference between groups at the measured variables because Wilks' Lambde value were = 0.667, at F_{value} = 0.785, and p = 0.135. But at partial level (level at single variable) difference was found in BH - F_{value} = 9.277, p = 0.005, and in Arm Span - F_{value} = 10.667, p = 0.003. The condition is the same in female swimmers where no statistically significant difference was found between the active female swimmers of the specialization and those without training - competitive experience, because Wilks' Lambde value were = 0.600, at F_{value} = 2.285, and p = 0.062. But at partial level also was found difference in BH - F_{value} = 4.177, p = 0.049, and Arm Span - F_{value} = 4.427, p = 0.044.

Conclusion

The results showed that between students of the swimming specialization of Physical Education and Sports Faculty of Kapodistrian University of Athens who were active swimmers and those who had no training and competitive experience, there is a statistically significant difference only in relation to Body Height and Arm Span. No difference was found concerning other analyzed variables. For the measured sample, those results showed that Body Height and Arm Span overbear and make general $A_{nth}M_{orph}$ characteristics advantage at students swimmers considering the other body characteristics.

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Technical – tactic structure of competitive activitz at Univrsiade 2007 in Thailand, Serbian female national volleyball team **(oral presentation)**

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Introduction

The object of the research in this paper is technical – tactical structure of competitive activity of Serbian female volleyball players at the University games in 2007 in Thailand. The basic aim of the paper was descriptive display of the structure of competitive activity of Serbian female handball players, i.e. defining of efficiency of the manifested elements of volleyball game at the aforesaid competition, while the secondary one was their comparison to other teams which played with them at the tournament.

Methods

The sample of the subjects in this paper includes 16 female volleyball players who were members of the university national team of Serbia, at Universiade 2007 in Thailand, observed on a total of six matches. The following six variables were observed: coefficient of service efficiency (KE_S), coefficient of reception efficiency (KE_R), coefficient of efficiency of setting for attack (KE_Se), coefficient of attack efficiency (KE_A), coefficient of block efficiency (KE_B) and coefficient of defence efficiency (KE_D). The stated variables were analysed by application of software – "Data Volley – professional 2.0.2", i.e. official FIVB software.

Results

The results indicated that descriptive values of the observed variables are: the average value, on the level of the overall sample, of variable KE_S is 50.98±6, 58, while the average value for variable KE_B is 51,48±5,88. For variable KE_D, average value, on the level of the overall sample is 57, 00±10, 36, and for variable KE_R is 78,90±9,93. The average value of KE_Se variable is 83,46±9,51; contrary to this the average value for variable KE_A is 55,60±7,25.

Discussion/Conclusion

Comparative analysis of the observed elements of volleyball game compared to their opponents showed that Serbian national team is differentiated by only three variables: coefficient of service efficiency (t=-2.904; df=46; p=.006), coefficient of block efficiency (t=-2.166; df=46; p=.036) and coefficient of attack efficiency (t=-3.703; df=46; p=.001). In the remaining variables there was no statistical significance in the difference between the mentioned teams.

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Significance Of University Sport In Evaluation Of Students' Physical Status

(oral presentation)

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Introduction

University sport pertains to those persons who committed to education and affirmation of social groups of intellectuals. Knowledge acquired at the University is improved, completed and directed by professional structures.

The standards determining modern life quality of a contemporary man are linked to sporting activities. Regardless of being professional, recreational or therapeutic exercising, this kind of activity is conditioned by standards of society development. University sport indicates the defects in development of standards, comfort, and life stile of the students. General significance is being more analyzed than readiness and achieved measurable quality. By analyzing the obtained results of the group of students who used sport, we acquired the data which are very significant as a starting point to determine which sports activities can be applied and in which way. Impossibility to go in for sports activities is mostly the reason of inactivity and of non using sports contents. Since the top sport at university is conditioned and determined by general level of sports culture, the obtained results are indices of how sport, as life phenomenon of modern man, is presented in the mission of healthy life as prevention.

Methods

In the research we used a questionnaire for assessment of educative level that determines quality of choice of sports contents and continuity of practicing of sports activities. A battery of tests, in the form of initial, control and final measurement was used for assessment of physical status. The sample of subjects included the students who frequent fitness centers on their own initiative, who used sports contents in an organized way as sports recreation, and those students who use organized exercise program as a compulsory school program.

Results

Based on the conducted poll in evaluation of knowledge level, the obtained results indicate that: the knowledge level is not satisfactory, the knowledge level indicates to a low criterion in selection of sports activities and that improvisation is present.

The stressed motive in exercising is esthetic appearance, weight reduction and pain. It is expectant that life comfort, life style and health promotion are motives. The lack of knowledge conditions the choice as a consequence and not as a cause.

When evaluating physical status, by applying a battery of tests, the index is clear that the values obtained in the function of cardiovascular system are not satisfactory and show chronic fatigue. The research result indicate a deficit which in a short time will become a serious factor of health deterioration. Deficits are measured by motor tests in both values of working field of the muscular group and in strength and endurance. This shortage is closely related to morphological, functional and postural status. The results obtained at the control and final measurements indicate to high degree of differences in quality of groups between those which have a compulsory subject and those who have a free choice of sports activities. The final tests give significant contribution to development of training technologies which can lead to attaining of the desired goal, i.e. adequate physical status of students.

Discussion

The significance of university sport is reflected in all sports dimensions in general. The results obtained in this research indicate that values that can be achieved through physical culture primarily have great importance in prevention.

The basic message of the University games is not the result in top sport, but is reflected in the life quality.

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Sub Themes 5.

University Sports: a foundation for sustainable universal development

Organization model and functional significance of orienteering as University sport at the Criminalistic and police academy in Belgrade (oral presentation)

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Introduction

Orienteering as a university sport presents a constituent in extracurricular activities in the Academy of Criminalistics and Police. The Orienteering Club was founded in 1997 and has so far had 436 members. During the 2005/06 school year, it had 85 members. Newly accepted members (first year students) finished the Initial Course in orienteering at the beginning of the summer term. The curriculum for this course was made by the national association of orienteering, based on the principles defined by Peter Palmer, a renowned orienteering expert in England. After qualifying on the Academy competition and other control competitions, they took part in the system of official O-competitions in compliance with IOF rules. Students of the last year of studies had a prominent role during the initial training course, since they acted as instructors, each in charge of 4 trainees, under supervision of the Police Topography professor. For practical exercise in orienteering techniques a number of maps of wider geo-space of Belgrade were used. Associates of the Special Physical Education Department also took part, to a certain extent, in designing the tactical performance.

Methods

The Academy students who are members of the Orienteering Club have, despite the complicated and demanding curriculum, projecting to up to 10 or 12 hours of training, both in the morning and in the afternoon, achieved results far surpassing those of a dozen other clubs active in the Academy. Among other things, as a team, they have won 7 second places at eight Belgrade University championships in M 21A (male students) and a second and third place in Z 21A category (female students). They have also won a first and three second places in M 21A category in the competitions for Belgrade University League.

Results

Preliminary results of the research performed by the author have established educational efficiency of orienteering in the educational process of the subject of Police Topography in the Academy and they also prove the co-relation between solving specific police topography tasks and motor abilities of Academy students, members of the Orienteering Club. Besides, certain orienteering techniques have been used for predicting successfulness in the training of Academy students and special police troops for performing police work in the field.

Discussion

It is important to point out the significance of orienteering skills for performing managerial tasks by graduated Academy students, especially in the preparation and carrying out of police actions and interventions in complex geo-space, time and security conditions. It was much easier for the Orienteering Club members who graduated from the Academy to acquire competence in the use of contemporary geo-topographic materials with UTM coordinate network and GPS devices, which was necessary for compatibility within the international policing framework, i.e. in the cooperation with civilian, police and military missions.

The overall achievement of Academy students - members of the Orienteering Club confirms the thesis that university sports present a foundation for education and academic success.

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High Performance Sports and Creativity

(oral presentation)

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Introduction

Any human subject has a creative potential, meaning a certain quantity of information and a number of operational structures, working procedures and skills.

Objective

Assuming that all creative actions are built on the creative potential, it means that it is essential to activate and develop this potential.

Among the most important creative attitudes, we count: the trust in its own forces, persistence, courage and valuable attitude. Concerning the question: can we teach creativity?

Theoretical considerations

Sports in general and sportive games in particular always confront players with new and unknown situations that demand quick and efficient solutions that have never been practiced in trainings before.

The sportive training has to be focused on developing a great number of aptitudes, procedures and skills based on creativity and supposed to give an answer to atypical problems.

The education of the students from The Faculty of Physical Education and Sport has the aim to transform momentary creativity into a form of induced creativity (more large and useful in exercises); this procedure is meant to reveal all latent creative behaviors, including group creativity.

B. Schwartz's answer is certain: yes, creativity can be learned. Though, some fetters might appear while teaching creativity during sportive trainings:

-traditionalism, that promotes outdated contents and actions

-trainers' old mentalities and their incapacity to change

-the refuse to do more efforts in order to conceive and organize training lessons which aim at the learning of creativity

-solutions that already exist are far more easy to use than creative ones that change permanently and request flexibility and capacity to adapt

Discussion and Conclusions

As a conclusion and at the same time as an argument for the need to develop the creativity of the students from The Faculty of Physical Education and Sport, we will say that a creative student has much more issues for atypical situations, his actions are considerably more difficult to predict by his opponents, he makes the game more spectacular and his chances to win increase.

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The Effect of Eight weeks Aerobic Exercises on the Mental Health (Depression, Anxiety, Physical complaint, Disorder in Social adequacy) of Men Student of Chamran University of Ahwaz (oral presentation)

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Introduction

The aim of this research was the examination of the effect of 8 weeks aerobic Exercise on mental health (depression, anxiety, physical complaint and disorder in Social adequacy) of Men Student of Shahid Chamran University of Ahwaz.

Method

This is a semi experimental study that has been done by experimental and control group. For evaluation of mental health the questionnaire GHQ-28 Cold Berg and Hiller (1979) was used and for aerobic fitness of sample the Cooper test was used. In this research the population of research was all men Student (n = 432) (mean age =22.35± 1.77) in physical education classes 1&2 of Chamran University. After their mental health evaluation with a 1.5 upper standard deviation of mean (mean=58±22.35) 70 students was selected and divided randomly in Two group of experimental (n = 35) and control (n = 35). Statistical analyze ion of data has been done by computer and SPSS program with the use of MANCOVA statistical method

Results

The findings revealed, aerobic exercise has a significant positive effect on mental health ($p < 0.05$=0/002), depression ($p < 0.05$= 0/004) and anxiety ($p < 0.05$= 0/000) because of comparing of scores of the two groups in post test by control of pre test indicate that practical group has shown lower score in this variables (mean mental health = 93.34±13.73) (mean depression= 20.54±5.79) (mean anxiety = 24.77±4.96) in compare of control group (mean mental health = 100.8±6.53) (mean depression= 23.85±2.41) (mean anxiety = 28.22±1.98).on the other hand the scores mean of physical complaint(mean = 22.31±4.33) and disorder in social adequacy(mean = 25.71±3.09) in practical group and the scores mean of physical complaint(mean = 23.11±3.56) and disorder in social adequacy(mean = 25.6±2.82) in control group by the control of pre test shows that aerobic exercise has no significant effect on physical complaint ($p < 0.05$= 0/575) and disorder in social adequacy ($p < 0.05$= 0/688). in this significance level

Discussion

Also there was effective relationship among aerobic fitness and depression and anxiety that development in aerobic fitness a companied with reduction in depression and anxiety. But there was not important relationship among aerobic fitness and physical compliantly and disorder in social adequacy.

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Preparation And Ogranization Of The „Elbrus 2008“Expedition

(oral presentation)

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Introduction

Management is defined as a process of planning, organizing, commanding, coordinating and controlling human, material, financial, informational and other resources needed to achieve its goals on the optimum conditions. Each mountaineering expedition is an event that required special planning and organizing, and when a disabled woman is a part of such a mountaineering expedition importance of this process is even more significant. Successful project accomplishment of the „Elbus 2008“ expedition organized by Federation of Disability Sport and Recreation from Belgrade and Extreme Sports Club „Pozitiv“ from Kucevo is a classic example of Disability Sports Event Management.

Methods

Main goal of this project is to demonstrate all aspects of preparation and accomplishment of the mountaineering expedition on one of the highest peaks in Europe – Elbrus in Russia. Therefore, detailed description of all activities from: organization of the expedition, methods of sharing the information through the media, sponsorship, and advertisement, press conferences before and after expedition are given. Direct performers of these activities are mostly students from University of Belgrade, first of all students from Faculty of Sport and Physical Education.

Particular attention was focused on direct physical preparation program of expedition members, among whom was Danijela Jovanovic, who was born disabled (without both hands and feet).Duration of direct physical preparation was three months . Cooper run test and Sit-up test for measuring abdominal muscle endurance were carried out before and after preparation period due to determine the level of Danijela`s fitness.

Results

Organization and preparation of the „Elbrus“ expedition required great number of activities and procedures needed to provide necessary conditions for its realization and the reports sent regularly by Danijela and her trainer Slobodan Stokic give the best picture of the realization. Apart of that test results of fitness abilities which Danijela took at the beginning and the end of the preparation for this event approved that her physical preparation was perfectly designed and realized.

Conclusions

One great mountaineering venture as the „Elbrus“expedition was, required detailed preparation and organization within the way of financing, public relation and conditional preparation. Specificity of this venture presents the fact that among the expedition members was a disabled woman.

A large number of people was needed for accomplishment of this project and dominate position among them was taken by students from University of Belgrade. Synchronized activities of the certain institutions which implied good organization and planning, successful marketing and great public relation work during the realization of the project as well as an expert approach to direct conditional preparation of the participants provided postulate for successfully accomplished expedition.

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Comparison of Physiologic, Body Composition and Anthropometric Characteristics Between Elite and Beginner Table Tennis Players

(oral presentation)

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Introduction

Researchers and experts in the science of physical education believe that each field of exercising and sport depending on the circumstances and its nature and also structural and physiological specifications of the players needs its own proper practicing methods for each individual.Physiologic and anthropometric characteristics are important factors in table tennis players that affects their performance. Our objective was to compare these features between elite and beginner table tennis players.

Methods& materials

A group of 40 subject, consisting of 20 beginner from students of three university of Tehran and 20 national elite table tennis players, enrolled. Variables included physiologic characteristics (anaerobic power [Margaria-kalaman and Sarjent tests] and aerobic capacity [brous tests]), body composition (weight, height,fat percent, lean body weight) and anthropometric (sitting height, upper and lower extremity length, arm length, forearme length and somatotypes). Findings expressed as mean ± SD and comparison between two groups was peformed whit students t-test.

Results

Almost all anthropometric and body composition characteristics were similar in both groups, except for endomorphism that was lower in elite players (2.3±1.06 vs. 3.18 ±1.23;p=0.04). Anaerobic power in margaria-kalaman test in elite subjects was significantly higher than beginners (123.02± 17.61 Vs 104.52± 14.2 kg.m/s; P<0.01). Anaerobic power in sarjent test in elite subjects was significantly higher than beginners (106.93± 12.6 Vs. 92.4 ± 11.7 kg.m/s; P<0.01). Absolute values of maximum uptake of oxygen in elite group was significantly higher than beginner group (2.84 ± 0.41 vs. 2.4 ± 0.44 L/min; P<0.01).

Conclusion

Elite table tennis players have higher aerobic capacity and anaerobic power than beginners, but their body composition and anthropometric characteristics are similar. Physiologic and anthropometric characteristics of Iranian national players are considerably lower than world or Olympic tabletennis players. Some factors can increases performance level of our players and decrease this gap: beginning professional training from childhood, considering Physiologic and anthropometric characteristics in selection of national players, and programming long time exercises based on up-to-date scientific methods. Further studies whit greater size recommended.

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Application of the sophisticated technologies in the training process of the representatives of the Republic of Serbia (students from the Military Academy) in Biathlon (oral presentation)

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Abstract
As in the sphere of the highest sport achievements exists the desire to achieve as optimal efficiency as possible as soon as possible, the same has happened recently in the training technology by using in integral, complex, interdisciplinary way all disposable known and unknown resources, in order to achieve the optimalization of the training process. Applying GARMIN sophisticated devices we managed to meet high standards requested in structuring and functioning of the training technologies for the representatives students from the Military Academy in the discipline – biathlon!

Introduction
Owing to the heart rate monitors (MHR), the control of trainig effects reached very high level. In Januarry/February 2009, on the mountain of Kopaonik was organized the training camp for the students representatives, who went there to train for the Balkans Championship and Euro Cup in the biathlon event.
Heart rate monitoring and determination of the aerobic threshold
The experience showed that most of athletes do not know very well their bodies in a way to know how they should exercise. By the regular unaerobic exercise, the lactic threshold can be increased at a higher level, whereby are established the conditions for top-level results achievement.
Training in the heart rate zones for biathlon athletes
Owing to the heart rate monitors, nowadays is possible to plan the appropriate programmes by using the concept of the heart rate target zone. The key of success is to find target zone that corresponds to the needs and tasks and to follow the designed training programme in order to increase capabilities to the maximum personal level.

Methods
In the applied training process the athletes trained as follows:
Aerobic zone 70-80% of the maximum heart rate, in order to achieve better overall condition,
Zone of the unaerobic threshold 80-90% of the maximum heart rate, and
Training in the red zone 90-100% of the maximum heart rate.

Results
The parameters we have got by using MHR are certainly valid and reliable indicators of directed planning, good programming and carrying out trainings for biathlon athletes. Since athletes realized their training with discipline and very correctly, tiredness and pains in muscles, breathing with difficulty and general fatigue, were appearing later and later, and they were capable to train longer with lower heart rate readings.

Discussion
Certainly it can be claimed with a great reliability that the future of programming, supervising and control of trainings and improvment of athletes (in individual sports), lies in the application of the sophisticated technologies, and that in the future will be imopssible to make some significant results without using these or some similar instruments. We think, above all, to the altitude differences and possibility to perform very hard in very difficult conditions. In this experiment was applied the main postulate of a good acclimatization: „train in altitude and sleep (rest) in plain“.

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University Sports in India and Present Scenario of Physical Educational and Sports in all level of Educational System- A Critical Analysis **(oral presentation)**

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Introduction

Intellectual Capability and Physical Efficiency is a backbone of any Performance. Correct and quick decision in appropriate situation and implemented through muscular system. Sports are a biggest platform through which a human being can evaluate him/her self and develop the adaptation qualities of Intellectual Capability and Physical Efficiency. University Sports are essential components of human resource development, positive impact on the holistic development of personality of the University Youth. It enhances the sense of achievement, national pride and patriotism, and national integration.

Vision

To start a mass movement of Sports participation involving youth for producing World Beaters in competitive Sports for India at International Sporting Events.

Mission

Spreading Awareness for building a strong sports base in Universities /Colleges.Educating Athletes on Injury and Drug awareness. Physical Education Syllabi, an integral part of prime education process influences the development of positive mental and social realization. Physical Education is not compulsory in the main stream of educational structure in India.

Level of Education

Kinder Garden, Primary School Junior High School, High School, Higher secondary school, College Level,B.PE (one year) & University Level.

Kinder Garten-It is a vital stage which learns the new stepping and free movement of a child's India there are a few numbers of kinder schools those which maximum are private recognized.Primary Level- No Physical Education as a curriculum subject. No Physical Education teacher No regular basis fitness program.Junior High School-Allotment of teacher is less than student strength. No written test only practical. In maximum school, there is no physical education teacher. High School- Only 50 marks allotted for physical education. The subject is not compulsory for class IX and X (most of the States). Maximum schools only one teacher appointed where not follows the teacher student ratio. Higher Secondary School 15-18 years is a vital age for all students. But there is no physical education as a curriculum and no physical education teacher is appointed. In this adolescence period there is no regular basic fitness program. College Level- Few colleges introduced physical education as a elective subject. Maximum lecturer appointed as a contact basis. B.P.E (one year)- After Graduation it is one year physical education course, more importance given their academic records than sports achievement during admission. University Level-some universities are not having qualified sports administrators. (I.e. Directors of sports) No long term coaching camp. No adequate infrastructure. Not organized inter collegiate or inter university tournaments. 293 affiliated Universities under AIU.Break-up of

Participants:

Sl. No.	Category	No. of Men	No. of Women	Total Participations
1.	All India Basis	39,134	12,091	51,225
2.	Three Zone Basis	31,158	21,982	53,140
3.	Five Zone Basis	67,708	28,592	96,300
	Grand Total	1,38,000	62,665	2,00,665

Suggession and Recommendation

To appoint physical education teacher/ physical personal in all level, Regular health record to be maintained.Compulsory theory and practical classes. Appointment of the teachers according to the strength of the students. Sports officer/ Director of Physical Education to be appointed. Offering physical education as an elective subject in all colleges. Participation in inter collegiate tournaments should be mandatory. Introduction of four years B.P.Ed degree like other professional courses. Appointment of qualified sports director, permanent physical education teacher. Organization of seminar, workshop, conference for promotion of sports. Introduce fitness program for all level.

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Dialectics of Youth Motivation to University Sports (poster presentation)

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Introduction

Rational management and monitoring of the motivation component create the required pre-requisites for wide-spread involvement of young people in students' sports. The BNTU has deservedly occupied the first place in the Republic Student Games among higher education institutions for the last ten years. The best BNTU sportsmen are granted an honour to represent our country at the Olympic Games. More than 50 BNTU-sportsmen are included in the National teams. The BNTU students go in for 36 kinds of sports and there are 33 University teams at the BNTU. Approximately 36% of students regularly participate in the All-Year-Round Students' Games.

Methods

In order to investigate motives of students' involvement in sports life we have applied an analysis of scientific and methodological literature, sociological questioning, questionnaire, pedagogical experiment.

Results and discussion

Data of our complex investigations have revealed that the motivation component has the following structure, namely: determination of motivation initial level; monitoring of motivation dynamics; the results to be obtained. Our investigation activity has made it possible to make a conclusion that such factors as: higher prestige and public significance of sports; optimum combination of processes pertaining to youth involvement in competitive relations; better students' knowledge about positive values of University sports; study of group and individual interests in respect of types and forms of sportive activity, are playing a rather important role in the motivation component formation. A pedagogical experiment has permitted to demonstrate distinctly content of external and internal persuasive motives. Research results have shown that a youth attitude to the University sports has a positive dynamics for the whole period of their study at the BNTU. The majority of respondents (93%) are sure of the fact that the University sports is incompatible with such bad habits as smoking, alcohol, drugs. Only 4% of respondents do not pay any attention to this issue, and only 3% of respondents can not give a definite answer. The sociological questioning has vividly demonstrated the most popular kinds of sports at the University, namely: games (37%), aerobics (28%), power games (23%), the rest kinds of sports (12%).

Conclusions

1. Development of the University sports requires a constant modernization of the education/training process, an introduction of health-saving technologies, that create objective and subjective pre-requisites for wide-spread involvement of youth in the University sports.
2. Rational management and monitoring of the motivation component makes it possible significantly to increase a number of students who are really interested in sportive activity, and it also permits to advertise positive popularity of the University sports.
3. Time has come to re-consider the content of taught and training programs which have to reflect integrated interests, requirements and inspirations of young people. Prospects of further investigations shall find their realization in development of practical recommendations on the basis of the obtained scientific data.

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The relationship between the malformations of the spine with the disabilities of blindness and deafness of the male university student (poster presentation)

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Introduction

The main purpose of this research is to investigate the relationship between the malformations of the spine with the disabilities of blindness and deafness of the male students in Ahwaz. Blindness and deafness belong to those limitations that can affect on physical posture. Usually, blind person during walking and ground touching, for prevention in contact with barriers, have an especial position on the neck and head. Also, deaf persons for better determination of voice stimuli, have side flexion on their head.

Methods

The research is a describing and analytic one which is done in a semi-experimental way. Statistical community included 262 people. The statuses of their upper bodies were measured from three sides: front, back and sides by expanse chess. And Adam test was used to identify scoliosis. Meanwhile all the tastes were asked to fill a question naira in order to identify and find out how they do their dairies and how they spend their free time. In the end, the findings were analyzed statistically through SPSS program based on described statistics. And K-Square test with 95% reliable coefficient and 5% error was used.

Results

The result showed that 82% of the blind and 72% of the deaf had abnormal state of the spine. 78% of the blind and 62% of the deaf had torticolis. 82% of the blind and 89% of the deaf had kyphosis. 93% of the blind and 61% of the deaf had Lordosis lumbar.70% of the blind and 61% of the deaf had Scoliosis. 85% of the blind and 62% of the deaf had suffered from forward head.

Discussion

This research showed relationship between vertebral column abnormality with blindness and deafness. This relation is debatable from different view. First, Because of children's disabilities, parents support them with more accuracy so this leading toward bad posture. Second, this person for the reason of fear from injuries, usually have compensate posture, so their skeletal and muscular system is not symmetric.

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Psychological correlates of exercise behavior among University students: a study at a major academic transition (poster presentation)

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Introduction

Considerable research evidence for the psychological benefits of regular exercise has been documented in the literature. Affective changes in the mood and emotional states of individuals have also been reported and related with healthy exercise behaviors. Looking for a closer examination of the processes implicated in the behavioral intentions and involvement in regular exercise, a major goal of this investigation was to study the psychological correlates of exercise behavior among university students in the transition from high school to university studies.

Method

The cross-sectional analysis of data from a larger prospective longitudinal study at a Portuguese university ("Universidade do Minho") is reported. Participants were first year undergraduate students from 44 different courses (N=1549; 669 male, 880 female), aged 17 to 47 years (M=18.6). Participants completed a theory guided questionnaire, containing self-report measures of exercise behaviors (past, typical, and actual), intentions to engage in regular exercise, attitudes toward exercise, perceived behavioral control, preparatory behaviors, mood states, perceived vulnerability, outcome expectations/evaluations (costs and benefits), subjective norms, as well as psychological measures of mood states, life orientation (optimism, pessimism), and general life satisfaction.

Results

Overall, the majority of students were not involved in regular exercise behavior (only 47% were regular exercisers), while 10, 6% did not exercise anytime/per week in the preceding six months, with a similar pattern of no exercise behaviors, per week, occurring in the preceding month (28.1%) and in the last week (48,6%). Significant gender differences emerged. Separate discriminant analyses, for each gender, revealed that engagement in preparatory behaviors, perceived vulnerability, perceived behavioral control, and pessimism were the significant group of variables discriminating regular exercisers from non exercisers (69,8% correctly classified). For female students, only preparatory behaviors and perceived behavioral control were the discriminating variables (69,4% cases correctly classified). Multiple regression analyses in the total sample revealed that intentions to exercise regularly were positively predicted by personal behavioral control, internal barriers to exercise, preparatory behaviors, psychological mood states (vigor), perceived vulnerability and subjective norms, with these variables explaining 42,2 % of variance in intentions of engagement in regular exercise. For the regular exercise group, such intentions were positively predicted by perceived behavioral control, preparatory behaviors, psychological vigor, life satisfaction and perceived vulnerability (explaining 34,2% of variance). Differences also emerged between distinct sub-groups "not involved" in regular exercise ("no exercisers at all", "ex-exercisers", "sporadic" exercisers and "intenders" of regular exercise behaviors).

Discussion and conclusion

The present study corroborate previous research on the relationships between behavioral, cognitive and affective variables associated with the performance (and nonperformance) of regular exercise behaviors. Support for the main hypothesis derived from psychological social-cognitive models of exercise adherence and behavior change was found (Bandura, 1997; Schwarzer, 2008). Results also point to the implementation of differential strategies targeted for changing specific psychological mechanisms, namely perceived behavioral control and self-efficacy beliefs, as well as preparatory behaviors, in order to implement intentions and goals of performance and engagement in regular exercise behaviors. Finally, it is concluded that the first year at the university seems to be an ideal target point or platform for changing, promote and increase healthy sport and exercise behaviors.

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Relationship between profiles of exercise history and performance on a fitness test: a case study of female university freshmen in Japan (poster presentation)

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Introduction

It is well known that the level of fitness decreases after adolescence. However, in the case of people who are used to regular sports and exercise as adolescents, their level of fitness may decrease at a slower rate because of their well trained exercise history. The purpose of this study is to clarify the relationship between profiles of exercise history and performance on a Japanese fitness test for female university freshmen in Japan.

Methods

Generally, the Japanese school system consists of four categories defined by age, elementary (ages 6 to 12), junior-high (ages 13 to15), high (ages 16 to 18), and university (ages 19 and over). Students can choose their favorite sports in each category. Eighteen female university freshmen were classified into the following four groups as per their exercise history: students who exercised more than three times a week on a regular basis while in none or one school category (Low experienced group: LG), two school categories (Middle experienced group: MG), three school categories (High experienced group: HG), and all four school categories (Super experienced group: SG). To determine the fitness level of each group, a MEXT test, which was established in 1999 by the Ministry of Education, Culture, Sports, Science and Technology-Japan (MEXT), was conducted. Handgrip strength, sit up, sit and reach, 2 m agility, 20 m shuttle run, 50 m sprint run, standing long jump, and overhand ball throw were tested. The experimental groups carried out every test after understanding the purpose and risk of each testing protocol.

Results and Discussion

The test results of each group are shown in Table 1. SG performed significantly better than LG in the 20 m shuttle run. HG performed significantly better than LG in the overhand ball throw and 20 m shuttle run. All the students had experience in a total of 196 sports, half of which (n = 98) involved shoulder movement, for example, basketball, tennis, volleyball, and badminton. Long durations of overhand shoulder movement in their exercise history may be reflected in the significant difference between HG and LG in the overhand ball throw. A high score in the 20 m shuttle run for SG reflects the effect of their training and exercise habits for over a decade. It is interesting to note that a high score in the 20 m shuttle run for HG may reflect the residual effects of their exercise history before they entered the university.

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Investigate and compile talent identification characteristics in men's climber's cyclists from the viewpoint of the experienced coaches of Iran

(poster presentation)

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Introduction
The purpose of the present study was to investigate and compile talent identification characters in the field of men's climber's cyclists from the viewpoint of the experienced coaches of Iran. Therefore, the researcher evaluated the viewpoint of the experienced coaches of the country, who attended the championship games of the clubs of Iran in June, 2008 and Taftan international tournament in March, 2008.

Methods
The research method was survey method and all member of population were studied in this research (n=100).The instrument used in this study was a questionnaire provided by the researcher with the constancy of 0/86. The raw statistical data were analyzed using EXCEL and SPSS software's and repeated measure dependant t- student at the *P* level of 0.05 ($p \leq 0.05$).

Results
The results showed that, the more important characters for elite hill cycling from viewpoint of coaches are: cardio respiratory endurance, muscle endurance, muscle strength, ecto-mesomorphy, low weight, Ectomorph, perseverance, psychological readiness (perseverance, self confidence and motivation), group cooperation sense, and respecting rules and regulations, respectively.

Conclusion
The general conclusion shows that for choosing persons for national teams and obtaining better results, talent identification and obeying one suitable pattern and acculturate cycling in the society is necessary.

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Control and physical loading in students individual exercise with fitness devices
(poster presentation)

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Introduction

The issues concerning individual exercises of students in the theory and practice of physical education have still not been studied thoroughly. That is why the purpose of this research was to facilitate the improvement of the ways for controlling and setting the physical loading in individual exercises with fitness devices, which have become quite popular with students in the last few years.

Methods

Object of research were 30 students from MU - Pleven, who for three months took part in experimental training programs with exercise bike, treadmill and cross-trainer. On the basis of the theoretical analysis and the specificity of work with such training devices allowing regulating the degree of physical loading and reading the time, pace and pulse rate, we developed and tested a 30-minute procedure of physical loading, working in intervals of 5 min uninterruptedly, noting that the pulse rate does not exceed the maximum permitted levels for the respective age, calculated with the formula 220 minus the age in years, and the intensity of the loading within the limits of 70-85% of it.

For the mathematical processing of the data obtained we used alternative analysis. The standard device (SD) in % is defined according to the formula:

$$SD = \frac{X_2 - X_1}{0{,}5 \,.(X_1 + X_2)} \,.\, 100$$ (Siris, P. Z. 1973).

Where X_1 и X_2 respectively the outcoming of the tested indices*

Results

The results of the research show considerate improvement in the physical fitness of the female students as for 77% of them it is good and only for 23% - slightly lower. The resultant physiological curves from the three fitness devices show gradual and undulate change in the pulse rate(Sd=-10,12%) during the particular program workouts but the values do not exceed the permitted levels for this age. Positive changes have also been noted in the increase rate of the researched indices for physical ability, these values being higher for the body weight(Sd=-6,08%) and the obesity(Sd=-6,09%), the jumping abilities(Sd=+5,02%) and the pulse rate (Sd=-10,12%) at the step-test. High increase rate has also been noticed in the other strength indices and the speed(Sd=-5,93%).

Discussion

The research has proved that the use of fitness devices and programs for working with them in individual exercises with the students is a highly-effective approach for improving their physical fitness and physical ability.

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Comparison of anthropometric and VO_2max parameters among elite and amateur junior wrestlers (oral presentation)

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Introduction

The ability to obtain and to use precise information regarding the anthropometric and physiologicalstatus of athletes is a fundamental issue in contemporary sport for at least two reasons: (*a*) a detailedinsight into aparticular athlete's status is neededto design an effective training programme and (*b*)to select athletes appropriately, because some characteristics(e.g., anthropometric length and breadth measurements) are almost exclusively genetically determined and can hardly be changed within thecontext of a training programme.

The purpose of this study was to comparison anthropometrical and VO_{2max} parameter in elite junior wrestlers participated in medvid international competition in 2007 (12 subjects) and sanandaj amateur junior wrestlers (30 subjects) as a samples.

Methods

The variables was consisted of standing and sitting height, hands length, biacromial breat, arm length, VO_{2max}, anaerobic thereshold and BMI, which the anthropometric characteristics were measured by anthropometric standards method and VO_{2max} was measured by CONCONI test. Analyzing data to compare between groups was used of student T-test with probability level of 95% ($p<0.05$). And following results were concluded:

Results

There was no significant difference between anthropometrical characteristics variables. There significant difference between VO_{2max}(0/041) and anaerobic thereshold (0/001). in elite group height was 173.95 versus amutor group171.88, length of sitting height 91.1 versus 88.55 ,length of open hands 177.35 versus 176.09 width of shoulder 45.6 versus 46.6 diameter of breast 98.3 versus 95.3 length of arm 36.35 versus 36.67 length of forearm 27.4 versus 27.13 length of thigh 45.6 versus 46 diameter of thigh 57.3 versus 55. when compared to amutor junior wrestlers.

Discussion

The results of present study was indicated the importance role of the VO_{2max} and anaerobic thereshold factors in wrestling. And it emphasized the importance of paying attention to such experiment of the coach and atheletes. The anthropometric profi les of rowers of varying ages and ranks were assessed with regard to skeletal robustness (body height and mass, length and breadth variables), muscle development (arm,leg and chest girths) Anthropometric variables weren't different among elite and amutor junior wrestlers.

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Basketball players and wrestlers academical status in Serbia

(oral presentation)

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Introduction

Twenty years ago, most of the basketball players and wrestlers, and athlethes in general, in Serbia (ex SFRJ) were students. Nowadays, athleths are stimulated, before all financially, for up-keeping topflight results, which requires to devote themselves to sport completely. For that reason, it can be asusumed that small number of them is interested in academic titile acquiring. The aim of this stydy was to investigate today top-rated Serbian basketball players and wrestlers academical status.

Methods

In the sample of 312 basketball players (48 from NLB league, 120 from Swislion league and 144 from I B league) and 110 wrestlers the questionnaire was conducted about their academical status. Basic questions were: is athlete styding something, on which faculty is studying and what year of styding were they.

Results

In basketball teams which are playing in NLB league, 27% of basketball players are students, in Serbian Swislion league 45% of basketball players are students, while 44% of players in I b league are students. From total number of basketball players, most of them are studying some of business or managemant faculties. On the contrary, 40% of Serbian wrestlers are students, with 60% of them who are studying some sport and physical education faculties.

Conclusion

Number of students among basketball players and wrestlers is approximately equal, except NLB league basketball players. Wrestlers are maily determined for sport studies, meaning they see their future existence in sport. On the other hand, basketball players in Serbia see their present life in professional basketball pursuing, and future life in some other spheres, before all
business and managemant.

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Sub Themes 6.

University Sports:
open session

Relationship between the forward head and kyphosis disorders with the psycho-health among the male staffs of Saderat bank in Dezful (oral presentation)

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Introduction

Human resources are important in all society. Maintains and development of physical and psychiatric health of staff in any country is sensitive responsibility which carry on of this topic is debatable usually. The aim of this research was review of the relationship between the forward head and Kyphosis disorders with the Psycho-health among the male staffs of Saderat bank in Dezful-Iran. In this research Psycho-health symptoms, were including anxiety, sleep disturbances, social functions and depression.

Methods

So, all of the male staffs of Saderat Bank (150) were the statistical society in this research and they were evaluated through New York physical test techniques according to three levels, low, average and serer, for forward head and kyphosis disorders. 115 of the testes were recognized for the case in a way and they were considered as a statistical sample. They filled up the GHQ-28 psycho-health questionnaire. We manipulated the Pierson correlation coefficient with an error of $\alpha=0/05$ and the one way variance analysis and the kronbach alpha approach to calculate the validation coefficient.

Results

The results show that there is a positive and meaningful relationship between forward head disorder with psycho-health, stress and sleep disturbance, social function and depression ($p=0/0001$) but there is no meaningful relationship between forward head disorder and physical symptoms ($p=0/093$). Meanwhile, there is a meaningful relationship between kyphosis disorder and psycho-health, physical symptoms and depression ($p=0/043$), but there is no meaningful relationship between kyphosis and stress and sleep disturbances and social function ($p=0/134$).

Discussion

There results show that the forward head and kyphosis can endanger the staffs' health. Kyphosis abnormality if doesn't correct, can cause contracture in breathing muscle, reduction of breathing volume and problem in inspiration and expiration. Also, forward head can cause many problems like weakness of vision, premature fatigue, impatience, anxiety, stress and ultimately leading to reduction in daily activity and social function.

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Relations between motor abilities and performing of free elements in rhythmic gymnastics **(oral presentation)**

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Introduction

Relations between motor abilities and sports performing were widespread investigated. Those relations for different sports and for rhythmic gymnastics to, differ according to specificity of sports techniques and ages. Level of those differences determines limits for selection of tests.

Methods

Developments of basic motor abilities, as well as improvement in performance of specific free elements in rhythmic gymnastics were monitored during four years period of time, on the sample of young rhythmic gymnastics competitors. Rank correlations among data were determined for 10, 11, 12 and 13 years aged subjects separately.

Results

At 10 and 11 years of age, jumping ability correlates significantly with stag leap, while flexibility correlates significantly with split leap. At 12 years of age, coordination and agility correlates significantly with all elements or most of them. Hip extensors strength significantly correlates with stag leap, balance elements and combination of elements, jumping ability with most of jumps, some of balance elements and combination of elements, while flexibility correlates significantly with split leap and some balance elements. At age of 13, agility correlates significantly with almost all elements, jumping ability with some jumps, pivots and combination of elements, while flexibility correlates significantly with some jumps and balance elements.

Discussion

Correlations significance among analyzed data growing with ages. Applied tests of motor abilities differently correlate with different groups of elements, as well as with elements in any group. Some tests of motor abilities do not correlate with performing of free elements.

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Influence of some relevant anthropological manifestations on crawl swimming sprint performance (oral presentation)

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Introduction

The basic aim of this research is to establish the influence of some anthropological manifestations and crawl sprint swimming.

Methods

The sample of examinees included 13 swimmers from SC “NSA-Water Sports” from Sofia and 11 swimmers from SC “Niš 2005” from Niš, all cadet category (age 14-15).
The crawl sprint swimming performance (criterion variable) was evaluated according to variables: 50m crawl sprint swimming, first 25m in 50m crawl sprint swimming, 25m in 50m crawl sprint swimming and % of difference between first and second 25m in 50m crawl sprint swimming.
Predictor variable system was presented by flexibility tests sugested by Metikoš et. al. (1989) (sholder retroflexion and hyperextensions on the bench), morphology tests (height amd weight) and biography data (age and born age).
The multidimensional regression analysis was used to establish the influence of predictor on to criterion.

Results

Results at swimmers from Niš. Predictor variables could predict criterion variables from 46% to 77%.
Results at swimmers from Sofia – Predictor variables could predict criterion variables from 15% to 63%.

Discussion

According results, it could be concluded that the same set of variables have different influence on crawl swimming sprint performance on different samples.

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Effects of acute creatine and caffeine supplementation on high-intensity intermittent performance in club basketballers of Khozestan province

(oral presentation)

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Introduction

Obviously, athletic performance during the competition is the most important aspect of sports. However, if athletes are able to practice and train harder at higher intensities in preparation, the competition outcome is usually better. In fact, high-intensity interval training (HIIT) is becoming more-and-more popular and effective for increasing performance.The aim of this study was to determine the effects of acute creatine and caffeine supplementation on high-intensity intermittent performance in club basketballers of Khozestan province.

Methods

Therefore 32 club basketballers were assigned to 1) Creatine group (Cr: 5 g of creatine monohydrate 4 times per day for 5 d), 2) caffeine group (Ca: 400 mg caffeine, 1 hour before post-test), 3) creatine and caffeine Group (same dose of creatine and caffeine), 4) placebo group (same dose of starch as creatine placebo and 1 glass of coffee as caffeine placebo). Repeated High-Intensity Endurance Test (RHIET) which it was included 6 set of completed 5, 10 and 15 meter shuttle run on 30s intervals at 0:00, 0:30, 1:00, 1:30, 2:00, and 2:30 min, was done two times.

Results

Results showed that Cr, Ca and CC supplementation compared with pre-test significantly improved performance time and fatigue percent (α=0.05). Cr, Ca and CC groups significantly reduced performance time and fatigue percent greater than placebo. No significantly differences were observed between Cr, Ca and CC groups in performance time and fatigue percent.

Conclusions

Creatine and caffeine are probably the two most scientifically studied nutritional supplements, and the results are largely conclusive that these ingredients work to improve athletic performance . Therefore, Game Time is best taken 30 minutes prior to practices, training sessions, or games. In fact, perhaps the most convincing evidence that really sets Training Day apart from other nutritional supplements.

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The reliability of body density with methods: body mass index, skin fold thickness, bioelectrical impedance based on relevant method (hydrostatic) in men athlete's swimmers from Ahvaz city (poster presentation)

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Introduction

The aim of this study was to assess body density with methods: body mass index, skin fold thickness, bioelectrical impedance based on relevant method (Hydrostatic) in men athletes' swimmers from Ahvaz city.

Method

The research method was semi experimental. Subject was 25 swimmers that selected randomly (N=150).they have avarage age 19/50 years and avaraje body mass (BM) was 85/50 kg and body height(BH) was180/30 meter. Analyses were conducted with Pearson correlation and paired sample Students' t test and SEE and TE .SD age=2/2,SD weight= 6/8, SD height 9/8.

Results

The finding indicated that significant differences were shown between skin fold stout for swimmers. Also there was a significant difference between body mass index and hydrostatic weighting in this group. technical sources of error in these methods were minimal for the group as a whole, or the errors were in opposite directions and tended to cancel. In some individuals, however, relatively large variations between methods were observed, which depended on the skinfold equation used Therefore, no significant differences were found between bioelectrical impedance and hydrostatic weighting swimmers (P=0.064, R=0.924, SEE=2.91, TE=3.01).

Discussion

A further finding in our study was that BMI had poor sensitivity for identifying individuals with high body fat. This was also reported by others . BMI is a commonly used index of adiposity, particularly in epidemiologic studies. In the present study, high correlations between BMI The overall result of study revealed that bioelectrical impedance for swimmers was more appropriate methods to determine %BF than the other methods investigated in this study.

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The effect of whey protein supplementation without and combined with shock training on muscle strength and body composition (oral presentation)

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Introduction

Plyometric training is also known as "shock training." It was developed by Yuri Verkhoshansky in 1977. Plyometric training is when a person performs explosive movements which generate large amounts of force quickly. The aim of these exercises is to increase concentric power output by lengthening the muscle prior to the contraction. This will produce greater force through the storage of elastic energy

Whey protein is the collection of globular proteins that can be isolated from whey, a by-product of cheese manufactured from cow's milk. It is typically a mixture of beta-lactoglobulin (~65%), alpha-lactalbumin (~25%), and serum albumin (~8%), which are soluble in their native forms, independent of pH. Whey has the highest biological value (BV) of any known protein

The purpose of this study was to examined the Effect of whey protein supplementation without and combined with shock training on muscle strength and body composition

Methods

Twenty soccer players (mean +/- SD age, 13 +/- 1.9 years), divided into (2) experimental group, group1 -10 soccer players take whey protein and performed the shock training for (10) weeks , group2 -10 soccer players performed the shock training for (10) weeks only) , the researchers used Bioelectrical impedance analysis (BIA) a method for estimating body composition, Dynamometer' for estimating the(leg – back) Muscle Strength, The tests was measured before and after the program

Results

The results indicted that improvement significantly between the pre and post measures for the (2) experimental group in strength tests (- and body composition for group (1).

Table (1) difference between the post measures for the (2) experimental group

VARIABLES	EXP. GROUP 1	EXP. GROUP 1	SIG.
leg Muscle Strength	78.23 ,± 5.15	73.86 ,± 6.24	**SIG.**
back Muscle Strength	65.32 ,± 4.39	59.09 ,± 5.36	**SIG.**
Fat %	19.28 ,± 5.11	23.09 ,± 4.36	**SIG.**
Lean body mass	30.17 ,± 3.45	31.67 ,± 3.21	**Not SIG.**

Discussion

This study assessed the effects of whey protein and performed shock training for (10) weeks indicated that most variables were significantly increased in the experimental group (1) ,

Optimum 100% Whey Protein won the Supplement Of The Year and Protein Powder Of The Year award for 2005, 2006, 2007 and 2008! Since the very beginning, Optimum Nutrition has raised the standard by which all other whey protein supplements are judged

Male athletes including whey protein as a dietary supplement during strength training showed more increased lean tissue mass and knee extension than male athletes without dietary supplements(1).

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Effect of mental toughness training on athletic coping skills and performance level of reversal among elite young wrestlers (poster presntation)

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Introduction

Practical sport psychology is about developing mental toughness by teaching and practicing proven methods with players and coaches. Sport psychology has several goals for teaching these mental skills, including enhancing performance and increasing enjoyment . In wrestling we learn through physical conditioning to become physically tougher through the sport. You learn to work through pain, muscle soreness, and fatigue. In essence you become a tougher person through the sport of wrestling by never quitting. By definition the word toughness means strong and resilient and able to withstand great strain without tearing or breaking. Wrestlers that endure are tough by definition, so the
Next step is to turn this physical toughness into mental toughness to optimize one's potential on and off the mat (Rushall, 1989). The purpose of the present study was to investigate the effectiveness of mental toughness training program on athletic coping skills and performance level of reversal among elite young wrestlers,

Method

Twenty-five male (age = 15.3 ± 1.9 yrs) wrestlers from the Dammita clubs participated in this study. They were randomly assigned into two groups: experimental group (N=10), who exercised mental toughness for (8) weeks, 40 min daily, three times a week; control group (N = 10), who continued their traditional training without mental toughness training. And (N = 5) as a pilot study. the researcher used the Athletic Coping Skills Inventory (ACSI-28); (Smith et al. 1995) coping with adversity , peaking under pressure, goal setting/mental preparation, concentration, free from worry, confidence and achievement motivation, coach ability, and The Psychological Performance Inventory (PPI) is a 42-item self-report instrument designed to measure factors that reflect Self-confidencę, mental toughness. Six items subsume each of the following seven factors: Visual and imagery control, Motivation levęl, Attention controļ Negative energy, Positive energy, Attitude control.

Results

The results indicted that increased significantly between the pre and post measures for the experimental group in mental toughness (174.75 ± 2.98 – 159.13 ± 3.11 degree) and ACSI-28 determinations (73.88 ±3.05 – 77.25 ± 3.17 degree); add performance level of reversal movement (6.53 ± 2.14 – 7.94 ± 2.27 degree)for the post measures

Discussion / Conclusions

Mental toughness is a learned skill that can be acquired through habit and practice. It involves using your mind to achieve victory over your environment. Mental Toughness is essentially giving yourself the right messages in critical times stress, hence allowing you to withstand great strain without breaking (Jon McGovern, 2007). Our study demonstrated that (8) weeks of mental toughness training program affected in significant improvement in Athletic Coping Skills Inventory (ACSI-28) Psychological Performance Inventory (PPI) and performance level of reversal movement .

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Psychological characteristics among elite athletes in hall sports (boxing-gymnastic- fencing) (poster presentation)

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Introduction

It has been suggested that applied sport psychology interventions should be founded on a basis of theory and research (Hardy, Jones, & Gould, 1996; Lane & Terry, 2000). it has been proposed that sport psychologists can enhance performance by enhancing psychological skills (Lane & Terry, 2000). The present study focuses on the comparative the psychological characteristics between boxers, gymnastics players and fencers.

Method

Participants in this study were (55) players, female boxers (12), male boxers (24), female gymnastics players (11), male fencers (8) , most of players members in Egyptian national teams from gymnastics training centres Through Egypt.

Measures

1 – ***Test of Performance Strategy:*** TOPS is a 64-item measure of psychological skills. Thomas et al., 1999 determined Factors are common to training and competition except negative thinking for competition and attention control for training. Items were rated on a 5-point scale anchored by never (1) to always (5). The four-items were summed to produce factors scores, meaning that factor score could range from 5-20.

2 - ***Athletic Coping Skills Inventory:*** ACSI-28 is a 28 items arranged in a four-point Likert format. Smith and Christensen (1995) determined seven ACSI-28 subscales, coping with adversity, peaking under pressure , goal setting/mental preparation , concentration , free from worry , confidence and achievement motivation , coach ability

3 - ***The Psychological Performance Inventory :*** (PPI) is a 42-item self-report instrument designed to measure factors that reflect mental toughness. Six items subsume each of the Attention control Negative energy, Self-confidence, following seven factors: Visual and imagery control, Motivation level, Positive energy, Attitude control.

Results

The results indicted that: Significantly different between boxers, gymnastics players and fencers in ACSI-28 for boxers. (T) Significantly different between boxers, gymnastics players and fencers in PPI for gymnastics players.(T). No significantly different between boxers, gymnastics players and fencers in TOPS. (T) Mean totally. Some subscale not significant.

Discussion / Conclusions

If sport psychologists are to try to enhance psychological characteristics, measures of self-efficacy should relate with performance nature. Results of the present study demonstrated a moderate relationship between psychological characteristics and performance nature. This finding is consistent with meta-analysis results of Moritz et al. (2001),

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Effect of functional strength training on bone metabolic markers, certrain physical variables and kinematic analysis of the Harai-goshi judo technique

(poster presentation)

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Introduction

An adaptation is an enhancement of bodily movements, resulting in aesthetic or athletic improvements. Functional training is old news in the sports and rehabilitation world, but it wasn't until just a few years ago that it really came to my attention because I started seeing it catch on in a big way inside our health clubs. All of a sudden, the trainers had medicine balls, core balls, core boards, rubber tubing, stability balls, rollers and foam pads all over the place, whereas just five years ago, there wasn't a ball to be found in the entire joint. The purpose of this study was to examined the Effect of functional strength training on bone metabolic markers, certain physical variables and kinematic analysis of the harai-goshi judo technique.

Methods

Twenty young judoka (mean +/- SD age, 13 +/- 1.9 years), divided into (2) group (experimental group -10 young judoka) and (control group -10 young judoka), the experimental group performed the functional strength training for (10) weeks . The tests was measured before and after the training program , bone-forming metabolic markers; serum procollagen type I C-peptide (PICP) levels; bone alkaline phosphatase (B-ALP) content; bone resorption markers, urinary pyridinoline (Pyd) and deoxypyridinoline (Dpd) levels. Kinematic data were collected by the Peak Technologies Motion Video Analysis System.

Results

The results indicted that improvement significantly between the pre and post measures for the experimental group in balance, power tests, bone alkaline phosphatase, serum procollagen type I C-peptide,urinary pyridinoline and performance level of harai-goshi judo technique

Discussion

Experimental results indicated that most variables were significantly increased in the experimental group only, after functional strength training program. the training program which designed and implicated on the experimental group were affected and improvement this variables. Exercise is not just important to general health, it helps build bone mass in youth and slows down bone loss in adults. Exercise is also a factor in helping to reduce the risk of falls as it strengthens muscles, increases flexibility, and improves coordination and balance. During physical activity bones receive messages that they need to work and be strong. When there is a lack of exercise, bones do not receive these messages and lower bone mass can result.Both research and anecdotal evidence suggest that functional strength training leads to better muscular balance and joint stability, which in turn results in fewer injuries and increased performance. Current research shows that using natural, continuous, and integrated movements incorporating the use of gravity along with your own body weight or free weights is the best approach to building strength.

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Evolution Of Somatic Indices, Physical And Techniques A Team Of Football Players With Children Aged 10-12 Years (oral presentation)

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Abstract
The paper aims to determine indicators of somatic development, physical and techniques over a two years to a group of football players with children aged 10-12 years.

Introduction
We want to see how the improvement of training at this age may lead to further positive development of children. We believe that the improvement of training can significantly increase the level of physical indicators and techniques to a group of children 10-12 years.

Methods
In order to prepare our study we fixed the following tasks:
• developing and implementing an operating system level football player aged 7-8 years
• development and application of battery of tests to check the preparedness of the group (Waist; Weight; Speed - 10.20, 3x10 m; driving the ball race 32 meters; Long jump instead of; Ups; Keeping the ball in the air strikes with both legs alternative; Shoot bears in the area fixed. The player drives the ball and şutează from 10 meters to bear the full. Must shoot over to the gate (gate size of 5 / 2 meters); Care on aisle. Care on aisle (10 executions). It traces a long corridor of 15 meters and width of 15 meters. The player must hit the ball across and to send from one part to another corridor
• data collection and interpretation of our research and verify the effectiveness of applied
The data were collected at the beginning and at the end of the study period, and showed significant ($p< 0,01$, $p< 0,0005$) greater gains for experimental group.

Discussion and Conclusions
The comparisations made in the group regarding the technical performance shown up the differences between the initial test and the final test on all the technical data tested.
Comparisons made within the group as regards somatic performance, physical and technical have highlighted significant differences between tests(the initial test and the final, $p <0,0005$). We believe that progress is due to the means used by our practice. Significantly better results obtained by children from these tests confirm the hypothesis came to work.

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Evaluation Of Consecutive Maximum Contractions As A Test Of Neuromuscular Function: Reliability And Generalizability (oral presentation)

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Introduction
The standard strength tests (SST), based on a sustained voluntary exertion of maximum force of relevant muscle groups, have been widely used to assess neuromuscular function. In particular, the SST involves either the maximum isometric or concentric contraction exerted either against a single force transducer or standard isokinetic devices, or against an isoinertial load (often known as 'one repetition maximum' tests). However, numerous functional movements are based either on relatively brief actions of particular muscle groups (e.g. rapid discrete movements such as reaching and repositioning objects, or postural corrections), or on consecutive actions of antagonistic muscle groups (walking, running, throwing, kicking). Therefore, SST may not capture the neural activation typical for a number of important natural movement patterns. Hence, Suzovic et al. (2008) recently conducted a preliminary evaluation of a novel test of neuromuscular function based on consecutive maximum contractions (CMC). The purpose of this study was to evaluate (i) the reliability of CMC as well as (ii) to generalize previous findings across different muscle groups.

Methods
Twelve male sport and physical education students were tested over three separate sessions. Within initial session participants performed three consecutive trials of SST of knee extensor muscle, as well as the paced isometric CMC (i.e., a series of consecutive maximum force exertions and relaxations). Following the initial session, two subsequent trials were performed after two days and six weeks, respectively. In addition, thirty six subjects performed the same tests of four different muscles (i.e., knee flexor and extensor, and elbow flexor and extensor muscle). Variable derived from SST provided the maximum voluntary force and the rate of force development, while CMC (exerted at self-selected frequency) revealed the peak force, and the rates of force development and relaxation. Intraclass correlation coefficients (ICC) and coefficients of variations (CV%) were used to assess the relative and absolute reliability, while a principal component analysis (PCA) was employed to assess the relationships among the dependent variables obtained from different muscle groups.

Results
The evaluated tests revealed both a high within-day (i.e., ICC, > 0.90; CV%, range 1.8-8.1%) and between-day reliability (i.e., ICC, > 0.80; CV%, range 4.1-12.3%). The PCA performed separately on both tests (SST and CMC) revealed factor structures that suggest a high level of generalizability of the individual dependent variables across the tested muscle groups. Finally, despite being about 20% lower, the peak force obtained from CMC highly correlated with the maximum voluntary force of SST.

Discussion and Conclusion
The present data suggest that the variables derived from CMC could be as reliable as the variables obtained from SST. Moreover, in addition to presumably capturing muscular action typical for rapid and/or consecutive action of antagonistic muscle groups, the peak force could also assess the maximum voluntary force exerted during a sustained contractions. In addition, obtained findings of PCA suggest that variables derivate from CMC could be generalized across the various muscle groups. Although the external validity of CMC still remains to be explored, the present findings support further development of CMC into a standard test of neuromuscular function.

Acknowledgment
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Evaluation Of Bidirectional Consecutive Maximum Contractions As A Test Of Neuromuscular Function (oral presentation)

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Introduction

Standard strength tests (SST) are based on sustained maximum contractions that do not sufficiently capture neural stimulation phenomena that dominate many important natural movement patterns, particularly those involving consecutive actions of antagonistic muscles, rapid discrete movements, or postural corrections. The aim of the proposal was to conduct a preliminary evaluation of bidirectional consecutive maximum contractions (CMC) as a test of neuromuscular function.

Methods

Moderate physically active participants (N=24) performed isometric CMC in directions of knee extension and flexion at prescribed frequencies that covered the interval of 1-2 Hz. Peak forces (PF) and the maximum rates of force development (RFD) in both, directions were recorded. The standard isometric strength tests of the muscle groups were also performed, as well as the following standard maximum performance tests: 30 m sprint test with lap time 10m, Margaria staircase test, countermovement jump test, maximal power output in squat jump, and the Wingate test.

Results

The most of the measured variables demonstrated high values of intraclass correlation coefficient in the first session (ICC>0.8) and moderate to high values of the test-retest ICC (ICC=0.6-0.91), while the corresponding within-subject variations (CV) under 10%. The exceptions were the knee flexion PF at 2 Hz that revealed not only a somewhat lower ICC, but also higher CV. Furthermore, the results revealed a moderate to strong relationship between the corresponding variables of CMC and SST (r=0.60-0.92). Finally, a moderate relationships were also obtained between the most of CMC variables and the applied maximum physical performance tests (r=0.50-0.75).

Discussion

Overall, the results suggest high reliability and acceptable external validity of CMC variables. In addition to capturing the muscle actions based on different neural activation pattern than the standard strength tests, the advantages of BD-CMC could also be based on simpler testing procedure, lower force exertion, as well as on a more efficient testing procedure (i.e. two muscle groups are 'captured' within the same trial). Therefore, these results suggest that CMC could be developed into an alternative and/or complementary test of neuromuscular function applicable across a number of clinical and sport related areas. Future studies should evaluate CMC performed at self-selected frequency, as well as explore their concurrent validity over a larger variety of functional performance tests.

Acknowledgment

This study was supported in part by a grant #145082 from the Serbian research Council

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Isometric and isokinetic muscle strength evaluation following ACL reconstruction in elite athletes: Pilot study (oral presentation)

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Introduction

The anterior cruciate ligament (ACL) injuries are among the most serious disabling injuries associated with athletic activity. Despite the applied treatment methods (i.e., either conservative or operative), a lengthy rehabilitation procedure has to be not only performed, but also closely monitored. Various methods, mostly based on application of isokinetic dynamometry have been used for the assessment of neuromuscular function, but their potential advantages and disadvantages still remain to be explored. Although, the Hamstring-to-Quadriceps (HQ) strength ratio, as one of the frequently used variables, has been shown as a good predictor the functional ability of the ACL deficient knees, it is still debatable which testing conditions result in the most favorable outcome. The aim of this study was to compare HQ ratios (used to assess muscle quadriceps and hamstring strength of operated and non-operated leg) obtained from three strength assessment tests.

Methods

Six competitive athletes with recent (3 to 6 months following the surgery) ACL reconstruction participated in the study. The concentric knee flexor and knee extensor strength of both legs was assessed by an isokinetic dynamometer under three different conditions. Following a familiarization, the tests were performed within two consecutive sessions. The HQ ratios were derived from the knee flexor and extensor peak torques exerted at 0º/s (isometric), 60 º/s and 120º/s of the injured and non-injured leg.

Results

The ratios were lowest under the isometric conditions (0.81 for operated and 0.51 for nonoperated leg), and highest under 120 º/s conditions (1.21 for operated and 0.84 for nonoperated leg). Although HQ ratio was systematically lower in operated leg under all three conditions, the significant differences (between HQ ratios of operated and nonoperated leg) were obtained only for the knee flexor and knee extensor strength recorded under the 60 º/s conditions.

Discussion and Conclusions

The HQ ratio derived from under the 60 º/s conditions could be more sensitive in capturing the differences in the neuromuscular output between the injured and non-injured leg than the same variables obtained under either the isometric or 120 º/s conditions. The findings of this preliminary study could serve as guideline for a prospective longitudinal study based on a similar set of variables that could provide a valid normative set of data that could serve for future monitoring of the applied rehabilitation procedures.

Acknowledgment

This study was supported in part by a grant #145082 from the Serbian research Council

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The relationship between the peak force and rate of force development and ralaxation (oral presentation)

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Introduction
The standard strength tests assess capacity to exert high force of isometric and isotonic contractions while many functional movements are based on brief 'force pulses' exerted in either discrete (e.g., postural corrections, pointing) or cyclic movements (walking, running, cycling). Requiring high forces may be painful or unsuitable for some populations, the standard strength tests may not capture the activation model of short muscular actions. The aim of this study was to estimate the relationships between the peak force and the rate of force development and relaxation of the brief force pulses (BFP) as nominee for a new test of neuromuscular function.

Methods
The first experiment has engaged 12 participants. They have performed consecutive series of 12 isometric BFP (i.e., a express exertion of force to a prescribed level followed by express relaxation) targeting 30%, 50% and 70% of MVC both within-day and across days. Individual BFP provided the peak force (PF) and the rates of force development (RFD) and relaxation (RFR). The data were presented on RFD-PF and RFR-PF graphs and the linear regression was assessed, also data were used for the assessment of the within-day and between-day reliability through the intra-class correlation coefficients (ICC) and coefficients of variation (CV%). Within the second experiment, additional 36 participants performed the same test of the knee flexors and extensors, and elbow flexors and extensors. These data served for the general assessment of the RFD-PF and RFR-PF relationship, as well as for a comparison of the variables obtained from different muscle groups.

Results
The first experiment revealed moderate to high within-day reliability (i.e., ICC, range 0.71-0.98; CV%, range 1.8-141.5) as well as moderate to high between-day reliability (i.e., ICC, range 0.58-0.92; CV%, range 4.1-205.8) of the slopes and intercepts of the PF-RFD and PF-RFR relationship. The second experiment revealed similar slopes across the tested groups, while the intercepts were either a relatively low or close to zero. PF-RFD and PF-RFR slopes also moderately correlated. When the data of different muscle groups were related, the slopes moderately correlated, but not the intercepts. Of utmost importance, however, could be exceptionally high correlations.

Discussion
Generally, results recommend together invariant and subject specific force-time profiles of BFP across a range of exerted forces. On the future BFP consideration could be an apparent functional importance of the obtained slopes (e.g., discerning 'strong individuals' from 'quick ones'), simplicity (single variable could be the outcome), generalizability across muscle groups, and low level of exerted forces. Therefore, although the external validity remains to be examined, BFP could be a test complementary to the standard strength tests.

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Influence of individual programmed exercise and nutrition on the body composition of student population

(oral presentation)

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Introduction

Obesity creates a great problem of modern people and students too. The fundamental aim of exercise and nutrition of fat people (BMI over 30) is the reduction of fat deposits. The programs based on performance of aerobic activities, beside the reduction of body fats, cause the reduction of muscular mass (1, 2) as well. However, large number of students who are considered to have excessive body mass (BMI from 25 to 30) or even optimal body mass (BMI from 20 to 25) wish to improve their body status, that is to reduce as much as possible body fats, but maintaining or increasing at the same time, the absolute amount of muscular mass. This research has checked a specially designed exercise program for that purpose.

Methods

Body composition was determined to 11 male students (age 23,91 ± 1,70 years; body height 181,06 ± 4,38 cm) based on the equations of the program according to Mateigiki. The anthropometric variables were measured according to the International Biologic program, in standardized conditions. The energetic and nutritive requirements of each student were determined pursuant to the body composition and knowledge on their life and exercise regime. Upon the interview regarding the eating habits, a diet was created, aimed at reducing body mass, which contained daily energetic deficit of approximately 2 g/kg of the body mass. The structure of energetic input amounted to CHO/proteins/lipids: 60-65%/20-25%/15%. The testing of strength of all important muscle groups was performed by determining MR 10 (maximum repetitions 10). Based on the sex and age, the intensity zone was determined, in which heart frequency will range during the exercises on cardio equipment. The experimental program lasted three months; the trainings were 4 times per week, the duration of a single training session ranged from 90/120 minutes (warm-up 10-15 minutes, strength exercises 60-70 minutes, aerobic exercises 15-30 minutes, stretching 5 minutes). The final measurement of body composition was done after three months of the program.

Results

Three months after exercising, statistically significant changes of body composition were recorded. The body weight was reduced on average for 4kg. The body fat was reduced on average for 8,2kg. Therefore the relative amount of body fat was reduced for 9%. Muscular mass was increased in the absolute amount for 1,9kg. That, together with the reduction of body weight, caused the relative increase of muscular mass for 4.7%.

Discussion/Conclusion

The results show that the experimental program accompanied with the adequate nutrition regime, gave the desired effects: reduction of body fats while increasing the muscular mass. The reduction of body weight of 4kg for three months is very significant when considered as a result of increase of muscular mass of about 1,9kg and reduction of body fats of even 8kg. The important change of body composition was recorded: muscular mass increased for almost 5% and fat tissue reduced for 9%. The increase of muscular mass was due to important role of strength exercises in the experimental program; fat reduction was mostly due to the aerobic part of the training; while certain significance certainly belongs to nutrition regime with relatively great amounts of proteins and little fats. The results show that people of average weight should primarily work on qualitative modifications (change of body composition), and not only on quantitative reductions (reduction of body mass). Therefore recreational programs must be complex and combined: exercises of aerobic endurance and strength exercises, which do not cause undesired reduction of muscular mass. (3)

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Comparison of medial longitude arch among various sports

(poster presentation)

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***Introduction*:** The relation between foot arch morphology (flat foot and pes cavus) and lower extremity injuries is controversial. Some authors have determined a relation between foot morphology and the incidence of lower extremity injury in army recruits, whereas others were unable to obtain conclusive evidence in athletes.

Although, there are some data showing that sport specific training and repeated movements may have an effect on the arch index (AI) of the sole. An increased incidence of flat foot in runners and alpine skiers and subnormal transverse foot arch in soccer and tennis players have been reported (Klingele et al., 1993). As there are very few published reports comparing sole AI of participants of different sports, we conducted this study. The purpose of this study was to comparison the foot arch index and the navicular height to foot length measurements among long distance runners, sprint runners, swimmers and non-athletes.

Methods: Subjects of present study were 135 national athletes, 35 athletes per each groups, and 35 non-athlete students (table 1). All subjects volunteered from the university population and surrounding community. All subjects were without lower-extremity abnormalities or injuries at the time of measurement. Subjects were included in the study after informed consent was obtained. The arch index measured by using foot print and based on Staheli (Staheli et al., 1987) instruction (AI was calculated by division of the narrowest part of the sole by the widest part of the heel, then multiplication of the ratio by 100). The navicular height to foot length assesses to nearest 1 mm and normalizing medial longitudinal arch height to foot length. Obtained data analyzed by one-way ANOVA and with Tukey's HSD post hoc test.

Results: The results of this study showed that the arch index significantly differs between long distance runners and non-athletes as well as between long distance and sprint runners ($P<0.05$). Also, a significantly difference in navicular height to foot length measurements exist between sprint and long distance runners ($p<0.05$).

Table 1. Subject Characteristics

	swimmers	sprint runners	long distance runners	non-athletes
Height (cm)	183 ±3/2	180 ± 3/8	171 ± 4/1	174±4/5
Weight (kg)	78/6 ± 2/5	73/5 ± 3/2	57/4 ± 2/7	68/1 ± 5/4
Age (years)	22/3±3/7	23/6 ± 4/1	22/9 ± 3/3	23/8 ±2/7
NH/FL	16/91±/07	18/11±/05	15/31±0/4	16/59±0/6
Arch index	64/58 ± 19/14	51/39 ± 17/14	71/14 ±20/28	60/77±22/20

***Discussion*:** This study was designed to evaluate sole AI and navicular height to foot length measurements in different sports. The AI of long distance runners was found to be significantly different from those of sprint runners and non-athletes. The AI was lowest in sprint runners and highest in distance runners. Also the navicular height to foot length measurements of long distance runners was found to be significantly larger than those of sprint runners. We could not find any study in the literature documenting changes in AI or foot arch types in relation to particular sports. The reason for the differences in long distance and sprint runners may be a coincidental finding, a sports related adaptation or that a low or high AI favours long distance and sprint runners. So that, in training program and shoes selecting for runners these specific characters must be considered.

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