

22nd International Student Congress on Sport Sciences

28-30 April, 2016



University of Physical Education,
Budapest, Hungary

PROGRAMME ABSTRACT BOOK





Dear Student-researchers,

On behalf of the Organizing Committee it is our great pleasure to welcome you - both new and returning participants - at the International Student Congress on Sport Sciences (ISCSS-2016) at Budapest, Hungary.

The 22nd ISCSS Congress is organized by the University of Physical Education, Budapest, with the aim of creating partnerships in research collaborations and also disseminating knowledge amongst students and research scholars.

The objective of this Congress is to provide an interactive forum for young researchers in the areas of sport sciences with the purpose of collecting, exchanging and promoting the recent developments and new advances.

It is a tradition of our University to bring together young student-researchers from all over the world to present their results related to wide areas of sport-sciences. We hope that the ISCSS-2016 will provide valuable opportunities to exchange ideas, concepts and research findings, by oral and poster presentations.

The Conference offers oral and poster presentations by researchers from Hungary and all over Europe. We are also honoured to have six well-known experts of various fields of sport sciences to give keynote lectures. We hope that the presentations in the Congress will stimulate and inspire future cooperation, studies and advancement.

The Congress will be held on the campus of our University, which is located on the historical, hilly “Buda” side of the city, west to the Danube River. In addition, we hope that you will, find opportunities to tour and enjoy all that Budapest can offer.

We are looking forward to seeing you in Budapest!

Yours sincerely,

Ákos Koller

*Chief Patron of the Conference,
University of Physical Education*

József Bognár

*President of the Student Research
Association (TDK), University of Physical
Education*

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GENERAL INFORMATION

WEBSITE FOR FURTHER INFORMATION

www.sssb2016.com

Opening hours of the registration:

28 April, Thursday	13:00 - 18:00
29 April, Friday	08:00 - 17:30
30 April, Saturday	08:00 - 12:30

OFFICIAL LANGUAGE

English

No simultaneous translation will be provided.

CERTIFICATE OF ATTENDANCE

A Certificate of Attendance will be issued at the time of registration to delegates who are pre-registered. For on-site registrants, a Certificate of Attendance will be available at the end of the Conference. No certificate will be issued after the Conference.

LIABILITY

The Local Organising Committee and the Expert-Quality Congress and Travel Agency do not accept liability for personal medical expenses, travel expenses, losses of whatever nature incurred by delegates and/or accompanying persons.

INFORMATION

At the registration desk staff members will be glad to help you with any enquiries.

LUNCHES

The registration fee does include lunch for who registered as a regular or student participant. With these tickets the participants can use the catering services.

MOBILE PHONES

Mobile phones should be switched off during the Scientific Sessions.

PROGRAMME CHANGES

Organisers cannot assume liability for any changes in the programme due to unforeseen circumstances.

SMOKING

Smoking is not allowed at the Conference Venue.

PICTURES AND AUDIO RECORDING

Please refrain taking photos or making audio recordings during the lectures.

PROCESSING AND PUBLICATION OF PERSONAL DATA

Please note that the personal information received from participants will be used for statistical purposes or for dispatching the information on relevant conferences in the future.

REGISTRATION FEE

	On-site fee
Regular	160 €

Registration fee for regular participants includes

- Access to scientific presentations, program book and congress material
- Opening Ceremony
- Lunch (29-30 April)
- Coffee break
- Party

GUIDELINES & INFORMATION

• Guidelines for speakers

1. Please locate your session room in due time and be there at least 20 minutes before the start of the session and give the presentation to the technician on a pendrive.

Presentation format: Microsoft PowerPoint, Windows Version 8 Electronic Support: USB only.

Videos should be included in your PowerPoint. Presentation should be in a format that is supported by Windows Media Player.

2. We would like to ask the speakers to keep their presentations within the given time limits for the sake of the next speakers.
3. In case of using your own laptop, please inform the technician in the Session/Lecture Room, in due time to get prepare for it.

SCIENTIFIC PROGRAMME TIME SCHEDULE

28 April, Thursday		29 April, Friday		30 April, Saturday	
		9:00	Keynote speaker	9:00	Keynote speakers
		9:30	Symposium2: Exercise physiology and biomechanics	10:00	Symposium4: Physical activity and sport
		11:10	<i>Break</i>	11:30	<i>Break</i>
		11:30	Symposium3: Football and science	11:45	Poster Session2: Exercise physiology, training and biomechanics
		12:50	<i>Lunch time</i>	12:10	Closing ceremony
15:00	Symposium1: Social science and sport	15:00	Keynote speakers		
17:00	<i>Coffee Break</i>				
17:30	Opening Ceremony	16:00	<i>Break</i>		
18:00	Keynote speaker	16:30	Poster Session1: Social science and sport		
18:30	<i>Break</i>	17:00	<i>Break</i>		
18:40	Welcome Reception	17:20	Open Air Party		

SCIENTIFIC PROGRAMME

28 April, Thursday

HEPP FERENC ROOM

15:00 SYMPOSIUM 1: SOCIAL SCIENCE AND SPORT

Chairs: Gyöngyi Földesiné Szabó, Tamás Sterbenz

Denisa Sabina Emilia Deliu, D. Deliu

National University of Physical Education and Sport, Bucharest, Romania

Supervisor: **Dan Deliu**

JUDO - BUILDING A BETTER SOCIETY (8+2')

Bence Garamvölgyi

University of Physical Education, Hungary

Supervisor: **Tamás Dóczy**

SPORT: A TOOL FOR REACHING EU EXTERNAL POLICY GOALS? (8+2')

Gergely Géczy

Vasas SC, University of Physical Education, and Corvinus University of Budapest,

Sportmanagement Master's course, Hungary

Supervisor: **Krisztina András**

NHL AS AN INVESTMENT (8+2')

Mariann Bardócz-Bencsik

Global Connect Academy, University of Physical Education

Supervisor: **Tamás Dóczy**

SPORT FOR DEVELOPMENT AND PEACE – HOW TO DO IT RIGHT? (8+2')

Mihály Keszti

University of Physical Education Budapest, Hungary

Supervisor: **Tamás Dóczy**

THE EFFECT OF SUCCESS: NATIONAL IDENTITY AND QUALIFYING TO EURO2016 IN ALBANIA AND HUNGARY (8+2')

Judit Dénes

University of Physical Education, Budapest, Hungary

Supervisors: **Péter Farkas, Andrea Gál**

A STUDY OF ATTITUDES HELD BY HUNGARIANS IN DIFFERENT AGE GROUPS TO THE CONCEPT OF "FAIR PLAY" IN SPORT (8+2')

Veronika Mittly

University of Pécs, Medical School, Hungary

Supervisors: **Zsolt Németh, Károly Berényi, Tibor Mintál**

MIND DOES MATTER: THE PSYCHOLOGICAL EFFECT OF ANKLE INJURY IN SPORT (8+2')

Mátyás Jókai

University of Physical Education, Budapest, Hungary

Supervisor: **Judit Farkas**

QUALITY FRAMEWORK IN SPORT IN THE EU: THE FIRST CAN BE THE ATHLETE'S DUAL CAREER SERVICES (8+2')

Dóra Faragó

University of Physical Education, Budapest, Hungary

Supervisor: **Judit Farkas**

COMPARATIVE STUDY BETWEEN EU SPORT AND YOUTH POLICIES. THE USE OF A COMMON TOOL: EDUCATION THROUGH SPORT TO BOOST EMPLOYABILITY (8+2')

Máté Pozojevich, K. Szigeti, K. Tóth

University of Szeged, Institute of PE and Sport Sciences, Hungary

Supervisor: **Andor H. Molnár**

PRESENCE OF EATING DISORDERS AMONG REGULAR GYM VISITORS (8+2')

Kristóf Világi

University of Physical Education, Budapest, Hungary

Supervisors: **Chaudhuri Sujit, Tamás Sterbenz**

THE BIG NBA SHOPPING LIST 2016 CHALLENGE: WHAT CAN WE EXPECT FROM THE CHANGING OF THE SALARY CAP AND HOW CAN AN NBA FRANCHISE BUILD A PLAYOFF CONTENDER TEAM FROM THAT (8+2')

17:00 *Coffee Break*

17:30 **OPENING CEREMONY**

Lajos Mocsai, Ákos Koller, József Bognár

18:00 **KEYNOTE SPEAKER**

Chairs: **Ákos Koller, Erika Koltay**

Dr. Helena Lenasi

Institute of Physiology, Medical Faculty, University of Ljubljana, Slovenia

SKIN MICROCIRCULATION IN EXERCISE AND ITS ROLE IN THERMOREGULATION (20+5')

18:30 *Break*

19:00 **WELCOME RECEPTION**

29 April, Friday

HEPP FERENC ROOM

09:00 KEYNOTE SPEAKER

Chairs: **István Berkes, Csaba Nyakas**

Dr. Karsten Froberg

University of Southern Denmark, Odense, Denmark

WHY PUT SO MUCH FOCUS ON EXTRA PHYSICAL ACTIVITY IN SCHOOLS AND LEISURE TIME? (20+5')

09:30 SYMPOSIUM 2: EXERCISE PHYSIOLOGY AND BIOMECHANICS

Chairs: **József Tihanyi, Helena Lenasi**

Eliza Eszter Tóth

Széchenyi István University, Győr, Hungary

Supervisor: **Ferenc Ihász**

THE CHARACTERISTICS OF THE BODY COMPOSITION AND CARDIORESPIRATORY FITNESS OF AN ELITE FEMALE HANDBALL PLAYER BASED ON LONGITUDINAL DATA (8+2')

Saša Kocijančič

University of Ljubljana, Faculty of Medicine, Ljubljana, Slovenia

Supervisors: **Helena Lenasi, Srđan Đorđević**

TESTING THE SENSITIVITY OF TENSIOLOGYGRAPHY BY COMPARING THE LEFT AND RIGHT BICEPS BRACHII MUSCLE (8+2')

Gábor Bognár, Z. Gombos, Á. Hegedüs

University of Physical Education, Budapest, Hungary

Supervisor: **József Tihanyi**

EXAMINATION OF THE EFFECTS OF ECCENTRIC AND ISOMETRIC TRAINING OF THE POSTERIOR THIGH MUSCLES ON H/Q RATIO OF GIRLS IN PREPUBERTY (8+2')

Natascha Holbæk Pedersen

University of Southern Denmark

Supervisors: **Anna Bugge, Jakob Tarp**

THE ASSOCIATION BETWEEN BRAIN-DERIVED NEUROTROPHIC FACTOR AND A CLUSTER OF CARDIOVASCULAR RISK FACTORS IN ADOLESCENTS: THE CHAMPS-STUDY DK (8+2')

Kitti Garai

University of Pécs, Faculty of Sciences, Hungary

Supervisors: **Márta Wilhelm, Krisztián Kvell**

AGEING OF THE IMMUNE SYSTEM AND PHYSICAL ACTIVITY (8+2')

Zsuzsanna Dolezsa, M. Süli Derzsi
University J. Selye, Komarno, Slovakia
Supervisor: **Beáta Dobay**

EXAMINATION OF THE RELATIONSHIP BETWEEN THE CONNECTIONS OF BODY MASS INDEX AND FLAT FEET (8+2')

Vivien Döniz Kovács

University of Szeged, Institute of PE and Sport Sciences, Hungary
Supervisor: **Andor H. Molnár**

FEMALE ATHLETE TRIAD - PRESENCE OF ITS RISK FACTORS AT UNIVERSITY OF SZEGED (8+2')

Alexandra Csányi, B. Vály

University of Szeged, Institute of PE and Sport Sciences, Hungary

Supervisors: **Kornélia Orbán, Lepes Josip**

DIFFERENCES IN THE BODY COMPOSITION OF FIRST AND SECOND GRADE HUNGARIAN AND SERBIAN CHILDREN (8+2')

Anita Stajer

University of Novi Sad, Teachers' Training Faculty in Hungarian, Subotica, Serbia

Supervisors: **Szabolcs Halasi, Josip Lepes**

RELATIONS BETWEEN BODY COMPOSITION AND MOTOR ABILITIES OF PRIMARY SCHOOL CHILDREN (8+2')

Martin Gillies Rasmussen, L. Østergaard

Research unit for Exercise Epidemiology, Department of Sports Science and Clinical Biomechanics, University of Southern, Odense M, Denmark

Supervisor: **Karsten Froberg**

THE PROSPECTIVE ASSOCIATION BETWEEN HABITUAL CYCLING AND RISK OF TYPE 2 DIABETES: RESULTS FROM A COHORT STUDY OF DANISH ADULTS (8+2')

11:10 **Coffee Break**

11:30 **SYMPOSIUM 3: FOOTBALL AND SCIENCE**

Chairs: **Gábor Géczí, Éva Kállay**

Gábor Juhász

University of Physical Education, Budapest, Hungary

Supervisor: **Tamás Sterbenz**

POTENTIAL ADVANTAGES OF THE PLAYOFF SYSTEM IN FOOTBALL (8+2')

Márton Bognár, K. Kovács

University of Physical Education, Hungarian Football Federation, Budapest, Hungary

Supervisors: **Sándor Sáfár, István Csáki**

CORRELATION BETWEEN AGILITY AND EXPLOSIVE POWER IN ELIT AND AMATEUR YOUTH FOOTBALL PLAYERS (8+2')

Tamás Győri, T. Marczinka, B. Keresztesi

University of Physical Education, Hungarian Football Federation, Budapest, Hungary

Supervisors: **István Csáki, Sándor Sáfár**

THE COMPARISON OF MOTIVATION ACROSS POSITIONS AMONGST ELITE YOUTH FOOTBALL PLAYERS (8+2')

Zoltán Faltusz, L. Kádár, G. Karpjuk

University of Physical Education, Hungarian Football Federation, Budapest, Hungary

Supervisors: **István Csáki, Sándor Sáfár**

AMATEUR AND ELITE YOUTH FOOTBALL PLAYERS: TALENT IDENTIFICATION, SELECTION, DEVELOPMENT AND COACH-ATHLETE RELATIONSHIP (8+2')

Zoltán Árpád Brezovai

University of Szeged, Institute of PE and Sport Sciences, Hungary

Supervisors: **László Balogh, Zita Hajdúné Petrovszki**

FOOTBALL REFEREE AND STRESS (8+2')

Ahmed Othmani

University of Pécs, Faculty of Sciences, Hungary

Supervisors: **Tamás Atlasz, Márk Vácz**

CONTRIBUTING PARAMETERS TO THE RUNNING ANAEROBIC SPRINT TEST RESULT IN U18 FOOTBALL PLAYERS (8+2')

Tamás Forsthoffer

University of West Hungary, Savaria Campus, Institute of Sport Science, Hungary

Supervisor: **Miklós Koltai**

DEVELOPMENT OF FUNDAMENTAL ABILITIES AND TECHNICAL SKILLS IN THE U15 FOOTBALL PLAYERS - USING POLAR TEAM₂ PULSE CONTROL - CURING THE WINTER PREPARATORY PERIOD (8+2')

Károly Papp, R. Novák

University of Physical Education, Budapest, Hungary

Supervisor: **Ifj János Tóth**

HIGH INTENSITY MOVEMENTS IN FOOTBALL (8+2')

12:50 **Lunch time**

15:00 **KEYNOTE SPEAKERS**

Chairs: **Ákos Koller, Gábor Pavlik**

Dr. Miklos Hamori

Fertility Center Erlangen, Germany

DOES COMPETITIVE SPORT REDUCE THE FERTILITY OF WOMEN? (20+5')

Ágnes Kovács

University of Physical Education, Budapest, Hungary

ELITE ATHLETES AND THE MEDIA: REFLECTIONS ON A RESEARCH PROJECT (20+5')

16:00 **Coffee Break**

16:30 POSTER SESSION 1: SOCIAL SCIENCE AND SPORT

(The poster should be mounted on the first day of the Congress. The poster will be guided by the Chairs.)

Chairs: **Tamás Dóczy, Csaba Ökrös**

1. Ingrid Schaub

Hungarian Dance Academy, Budapest, Hungary

STREET DANCE, AS OUTDOOR ACTIVITY IN SCHOOL AND THE MEASUREMENT OF IT'S IMPACT WITH FLOW QUESTIONNAIRE (3+2')

2. Kinga Nagy

University of Physical Education, Budapest, Hungary

Supervisor: **Miklós Bánhidi**

YOUTH PARTICIPATION AT INTERNATIONAL PROGRAMS FOR LEISURE PROFESSION DEVELOPMENT (3+2')

3. Adél Lovas

University of Physical Education, Budapest, Hungary

Supervisor: **József Tihanyi**

IMPROVING AND ADAPTING A NEW SPORT DEVICE FOR TEACHING THE BARRACUDA FIGURES IN SYNCHRONIZED SWIMMING (3+2')

4. V. S. Tuisheva

Ural State University of Physical Culture, Chelyabinsk, Russia

Supervisors: **O. A. Ivanenko, Olga Kolomietz**

THE USE OF FITNESS TECHNOLOGIES EFFECTIVENESS FOR FLEXIBILITY DEVELOPMENT OF 14-16 AGED GIRLS, SPECIALIZED IN RACEWALKING (3+2')

17:00 Break

17:20 OPEN AIR PARTY

30 April, Saturday

HEPP FERENC ROOM

09:00 KEYNOTE SPEAKERS

Chairs: Kornél Sipos, László Tóth

Dr. Éva Kállay

Department of Psychology Babes-Bolyai University, Cluj-Napoca, Romania

THE IMPORTANCE OF EMOTION REGULATION AND META-COGNITIVE ABILITIES IN SPORT PERFORMANC (20+5')

Dr. Gábor Gécz

University of Physical Education, Budapest

LONG-TERM ATHLETES DEVELOPMENT (LTAD) - THE FRAMEWORK OF THE SUCCESSFUL YOUTH PROGRAMS (20+5')

10:00 SYMPOSIUM 4: PHYSICAL ACTIVITY AND SPORT

Chairs: Zsuzsa Kalmár, Zsolt Gyimes

Dóra König-Görögh

University of Physical Education, Budapest, Hungary

Supervisors: Csaba Ökrös, Noémi Gyömbér

COMPARISON OF RESUPPLY PLAYERS OF ELITE HANDBALL TEAMS (IN HUNGARY) BY ATTACKING POSITIONS ON THE EVIDENCE OF PSYCHOLOGICAL TESTS (8+2')

Eszter Eigner

University of Pécs, Faculty of Sciences, Hungary

Supervisors: Attila Kajos, Gyöngyvér Prisztóka

THE EFFECT ON THE MOOD STATE OF STUDENTS OF DOING EXERCISES FOR 3 MINUTES - BASED ON A RESEARCH (8+2')

Károly Dobos

University of Physical Education, Budapest, Hungary

Supervisor: Csaba Nagykáldi

RELATIONSHIP BETWEEN PHYSICAL ABILITIES AND COMPETITIVE PERFORMANCE IN YOUNG ELITE FEMALE AND MALE TENNIS PLAYERS (8+2')

Zsófia Kovács

University of Pécs, Faculty of Humanities, Education and Society Doctoral School, Pécs, Hungary

Supervisors: Ferenc Tóvári, Attila Kajos, Gyöngyvér Prisztóka

THE RESEARCH OF SWIMMING INSTRUCTION'S EFFICIENCY IN SCHOOLS BASED ON TWO DIFFERENT METHODS (8+2')

Bence Török

University of Physical Education, Budapest, Hungary

Supervisor: **Bálint Dolnegó**

THE COHERENCE BETWEEN THE EFFICIENCY OF DUELS AND THE RESULTS OF THE MATCHES IN HANDBALL (8+2')

Tamás Lakatos, Zs. Rónaszéki

ELTE PPK, Budapest, Hungary

Supervisor: **Renáta Szemerszky**

TRAINING TECHNIQUES THAT HELP EXPERIENCING 'FLOW' IN YOUTH HANDBALL TEAMS (8+2')

Lili Kósa, E.E. Tóth

Széchenyi István University, Győr, Hungary

Supervisors: **Zsófia Mészáros**, **Ferenc Ihász**

DIFFERENCES OF THE MEAN VALUES OF COOPER-TEST BETWEEN SPORTSMAN, RECREATIONS STUDENTS AND HIGH SCHOOL STUDENTS (8+2')

Éva Fodor, A. Tóth

Eszterházy Károly University, Eger, Hungary

Supervisor: **László Révész**

THE ROLE OF EDUCATIONAL TRAILS IN HUNGARIAN RECREATION (8+2')

Balázs Csordás

University of Nyíregyháza, Hungary

Supervisor: **Ildikó Vajda**

COMPARATIVE STUDY OF THE BALANCING CAPABILITY ATHLETES (8+2')

11:30 **Coffee Break**

11:45 **POSTER SESSION 2: EXERCISE PHYSIOLOGY, TRAINING AND BIOMECHANICS**

(The poster should be mounted on the first day of the Congress. The poster will be guided by the Chairs.)

Chairs: **Karsten Froberg**, **Levente Rác**

5. **Andrei Ioan Simion**

National University of Physical Education and Sport, Bucharest, Romania

Supervisor: **Pelin Florin**

ASPECTS REGARDING BALANCE IMPROVEMENT IN BEGINNER SKIERS (3+2')

6. **Kata Galamb**, B. Szilágyi, J. Négyesi

University of Physical Education, & Fájdalom Ambulancia, Budapest, Hungary

Supervisor: **János Négyesi**

HAND LATERALITY INFLUENCES THE KINESTHETIC SENSE IN NON-CLINICAL POPULATIONS (3+2')

7. **N. Simonova**
Ural State University of Physical Culture, Chelyabinsk, Russia
Supervisors: **E. Orekhov, N. Petrushkina**
**PECULIARITIES OF COMPUTER GAMES INFLUENCE TEENS ICE HOCKEY PLAYERS'
NERVOUS SYSTEM (3+2')**
8. **D. Denisov D. I.**
Ural State University of Physical Culture, Chelyabinsk, Russia
Supervisors: **T.M. Melikhova, Olga Kolomietz**
METHODS OF COORDINATION ABILITIES DEVELOPMENT OF JUNIOR SPEEDSKATERS
9. **Brigitta Szilágyi**
*University of Pécs, Faculty of Health Sciences, Institute of Physiotherapy and Sport
Sciences, Pécs, Hungary*
Supervisor: **Brigitta Szilágyi**
**SPORT THERAPY APPLICATION AND EFFECTIVENESS SURVEY AMONG PATIENTS
WITH TYPE II DIABETES (3+2')**
10. **Davletova V. V.**
Ural State University of Physical Culture, Chelyabinsk, Russia
Supervisors: **Olga Kolomietz, O.A. Makunina**
**TEENAGERS' WITH DIFFERENT MOTION STATE ADAPTATION TO ACADEMIC
WORKLOAD (3+2')**

- 12:10 CLOSING CEREMONY, AWARDS**
Lajos Mocsai, Ákos Koller, József Bognár

Adél Lovas

University of Physical Education, Hungary

Supervisor: József Tihanyi

Improving and adapting a new sport device for teaching the Barracuda figures in synchronized swimming

Introduction – The Barracuda figures have a significant place in the competitors career in synchronized swimming from age group under 12 to the senior career. It is also the best suitable opportunity for measuring the sport-specific explosive power (M. Peric, N. Zenic 2012). This is a dynamic figure and in synchronized swimming the athletes do a 3-dimension stroke, and because of the media changing (water-air) teaching this figure is quite hard. This practical problem cause to the idea of improving a new equipment, which can help me as coach. I would like to make my work more efficient and innovate the sport in my country as well. The device gives the right direction and axle of the movement, helping the athlete in configuring the right feel of the body. The figure skating uses a similar device, but with different suspension and purpose.

Hypothesis - My hypothesis of the research is that the time of the learning and teaching process can be eliminated by using this device. The (1) axle and angle of the body and (2) the height of the figure can be improved. The method of the research – In the research 12 athlete take part (n=12) age 10+/- 1 year (Fina age group: 12 and under). The duration of the research is 6 weeks, 2 times in each week 6 athlete with the device, 6 without the device (control group) learn the Barracuda figure. At the evaluating the result the two main aspect was (1) the position, angle of the body and (2) the height of the Barracuda figure (according to the official FINA manual for judges). When choosing the aspect the basic point was a previous research in which the kept-level

vertical position was the subject of the research (Winarski, Slawomir 2013) and I also took into consideration the official FINA judging rules. I documenting the datas continuously and at the end of the research every participant athlete perform the figure in competition-simulation.

Results – In the current standing of my research the results don't show a significant difference between the control group and the device using group. The reason can be that performing the figure with this device is totally unusual, this cause that the athlete is unconfident and pay attention to the new conditions, not the right feel of the body.

Summary – The main purpose to develop the methodology of the sport and to make it more successful in my country. In the research I monitored the basic Barracuda figure. With more measuring I would investigate the Barracuda 360° figure (continuous spin while descending), completing the device with a special bearing. Beside it can be useful in any kept-level vertical positions. With the new Waticam system I could make more visible the results.

Ágnes Kovács

University of Physical Education, Hungary

Elite athletes and the media: reflections on a research project

The shape of the sport media has been going through a shift in the last decades. The change can be explained by several factors, for example globalization, or the dominance of the consumer society. The reasons for selecting the research topic are the following: personal experiences in sport, college degree in this field, work experience related to the topic, scientific interest. First of all, it is very important to define the main concepts of the

research, and to present a wide range of literary background related to the topic, and to define the aim of the paper, which, in this case, is to introduce the relation between elite athletes and employees of the media. After defining the aim of the research, it is important to articulate the research questions and to determine the hypotheses, based on the literary findings.

What research methods to use is a key issue for the dissertation.

Methods: in-depth interviews with elite athletes and also with employees of the media, online survey with Olympians and journalists who are delegated to the 2016 Olympic Games, and the content analysis of the media before, during, and after the games. After all research methods have been completed, all the data will be analyzed. At the end of the project the obtained data will be compared to the hypotheses, and finally recommendations will be given related to the topic, in order to ensure practical implications of the research.

Key words: elite athletes, sport media, globalization, interests, consumer society, conflicts

Ahmed Othmani

University of Pécs, Hungary

Supervisors: Tamas Atlasz, Mark Vaczi,
Institute of Sport Sciences and Physical Education

Contributing parameters to the Running Anaerobic Sprint Test result in U18 football players

BACKGROUND: The aim of present study was to examine the relationships among running anaerobic sprint test (RAST) power, vertical jump, endurance, speed, and repeat sprint ability in youth football players.

METHODS: Thirty-two football players were recruited (age, 17.88 ± 0.52 years; weight, 70.34 ± 7.33 kg; height, 178 ± 5 cm; body mass index, 22.14 ± 2.01 kg \cdot m⁻²; body fat percentage, 12.57 ± 2.52 ; tanner scale, 6 ± 0 ; years of practice, 6.56 ± 0.84 years). They performed squat and countermove-ment jumps (SJ, CMJ), sprints (10, 20, 30 m), the Repeated Shuttle Sprint Ability Test (RSSAT) 6 X (20+20m), the Yo-Yo intermittent recovery test, and the RAST. Pearson's product moment correlations among the RAST test and the different physical tests were also performed.

RESULTS: No significant correlations were found among any RAST test parameters and RSSAT test indices. However, negative correlations were found between RAST and 20 metres and 30 metres running speed ($r = -0.59$, $p < 0.01$ and $r = -0.44$, $p < 0.05$, respectively) and no significant relationship between RAST and 10 metres running speed was found. Nevertheless, RAST average power was significantly correlated with the SJ and CMJ ($r = 0.53$, $p < 0.01$ and $r = 0.47$, $p < 0.01$, respectively). There was also high correlation between RAST average power and VO₂max ($r = 0.62$, $p < 0.001$).

CONCLUSIONS: Sprints longer then 10 m contribute to anaerobic capacity measured by RAST in young soccer players. The relationship between the jump performance and the anaerobic capacity is probably due to the fact that both rely on predominance of glycolitic muscle fibers.

KEYWORDS: anerobic power, jump, running speed

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DIFFERENCES IN THE BODY COMPOSITION OF FIRST AND SECOND GRADE HUNGARIAN AND SERBIAN CHILDREN

Introduction: In 2012 every-day physical education was introduced to Hungarian primary and secondary schools, which means that Hungarian children are obliged to do physical exercises five times a week at school. Meanwhile in Serbia, children have considerably less PE lessons. The aim of this study was to decide whether every-day physical education has a beneficial effect on children's body composition and if it makes a difference between the two nations, both girls and boys, in first and second grade.

Methods: 50 first graders from Hungary and 113 from Serbia participated in the research. Concerning the second graders, there were 67 from Hungary and 84 from Serbia, which adds up to 314 students altogether. We measured their weight, body mass index (BMI), absolute fat mass, percent body fat (BF%), absolute muscle mass, percent muscle mass, absolute fat-free mass, percent fat-free mass (FFM%), basal metabolic rate and fitness score. To assess the participants' body composition we used a bioimpedance analyzer (InBody 230, Biospace Co. Inc., Seoul, South Korea).

Results: According to our results, there are significant differences between the two nations' students in both sexes. Among the first graders, the Serbian students weigh more and have a higher BMI than the Hungarian ones. They have considerably higher BF%, as well.

On the other hand, Hungarian boys - in first grade - have significantly higher percent muscle mass and fitness score. Serbians' FFM% is greatly lower than the Hungarian students'. In the second grade, Serbians have significantly higher BF%; meanwhile Hungarians have higher percent muscle mass. The Serbian pupils' FFM% is considerably lower than the Hungarians, just like in first grade.

Conclusion: These results obviously suggest that every-day physical education is beneficial for children in regard to their body composition. However, it is important to remark that in this study we did not take into consideration the children's social status, lifestyle and out-of-school activities such as sports, and supposed that they only do physical activity in school. The investigation of these circumstances and their connections to the body composition seems to be perspective.

Support: TÁMOP-4.1.2.E-15/KONV-2015-0002 Central European Sport Sciences Cluster

Keywords: body composition, bioimpedance analysis, Hungarian, Serbian, every-day physical education

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Aspects regarding balance improvement in beginner skiers

The main hypotheses of my paper are: dynamic balance positively influences static balance and, learning speed and that certain methods and exercises of teaching beginners how to ski are more efficient than others.

The experiment was conducted on two female student groups, each consisting of 20 individuals who have not skied before then. The lessons spanned during the course of 2

weeks and were conducted in the Parang Mountain, at an altitude of approximately 1800 m. Before going there, the subjects were tested on their static balance with 2 exercises. The first one was the Flamingo test - balancing on one leg on a 5 cm narrow wooden support and counting how many mistakes were made in one minute (touching the floor with the other foot). The second test was balancing on a 50x20cm wooden board that is placed on a 12 cm diameter moving metal cylinder, with the help of ski poles. In the second week of the instruction during the ski class, 2 more tests were executed by the 2 groups. The first one was sliding on the outside ski, diagonally, at a 45 degree angle to the slope. Total distance travelled was measured. This was done once from the right side of the slope and once from the left, so that both legs would be tested. The second test was initiating and performing a turn on one leg only, the outside one. The same as the previous test, they started from both sides of the slopes and performed 2 turns each time. Each was graded according to how well they performed the turns. The 2 groups had different exercise programs.

Some of the conclusions are that improving dynamic balance has a very important role to the speed and accurateness of learning the proper technique, patience in helping the students get a feeling for the correct position and technique in the first week yields high rewards in progress in the second week and improving dynamic balance by learning how to ski has a positive effect on static balance also.

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Relations Between Body Composition and Motor Abilities of primary school children

This study had to aim to verify the relationship between body composition and motor abilities in six to seven years-old boys and girls. 200 children were analyzed, 100 boys and 100 girls, who attended the first grade of primary school in Subotica with mean age of 7.71 years. They were measured in terms of anthropometric characteristics, general motor abilities were determined based on seven motor test, and body compositions by means of bioelectrical impedance. It was used to estimate the following values: body height, body weight, body mass index, percent body fat, skeletal muscle mass and fat free mass. Regression analysis showed that the predictor system of variables for assessing body composition was statistically significantly associated with the criterion defined as general motor factor and with it describes 33% of common variability in boys ($R=0.58$; $p < 0.05$) and 28% in girls ($R=0.53$; $p < 0.05$).

Keywords: general motor abilities, body composition, primary school

Balázs Csordás

College of Nyiregyháza, Hungary, Comparative study

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Comparative study of the balancing capability athletes

The equilibrium, in the history of the human race has always played a big role. After setting up, our organization had to undergo continuous changes, which is established by the state, for example: vertical posture and spine formation curves. It is important to mention that this change is so important in

evolution; every person still has to live it through childhood, when the first attempts to walk on two legs, and then the success occur. However, we made a lot of failed attempts till walking on two legs, but through the continuous tries our equilibrium system is forming. With the amateur and professional athletes are equally important to the development of the vestibular system and the development of more advanced status which will allow the movements will be far more efficient and the sportsmen and sportswomen will be able to perform better results. The balance, especially in the vestibular organ, the organ of vision, muscles, and joints are maintained by proprioceptive reflexes. We perceive the one-plane-occurring accelerating rotary motion sensor in the inner ear or the canals. In the sacculus and utriculi the body straight (back and forth, up and down) movement provides information about the changes. The steady development of the system depends on the level of the sport as well. This is a basic human ability that develops in everyone, whether it's a professional athlete or a general office worker. However, in two different sports, the different developments of the balancing ability are equally important. An athlete with a good sense of balance detects the loss of it and with an additional movement regains balance again. I measured the equilibrium state of athletes of two sports (canoeing and gymnastics) during my research. The test subjects were selected from the same age group (10-14 years). Their fitness and sport age also were in a similar level. I received results about the state of equilibrium static and dynamic state of the athletes by the research tests.

The probes used: Flamingo test, walking back and forth on beam and a special Pentagon walking. The data obtained by the measurements (time results, error numbers)

has aggregated and processed with the SPSS 16.0-inch program. Based on the results in terms of significance, however, there was no significant difference in the results arithmetically evolved differences emerged during the survey.

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Sport: a tool for reaching EU external policy goals?

With the ratification of the Lisbon Treaty (2009) sport became the competence of the European Union. Sport policy has increasingly gained ground in EU Law and article 165 of the Treaty provides the community with a reference to utilize sport as a tool for EU external relations. A set of policy papers in the field of sport reinforce this approach by recognizing sport's contribution to EU development and neighbourhood policies. Notwithstanding these explicit indications, sport remains an unexploited resource to reach the objectives of EU external policies. The aim of this study is to investigate the achievements in the field through the collection and analysis of EU funded sport-based projects taking place in developing and neighbourhood countries. The research draws upon existing academic publications, official EU documents, databases and interviews with key persons involved in EU Sport policy. The paper demonstrates that the role of sport has been long neglected in EU external relations and only a limited number of projects took place in third countries. The lack of EU recommendations in the field hinders the involvement of sport in external policies which could be improved with the topic's introduction into the next EU Work Plan for Sport.

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The coherence between the efficiency of duels and the results of the matches in handball

Introduction: Handball is a really complex sport, where the result of a match depends on many factors. For example, the shooting percent of the left or right back players can be crucial, just like the efficiency of the fast breaks. In this research we examined: does the efficiency of duels affect the result of a match? The researches about the factors that influence the results in handball showed, that the efficiency of shots from the back players affect the result of a match, and in many occasions the home field is an advantage (Gomez et al. 2014, Srhoj et al. 2001, Gruic et al. 2006). The fast breaks and individual break throughs are also affecting the results, but the technical mistakes do not (Ilic et al. 2011).

Aim and hypothesis: There is a connection between the negative and positive result proportion of a duel and the result of a match.

Material and methods: The study involves the analysis of 24 matches (n=24) – with arbitrary selection, the study is not representative. The matches are mixed in sex, age group and game level. The items were recorded live, on an electronical device, with a software made to statistically collect the data about the duels in handball. The software is the property of AJT Sport Kft, the use of it happened with the permission of the owner. The method behind the software is trade secret. On the matches 66,79 < 11,7 occurrence was collected on the average. The elaboration of the data happened with Statistica 13 software, with descriptive statistics and pearsson correlation (p < 0,05).

Results: On the 24 matches we recorded on the average 32,20±7,79 successful, 26,04±5,58 unsuccessful and 8,54±2,78 irregular duels. Between the duel-coefficient and the result-coefficient there is a strong correlation (r=0,70, p=0,00013). Between the shorted duel-coefficient and the result-coefficient there is an even stronger correlation (r=0,72, p=0,00008). Between the number of successful duels and the result-coefficient there is a moderate positive correlation (r=0,63, p=0,009). Between the number of goals the analysed team got from duels and the result-coefficient there was only a weak negative correlation (r=-0,21, p=0,31).

Discussion: After the analysis, we accepted the hypothesis. There is a correlation between the negative and positive result proportion of a duel and the result of a match. In further studies, i want to analyse the factors which influence the result of a match – it is meritable to give a coefficient to the factors named in the introduction, and after the correlation analysis compare it with the results of this paper.

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SPORT THERAPY APPLICATION AND EFFECTIVENESS SURVEY AMONG PATIENTS WITH TYPE II DIABETES

Introduction: Our goal was to assess the efficacy of a three-month combined exercise program with type II diabetic patients as a function of body composition, fitness, blood glucose and blood pressure. Also our goal was to investigate the quality of life, physical activity and disease-specific knowledge (DSK) for people with diabetes.

Materials and methods: 87 patients were enrolled into our prospective research with non-

random sample selection. We measured body composition (BCM Omron-BF511), blood glucose (Dcont Trend), blood pressure (M. E. BU-90E), fitness (5 tests). Quality of life (Diabetes-39), physical activity (CHAMPS) and DSK were measured with questionnaire. Statistic calculations: paired t-test, regression analysis, correlation analysis (SPSS 22.0).

Results: There is a strong relationship between years since diabetes diagnosed and the number of complications ($p < 0.001$). There were significant relationship between quality of life - DSK ($p = 0.003$), quality of life - the number of complications ($p < 0.001$) and quality of life - physical activity ($p = 0.004$). There was notable correlation between DSK of physically active and inactive patients ($p < 0.001$). Among the patients, who took part of sport therapy (21 person) the values of body weight ($p < 0.001$), BMI ($p < 0.001$), body fat ($p < 0.001$), visceral fat ($P < 0.001$), skeletal muscle, ($P < 0.001$) right - ($p < 0.001$) and left elbow bend test ($p < 0.001$), 6-minute walk test ($p < 0.001$), stand up-sit down test ($p = 0.001$), systolic - ($p < 0.001$) diastolic blood pressure - ($p = 0.047$) and blood sugar level before the exercises ($p < 0.001$) significantly changed after the sport therapy compared to the values before the sport therapy. The post-exercise blood glucose was significantly lower at the beginning - ($p < 0.001$) at the half ($p < 0.001$) and at the end ($p < 0.001$) of the sport therapy compared to the level measured before the exercises.

Conclusions: A sport therapy with clinical goals, which consists of a combined exercise, effective with type II diabetes patients.

Keywords: diabetes, sport therapy, combined exercise, quality of life, physical activity

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TEENAGERS' WITH DIFFERENT MOTION STATE ADAPTATION TO ACADEMIC WORKLOAD

Research objective: Investigating the peculiarities of teenagers with different motion state adaptation to academic workload.

Materials and methods: 16 basketball players, aged 14 (basic group (BG) and 15 average schoolchildren (control group (CG)) took part in the research. Mental working capacity dynamics, (using letter tables), external respiration (using «Spirotest» machine), pulmonary capacity, forced pulmonary capacity breathing rate, maximal breathing capacity, pulmonary minute volume, breath-holding during respiration were investigated and registered within an academic year dynamics.

Results and discussion: At the end of the academic year mental working capacity indices in the basic group exceeded the same indices of the control group by speed and working quality, in particular: 870 and 760 signs at the research beginning, 788 and 852 at its end. Studying external respiration function showed that sportsmen have higher development level of it at the beginning as well as at the end of the research. In the basic group pulmonary capacity was approximately 4126 and 4636 ml, and in control group these indices were 3405 and 4023 ml. The same dynamics was shown by other external respiration indices. Received results indicate motion state positive influence on students' academic workload adaptation and its level increasing necessity.

Conclusions:

1. The highest level of mental working capacity was preserved by teenagers from the sport form at the end of the academic year.
2. Teenagers' from the sport form external respiration function is developed more intensively.

3. Increased motion state in the sport form influences teenagers' physical development and mental working capacity positively.

Keywords: adaptation, teenagers, motion state, working capacity, academic workload

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Judo - Building a Better Society

The key to a better society is education. Judo is not only a martial art and an Olympic sport, it is also an educational tool, because of its values. The International Judo Federation runs global programs that are leading to a better society using judo as a mean and not as an aim: Judo for Children, Judo for Peace, Educational Judo Tours, a Judo Academy, a World Judo Tour (for elite senior athletes) and also competitions for Cadets, Juniors and Veterans, Judo in Refugee Camps, collaboration with International Blinds Sports Federation (IBSA) for visually impaired judo, as well as programs for Military and Police structures. Every person can find their place in judo, even as a practitioner, national coach, referee, club coach or only as a fan. Once a person practices the 'Gentle Way' in the dojo (place where judoka train), the moral code is also applied in everyday life. For my Bachelor's Degree Thesis I did a research to prove that judo helps education. I formulated the hypothesis that children who practice judo for a certain period of time –at least 4 years- take the values of judo, improving their education and being more sociable than the other children that grow up in the same climate (same classroom, so same level of education from school's point of view) and practice other sports or no sports at all. To test my assertion, I used a survey consisting of 10 questions,

each question with three possible answers and noted with a certain score. I intended to underline different possible situations from daily life that show judokas apply the moral code they learnt from their sport.

I had two groups: Group A - children/youths of 10-16 years practicing judo for 4-5 years and group B - their class mates from school, who were practicing another sport or who were not doing sport at all. Following the test, group A had a significantly higher score that demonstrated the validity of my hypothesis.

Keywords: judo, education, society, moral code, respect

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METHODS OF COORDINATION ABILITIES DEVELOPMENT OF JUNIOR SPEEDSKATERS

Research objective: - providing scientific background for new means of speedskaters' coordination abilities development during elementary training.

Organisation and study management: Two groups of speedskaters (10 people in each) took part in the research. During 6 month of training an additional set of exercises using the «agility ladder» machine was used at the beginning of a basic training part for 10 — 15 minutes in the experimental and control groups. The method effective-ness was evaluated with the help of some tests: 3 x 10 m shuttle run, 3 forward rolls, skating on one leg, «swallow stand scale».

Results: The received results analysis on completing the research has shown positive dynamics in both groups. But, this dynamics was expressed more definitely in the experimental group. For example, the average

increase of the «shuttle run» test results was 3,25% in the experimental group and the same result in the control one was 0,39%. The «3 forward rolls» test results increased in the experimental group on 3,1% and the same result in the control one was 0,66%.

The most meaningful changes were mentioned in both groups in the «skating on one leg» test: the experimental group increase was 38,29% and the same increase in the control group was 13,75%. The same dynamics was shown by the «swallow stand scale» results: + 33,92% in the experimental group and + 8,82% in the control one.

Conclusion: The meaningful increase of general and special physical training and coordination abilities indices shows the designed exercises sets effectiveness for junior speedskaters. It is worth mentioning that coordination abilities development is followed by basic physical qualities development. By 12 - 13 trained children (from the coordination and physical development point of view) start doing speedskating.

Key words: junior speedskaters, coordination abilities, «agility ladder» machine

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Comparative Study Between EU Sport and Youth Policies. The Use of a Common Tool: Education Through Sport To Boost Employability

The Use of a Common Tool: Education Through Sport To Boost Employability
Employability can be defined as a set of knowledge, skills, and competencies „that make people likely to gain employment and be successful in their chosen occupations, which

benefits themselves, the workforce, the community and the economy” (Yorke 2004). Employability is the ultimate objective of the education and training programmes of the EU and its 28 Member States. Education Through Sport (ETS) is a method of developing key competences and soft skills. Non-formal education gives young people the possibility to further develop the necessary values, skills and competencies others than developed in the framework of formal education. The purpose of the study is to find connection between the EU Sport Policy and the EU Youth Policy, based on the fact that both claim to use sport and physical activities as a tool for social, health and education/skill development. The related literature is rich in analysing the benefits of sport in many areas, and the same was found in outcomes of long-term youth programmes, however the overlapping area and tools of the examined policy fields have not been studied yet. The main research method was the document analysis of the key documents of the EU sport and youth policies. The presentation overviews the different paths of the developing policy fields and the milestone documents focusing on how sport was viewed as a tool for skills development. Since 1993 the EU youth policy provides various funds and activities for youth, where trained youth workers use sport as a tool to develop transversal skills. In the field of sport, the EU has gained a competence only in 2009 and until 2014 there was no fund for sport programmes. The 20 years of difference in EU level policies and funds resulted in a situation where today a well-defined programmes and teaching resources of EU-funded youth projects offer methodological tools for sports stakeholders. A common tool that both youth and sports policies are using is the Education Through Sport, which today also viewed as a way to boost employability. The outcomes of ETS programmes provide young people with

so called soft or transversal skills, which are - beside the proper qualification – requested and looked for by the potential employers. The recent publishing and launch of the Erasmus+ programme for education, training, youth and sport brought these different fields under one roof. The new programme declares its aims to boost people's personal development and job prospects by supporting 4 million young people, students and adults between 2014 and 2020 to gain experience and skills via studying, training, taking part in youth exchanges or volunteering abroad, where sport is a both a horizontal and independent activity.

Keywords: EU Youth Policy, EU Sport Policy, Education Through Sport, Competency Development, Employability

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Comparison of Resupply Players of Elite Handball Teams (in Hungary) by Attacking Positions on the Evidence of Psychological Tests

Introduction: Athletes need to prepare for their athletic performance in their mind as structurally, as their prepare for them on the playing field. This is part of their personal development. This can help to achieve even better performance. (Lénárt, 2012.) This can help reaching even better results, therefore, when we plan we have to take into account not only the sport-specific but the psycho-logical features as well. (Lénárt, 2012.)

Hypotheses: It was supposed that there are significant differences between the level of self-confidence, persistence, ability to cooperate, stress tolerance of players with regards to posts. Respectively, men players

are more open-minded for new experiences than women players. Furthermore, we assume that there are significant differences between the handball posts in the ACSI-28 psychological questionnaire. The last supposition was that the in scale values of competitive anxiety of the CSAI-2 are different in different posts.

Methods: During the research, the Big Five Questionnaire (BFQ, C. Barbaranelli at al 1993.) was used. This is a comprehensive personality questionnaire which measures the basic emotional, interpersonal and motivational characteristics of a person. Dimensions of BFQ are: Energy, Geniality, Conscientiousness and Emotional Stability. In addition, we used the Athletic Coping Skills Inventory-28 (ACSI-28, Smith at al 1995.) which measures the coping strategies of athletes: Coping with adversity, Peaking under Pressure, Goal setting/mental preparation, Concentration, Freedom from Worry, Confidence and Achievement Motivation and Coachability. Test anxiety was measured with the Competitive State Anxiety Inventory (CSAI-2, Martnes at al 1990.). With this questionnaire we can measure the current cognitive, somatic status of anxiety regarding competing and we can also measure the self-confidence regarding competing. 13-17 year-old players (both men and women) of professional handball teams were examined. The results were processed with solution keys, basic statistical calculations and the SPSS statistical program.

Results: At professional handball teams, they work really hard and they cannot grant enough time for researchers. Therefore, the sampling procedures demand more time. It is important for us to reach as many people as possible, therefore, players of more teams are examined. The research is still ongoing, and the data is still being processed. The results of the research will help the work of handball coaches and players and will give advice for

them about the personality that is needed for concrete positions.

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The characteristics of the body composition and cardiorespiratory fitness of an elite female handball player based on longitudinal data

Requirements for female elite team handball (TH) players have changed drastically as the game (TH) has evolved substantially over the last decades. The amount of training and the number of matches have increased considerably, and recently introduced rule changes, e. g. the quick throw-off, has led to an increased number of attacks during match-play.

The aim of this study is to analyse the changes of the longitudinal data in the body composition and cardiorespiratory fitness of a world class - possibly one of the best in the world- handball player. During the analysis the components (PO, MP, VE, Vt, RR, RQ, VEO₂) have been considered and compared from the beginning of submaximal zone to the end of the maximal load. From our gathered data we have highlighted and focused on the data from the years 2013 and 2014 not losing attention to data gathered at other times. The first surprise was the difference in the measured body mass. (-2.6 kg). The reason behind the change in body mass was the difference of the body composition: relation to the muscle and fat percent (M%, F%). Regarding the cardiorespiratory endurance, we have analysed the relative aerobic capacity (RVO₂max) on the maximal load year by year, the metabolic characteristics (RQ), and ventilatory equivalent for oxygen (VEO₂). One of the most important information was the

accomplished periods and other information gathered while on the treadmill. It's well-known, that high performance consists of several other factors in conjunction with each other, as is the case in team sport like in handball. However it's undisputed that high performance demands optimal body composition and toughness from the cardiorespiratory system.

Keywords: elite team handball (TH) players, longitudinal data, cardiorespiratory fitness

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The effect on the mood state of students of doing exercises for 3 minutes - based on a research

The main purpose of the current research presented itself in reference to the introduction of daily physical education classes in public education. I made up my own issue studying a report on the effects of three minutes of light exercises published by Ábrahám & Szabó (2013).

The goal is to examine whether a three minute exercise affects the mood state of pupils and their attitude to P.E. lessons. I examined the following questions: Do pupils like doing sport during the whole lesson? I presumed that students prefer to do sports to rest for three minutes and they find doing exercises a decent relaxation.

I studied two classes from third grade and two classes from sixth. The classes insisted of an active group doing the exercises, and a control group who were resting meanwhile. We performed the exercises just like it were mentioned in the publication in order to make the results comparable. I measured the mood

state of students using the 5-point Likert scale right before and after the examination. Besides, students filled a single questionnaire on their sporting habits.

Data processing was made using Microsoft Excell and SPSS 20. The aim was to show the differences between the active and control group. After processing the data I came to the conclusion that all of the groups produced different results, but not significantly in all cases. The mood state of third grade students got better no matter which group they were selected in. The single questionnaire revealed that the older class spends 100 minutes more doing sports than third grade. On the one hand it is partly the result of daily P.E. lessons, on the other hand I take their weekend sporting habits in consideration as well. To my mind, researches on this subject may be essential, by right of its actuality, among teachers.

Keywords: students, 3 minutes, relax, exercises

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The role of educational trails in Hungarian recreation

Educational trails have multiple functions: they play an essential role in environmental education as the destination often visited by teachers with a group of enthusiastic children but they are also the place that gives us a pleasant alternative to spend our free time at. The main goal of this research has been the ambition to define the exact place of educational trails in the wider area of recreation and make an effort by defining the possible and recommended age-groups of its visitors. We also aimed to point out whether they could be considered as a popular place where free time activities can be held among

the Hungarian population, especially with regard of its families.

The method of the research has been document analysis, in which we studied and analysed relevant literature and several statistics of the Hungarian National Tourist Office. By studying the available literature we have been able to declare that educational trails play an essential role both in educational and recreational relation and that they actually can be claimed as a suitable place of free time activities for all members of the population. While processing this research there have been some problematic issues arisen - the relativity of the role regarding educational trails about their use in recreation and the main motivation of their visitors. The lack of research in this field regarding the free time aspects makes us believe that in contrast to the dominance of educational, touristic or ecological relations the aspects of free time are underestimated and considered less important as the abovementioned ones. In order to give a full picture about the topic it has been necessary to complete our research with some extra angles at the end. An interesting and new direction as a base for possible future researches has been named in the last chapter of our work.

Keywords: educational trail, recreation, family, free-time activity, environmental education

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The importance of emotion regulation and metacognitive abilities in sport performance

Emotions and affective life are important components of human existence helping individuals to adjust to the demands of the physical and social life-conditions.

Thus, affective states may contribute to the overall control of behavior in an adaptive way in order to meet the specific demands of the situation. Since sport performance is based on the athlete's cognitive, emotional (affective), motivational, bodily, behavioral, operational (action tendencies), and communicative competences, emotions come to play an extremely salient role, intervening both in the process of training and in competition. Literature groups emotions in several categories, based either on their valence (positive-negative), or on their adaptive functions. Adaptive affective states would facilitate preparation and sustained motivation to invest sustained effort in performance attainment, while maladaptive emotions would result in demotivation, abandonment, and exacerbated negative states. Specific emotional states may determine athletes towards fulfilling a goal, while others hinder high performance. Furthermore, emotions on the one hand depend on cognitions but they may also affect cognitive functioning by changing arousal and cognitions per se. The optimal balance between emotional states that would permit higher sport performance may be attained through self-regulation and especially through emotion-regulation strategies. Self-regulation represents all forms of effort invested by a human being in order to alter his or her inner states or responses (behaviors, thoughts, feelings, task performance). One of the major forms of self-regulation refers to emotion-regulation strategies, meaning "all the extrinsic and intrinsic processes responsible for monitoring, evaluating and modifying emotional reactions, especially their intensive and temporal features, to accomplish one's goals". Cognitive and meta-cognitive processes are significantly implied both in the production and the regulation of emotions. Competitive sports usually face three major issues related to emotional experiences: (i)

how to identify optimal and dysfunctional emotional states related to individually successful and poor performances, (ii) how to predict emotion-performance relationships, and (iii) how to select person- and task-relevant techniques of self-regulation. Based on cognitive emotion regulation strategies, sport psychology practitioners have developed a number of intervention techniques. The major aim of our presentation is to highlight the role of emotions, and cognitive/meta-cognitive emotion-regulation strategies in the attainment of high sport performance.

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Supervisor: József Tihanyi

Examination of the effects of eccentric and isometric training of the posterior thigh muscles on H/Q ratio of girls in prepuberty

The posterior thigh muscles have extremely important role in stabilizing the knee joint. If these muscles are not trained properly, there is a big chance of hyperextension when the person performs sporting activities, especially when the legs lash forward with high velocity.

The anterior cruciate ligament can tear partially or completely. The force of the two muscle groups is called H/Q ratio. The functional H/Q ratio is made up by the eccentric force of the flexor muscles, and the concentric force of the extensor muscles. Steindler (1955) and Coombs and Garbutt (2002) consider the ideal ratio 2:3, which is 0,67. Research of Holcomb et al (2007) consider the ideal ratio 0,6. Under this ratio the risk of getting injured significantly rises. Devan et al (2004) think that on 60 °/s

velocity the H/Q ratio should stand between 0,6-0,69, whereas on a speed of 300 °/s should stand between 0,8-0,95. Based on research of Holcomb et al (2007) a 6 weeks long training of the posterior thigh muscles significantly raises the H/Q ratio.

The aim of our study is to find the best training method of correcting the weakened H/Q ratio which occurs in prepuberty. The hypothesis is that we can reduce the swing of the H/Q ratio with specific hamstring exercises. We examined volleyball players: 10 girls in prepuberty, age $11,22 \pm 0,725$ years, training age $1,19 \pm 0,52$ years, weight $41,3 \pm 6,54$ kg. We divided them into 2 groups the first group performed isometric, while the second performed eccentric trainings. At the beginning of the program 3X5 repetitions were performed, at the end of the training we raised the repetitions to 3X10. We measured the maximal eccentric force of the flexor and the maximal concentric force of the extensor muscles of the knee joint with 60 °/s velocity. The results show significant increase in strength of the hamstring muscles after the training period, but we could not find significant shift in H/Q ratio.

Our hypothesis were denied, because there were no significant shift in H/Q ratio. Our conclusion is that the maximal eccentric force of the knee flexor muscles grew despite of the insignificant change of the H/Q ratio. The reason could be that because of the regular volleyball trainings the knee extensor muscles strengthened as much as the knee flexors during our training period. We plan to continue making studies in this subject with changes in the training method we use to strengthen the hamstrings.

Keywords: H/Q ratio; posterior thigh muscles; eccentric, isometric strength training

Gábor Gécz

University of Physical Education, Budapest

Long-term Athletes Development (LTAD) - the framework of the successful youth programs

Hungarian sport has a world leading role in summer sports, although in many countries athletes work similarly hard in various sports worldwide. If Hungarian sport wants to maintain its role in the future, the sport-related processes, especially those related to sport talent management, should be carried out with better preparation and should have more careful planning of the whole development. The sport vocational audit in 2014 highlighted the problems of two essential fields of the coach education, further education programs and the youth programs (talent development), in the Hungarian sport federations. To keep the world ranking on elite level, the majority of athletes should be able to reach their genetic potential during the youth programs to make effective use of the money spent on sport. Accordingly, the long-term thinking of the leaders and the coaches is essential and the structure of the LTAD is perfect to direct them to the right way.

Keywords: coaches, development, youth sport, talent management

Gábor Juhász

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Potential advantages of the playoff system in football

Introduction: In the last years number of spectators showed continuous decrease in the stadiums of teams in the professional Hungarian football league („NB1”) – in spite of the fact that number of the teams decreased

12 from 16. There can be many reasons, and one of the most important is that many of the games do not have enough importance. If we investigate specific viewing data, we can clearly see that much more people view a game if rivalry, uncertainty and importance are big. My hypothesis is that introducing of the playoff system would gain views in Hungarian football, as it would have a positive impact on the factors mentioned above.

Methods: During my research, I focused on viewings, as it is one of the most important for football clubs. I investigated the theoretical side, than I researched for historical data from the past 5 seasons (2010-2016, data from the clubs). After researching I analyzed the possible reasons. The main (theoretical) affecting factors in views as follows (Dr. Sterbenz Tamás – Dr. Géczi Gábor: Sportmenedzsment, SE-TSK, 2012, Budapest): uncertainty (regarding the final result); importance of the game; expectations; prestige; common history, rivalry between teams; participation of stars. When teams and federations want to gain views, they have to take into consideration these factors. I investigated which games attracted the biggest and smallest number of spectators in the last 5 seasons in NB1. I also investigated many viewing data from other Hungarian sport championships with playoff system (basketball, handball, ice hockey – data from sportstatisztika.blog.hu). Then I checked all the outliers, analyzing the possible reasons. Results clearly showed that there is a big correlation between views and theoretical factors mentioned above.

Results: After these investigations, I created a theoretical model. Using the numbers in championships with playoff system, historical viewing data and actual standing from NB1, I tried to predict the views if there would be a playoff system in NB1. This theoretical model

clearly showed that views would gain rapidly if there would be a playoff system in NB1.

Key words: Football; views; playoffs; NB1; theoretical model.

Gergely Géczi

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Supervisor: Krisztina András

NHL as an investment

Introduction: I have chosen this topic due to my personal interests in the fields of ice-hockey and economy. As the data of the NHL teams can be easily reached, it is a subject of my research. During a school work, I was working with the data of the NHL and noticed that most of the teams went through a huge economic growth. I became curious and wanted to know how it compares to an average stock market portfolio, so we can determine if it is better to invest in the NHL rather than investing in the stock market. To measure this in a common scale, I have chosen ROI (Return on Investment).

Research: question, subject of research In my research, I am looking for the answer of the following question: Based on ROI, is the NHL attractive to the investors? I made some assumptions: • Investing in the NHL can deliver higher profits than the NASDAQ-100 stock market index; • Investing in Canada-based NHL teams returns higher profits than investing in the USA-based; • There is correlation between the ROI and the change of the attendance per game

Used data: The research processes the data of five full years (2010-2015). I used Yahoo Finance; the statistics page of ESPN.com and Forbes: The Business of Hockey database.

Methods: The research is a desk research type analysis of documents, where I used Microsoft Excel and IBM SPSS 21 softwares.

Results: Based on the research, investing in the NHL Franchise returns a higher profit. However, the yearly profit has a higher deviation in the NHL, so it means more risk compared to the NASDAQ-100 stock market index. This means we can partly accept our first assumption. We have an easy job stating that investing in the Canada-based NHL teams delivers a way higher average profit than the USA-based ones. The reason behind this is the „national sport feeling“ of ice-hockey in Canada. This means we can accept our second assumption. I found no significant correlation between the attendance and the profit values. This means the income of the attended spectators are a very small amount in the budget of the teams. Due to this, we have to decline our third assumption.

Keywords: NHL, ROI, NASDAQ

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Skin microcirculation in exercise and its role in thermoregulation

Dynamic exercise strongly affects skin microcirculation as skin is the main effector organ for heat elimination. Depending on the intensity, type and duration of exercise, and on the environmental temperature, thermoregulatory reflexes induce adjustments of cutaneous vascular conductance and thus skin blood flow (SkBF) and sweating rate. During extreme exercise in a hot environment SkBF has been estimated to attain up to 7 L/min as compared to 300 ml/min at rest. The thermoregulatory responses of SkBF during exercise differ from that at rest in the threshold for vasodilation and in the sensitivity of the

'SkBF to core temperature' slope. Obviously, the regulation of SkBF is a complex interplay of neural and local vascular mechanisms. Nonglabrous and glabrous skin sites differ in structural microvascular organisation as well as in the type of innervation, especially with regard to the abundance of arteriovenous anastomoses which are predominantly engaged in thermoregulation. While acral glabrous sites are innervated only by the sympathetic vasoconstrictor fibers, the nonacral sites also receive sympathetic vasodilatory fibers. We have recently shown that glabrous and nonglabrous areas indeed respond differently during exercise and in its recovery pointing to different regulatory mechanisms. Furthermore, regular exercise induces changes in the reactivity of skin microcirculation in terms of increasing the endothelium-dependent vasodilatation and reducing the threshold for vasodilation. Based on our observation, the contribution of different endothelial vasodilators involved in the local regulation of skin blood flow also differ between sedentary and highly trained. Independently of thermal control, different nonthermal reflexes that tend to diminish SkBF to obtain enough oxygen and nutrients to the working skeletal muscles and the heart are activated during exercise as well as to maintain blood pressure after cessation of exercise. How these conflicting demands integrate at the level of skin microcirculation and how they impact thermoregulation and modulate SkBF during exercise and its recovery will be presented and some recent findings highlighted.

Ingrid Schaub

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Street dance, as outdoor activity in school and the measurement of it's impact with flow questionnaire

Our study is built on the documentation of innovative elements of sport and education management. We have worked out afternoon recreational activity program and its result is supported by our measurements (Törvény a nemzeti köznevelésről, 2011; Borkovits, 2014). Due to lack of classrooms we have chosen an outdoor type activity such as dance and dance kind of exercises. Our aim is to boost the interest in physical activities by introducing recreational activities (street dance) and also to ensure equal opportunity by experiencing flow. We would like to show the flow experiences by comparing the results of the surveys taken at the beginning and at the end of the programme. The investigation was planned in three steps.

1. To construct the exercise programme based on lecturer studies.
2. The examination of the flow by a questionnaire.
3. Making verbal interviews during examination period.

15 people were involved the study. Those students, who have regularly taken part in street dance activities, had significantly more points for experiencing flow and they have showed significant differences towards anxiety and apathy. Participants reported sense of flying, happiness and flowing in every case.

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Judit Dénes

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Supervisors: Péter Farkas, Andrea Gál

A study of attitudes held by Hungarians in different age groups to the concept of "fair play" in sport

Introduction: Some see sport as a special area in social life celebrating ethical attitudes such as fairness, competition under clear rules, or just 'sportsmanship'. A contrast is sometimes drawn with social life in general in which rules are broken whenever convenient. This study looks at how Hungarians questioned on fairness in sport reveal attitudes to both sport and society outside sport that differ between age groups.

Hypothesis: The hypothesis tested here is that different generations questioned in a market-research survey done in 2014 about their attitudes to "fair play" in sport indirectly reveal in their answers shifting views of ethical standards in society at large. While most questions received similar answers between age groups, 3 or 4 topics revealed different levels of belief between generations as to whether sport and society at large have become less ethical during the last 40 years.

Study methods: Péter Farkas and Andrea Gál conducted a survey with 500 Hungarians with the help of Bell Research. In this study I made the secondary analysis, above the age of 18, chosen to be representative of the population as a whole, during the months of July and August 2014.

The interviews covered 32 questions on the topic of how respondents saw fair play in Hungarian sport and life in general.

Respondents for this study were divided into three age groups: 18 to 34, 35 to 59, and above 60.

Results: Answers to some questions show an overall trend distinguishing age groups: as

ages of respondents decline, so belief that fair play is limited to sport rises and then falls. This suggests belief that fair play also applies in society outside the domain of sport peaks in the 35-to-59 age group. This might be a proxy for decline and then partial recovery in cynicism about social ethics over recent decades. Also a stronger trend suggests that as age declines among respondents so also faith in sport itself being a domain of sportsmanship declines.

Conclusions: Although, results do not show a marked shift in attitudes among different generations, the numbers are suggestive of an underlying trend. Further research with more narrowly-defined age groups and questions focused more on differences between sport and life outside sport might be fruitful. Studies of fairness in professional and amateur sport might uncover broader age-related shifts in Hungarian social attitudes.

Keywords: fair play, attitudes, generations, society, differences

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Why put so much focus on extra physical activity in schools and leisure time?

Today's children are not very active; perhaps the least active in history. Within each decade, children engage less in active play and sport and have fewer opportunities for being physical active. The cost of physical inactivity is high, and children are paying the price as early as in primary school.

Active children do better in every possible way. They can perform better in school, and they are healthier. Physical activity and higher fitness can increase attendance rate and levels of concentration. Fit kids have improved

chances for better health, emotional and social outcomes in the future.

Every active play, jump, sprint, kick and throw increases a child's chances of success in school and in life. Making sure that all children receive that opportunity starts with a physically active primary school.

Such schools integrate fun options for physical activity into the entire school day; before, during and after.

My presentation will explore the central scientific literature related to these statements, as well as present examples of the implementation of successful physical activity programs in the Danish school system.

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Relationship between physical abilities and competitive performance in young elite female and male tennis players

Introduction In modern tennis, the physical abilities and competitive performance are gradually increasing in young tennis players. In the present study we aimed to test the hypothesis that better physical abilities contributes substantially to higher ranking in competition performance. Thus we aimed to examine the relationship between competition performance (position of the player on the ranking list) and physical abilities of young elite male and female tennis players.

Material and Methods Eighty elite junior tennis players participated in the study. Eleven field tests were used to assess the physical abilities of the tennis players: hexagon test; 5m run; standing long jump; overhead medicine ball toss; overhead ball throw; speed of the serve; push-ups in 30 sec; 5x10m shuttle run;

spider run; sit and reach; and shoulder turning with stick.

Results We have found a significant correlation between the position on the ranking list and the standing long jump ($r = -0.54$), 5m run ($r = 0.51$), speed of serve ($r = -0.52$) and in the push-up in 30 seconds ($r = -0.45$) in the under-12-year-old female and in the standing long jump ($r = -0.63$), the push-up in 30 seconds ($r = -0.58$) and in the 5x10m shuttle run ($r = 0.56$) in the under-14-year-old female tennis players. However, we have did not found correlation between the physical abilities and competition performance in the under-12 and under 14-year-old male tennis players.

Conclusions The results suggest that in female - but not in male - young tennis players the physical abilities significantly contribute to their competitive performance. We propose that in young male tennis players other factors, such as motor skills, technical and tactical elements are also contribute to their competitive success. Moreover, it is likely that gender-specific training regimens are necessary to develop in young tennis players to improve their competitiveness.

Key words: tennis, physical conditions, competitive performance, field test

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High intensity movements in football

Between 2011 and 2013, measurements were performed at one of the best football clubs in Hungary. The primary goal of the measurements is to find a comparison basis between international football and the Hungarian one. Beside the traditional fitness tests, we measured the matches on a regular basis as well. We recorded the performances of the players during the matches from the age of 13 years to the adult players. During the

research, we have analyzed the movement performances of the football players of the adult team at 15 domestic matches in the national championship by Datapower (DATAPOWER Lab ZRT. system). Parallel to this, several matches of the age groups of 13 and 19 years were recorded by the GPSport (GPSport Canberra, Australia) device. At least five matches were recorded in case of every age group. Emphasis is laid on two main points of view in the paper. On the one hand, the quantity of total movements achieved at the match, on the other hand, the ratio of movements quicker than 19.8 km/h within this.

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Supervisor: János Négyesi

Hand laterality influences the kinesthetic sense in non-clinical populations

Introduction: Kinesthesia refers to the ability of sensing both limb position-, and movement. It has been showed that left-handed non clinical adults perform the proprioceptive target matching tasks with less errors than the right-handers (Goble et al., 2009), suggesting neuroanatomical differences between the two groups. Furthermore, it has been also showed that the proprioceptive ability decreases with age (Herter et al, 2014). Currently, we present the differences in kinesthetic sense between left-, and right-handed young subjects, regarding to the dominant-, and non-dominant legs.

Hypothesis: In the present study, we hypothesize that kinesthetic sense of the dominant-, and non-dominant leg differs between left-, and right-handed healthy young subjects.

Methods: 24 non-clinical subjects (18-35 years old, 12 right-handed, 12 left-handed) participated in the study. To determine neurological and physical health, each subject completed MMSE and SPPB tests before the examination. Proprioception measurements were performed with an isokinetic Cybex NORM dynamometer, starting with a flexion angle of approximately 90°. The knee joint was passively moved to 30, 40 and 60° angles in random order (5 times per angles). After reaching the target angle, the free-moving arm stopped and held this position for 5 seconds then it sets back to the starting angle of 90°. After this, the arm of the dynamometer started to move again while the participants were instructed to push a hold button as soon as he or she sensed that the target position was reached again. The results were analysed by two-sample t-test. We set the significance level at $p \leq 0.05$.

Results: We found significant differences between left-, and right-handed young subjects in the kinesthetic sense of the dominant- ($t = -2.76, p = 0.007$), but not in the non-dominant ($t = -0.20, p = 0.839$) leg.

Conclusion: In line with the prevealing literature (Goble et al., 2009), the present study showed differences in kinesthetic sense between left-, and right handed young subjects. In contrast, kinesthetic sense shows no differences between the two groups regarding to the non-dominant leg. The aim of the project is to examine how neuromuscular system changes with age in left-, and right-handed populations. We suggest that our results could be a potential basis for the development of therapies that may help preventing neuromuscular problems associated with aging.

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Keywords: *kinesthetic sense, proprioception, inter-limb transfer, handedness, knee joint*

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Youth participation at international programs for leisure profession development

Being aware of the population growth rate increasing exponentially globally, there is an increasing need for innovative leisure opportunities that address social development in the overcrowded, estranged milieu of the cities. Thus, the demand for open minded, young leisure professionals to tackle such issues is created. These young professionals need to possess the knowled-ge of maintenance and management of new leisure spaces through innovative thoughts and designs. The objectives of the research is to unfold the role of informal educational methods, knowledge sharing competences regarding leisure management among youth professionals in the light of their academic studies on an international level. The author examines case studies on youth leisure perceptions from different, remote countries of the world. Firstly, 10 international volunteers of the 2015 Qingdao World Leisure Games were interviewed by questionnaires concerning their perceptions on the social legacy of the event. Moreover, aiming to observe the diverse roles of local young people at an international leisure event, the author effected a field study in Laixi, at Qingdao region of China. Secondly, interviews were fulfilled with young people from

16 countries concerning their leisure orientation in the context of distinct cultural background. The results indicate that following the international programs, young people developed not only in various abilities but they also acquired debating techniques at an altering cultural setting. It is also pointed out that there is a thriving need to expand young leisure professionals' studies through informal learning techniques such as volunteering.

Keywords: Young people, informal learning, international program, leisure, volunteering

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Ageing of the immune system and physical activity

Introduction: Physical inactivity has been identified as the fourth leading risk factor for global mortality causing an estimated 3.2 million deaths yearly (WHO,2016). Sedentary lifestyle and overweight are major public health and clinical problems in Hungary. As a consequence ageing is faster in Hungary than it expected from the normal biological regression. Among the physiological signs of health problems one important factor is the state of the immune system. According to the literature (Gruber et al, 2007) in healthy young adults the hTrec value in the peripheral blood is measurable between wide ranges (approx. 100-2000 hTrec/ug gDNA). hTrec is a parameter showing thymus function or the immunological state of the individual. However the differences and ranges between normal health values and earlier ageing are not delineated yet. In our study investigating health benefits of regular physical activity we compare physical and immunological

parameters of people with inactive or active lifestyles.

Methods: In the present study volunteer adults (females n=14 and males n= 4, 19-67 years) participated in anthropological, physical and immunological measurements. Body composition was calculated from skinfold and In Body measurements, physical performance was estimated with the aid of 6 minute walking test and handgrip strength test. The immunological age was calculated from T-Cell Receptor Excision Circles analysis. Shortly 150µl peripheral blood was taken from fingertips of healthy young inactive controls, recreational- and professional-sportsmen (handball participants or competitors). Human T-cell excision circle (hTrec) copy number was measured using Taqman chemistry on 3D PCR platform and normalized to genomic DNA.

Results: Inactive controls, as it was expected, had a much higher fat percentage, lower physical performance than subjects in any of the active groups. Control individuals showed lower hTrec levels (218 copies/ug gDNA) compared to recreational- (596 copies/ug gDNA) and professional individuals (647 copies/ug gDNA). **Discussion:** According to our data physical inactivity reduces Tcell level. However, regular sport activity significantly increases objective immune parameters irrespective of the degree of sport-activity (recreational or professional). Since there is only about 10% difference between hTrec levels of the active groups in our study. Altogether immunological ageing strongly correlates with the physical activity level of subjects.

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behaviour and health indicators in school-aged children and youth.

Keywords: physical activity, health, immune system, thymus, handball

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The Big NBA shopping list 2016 Challenge– What can we expect from the changing of the salary cap and how can an NBA franchise build a playoff contender team from that

Introduction: In the NBA, there are two major stakeholders: owners and the players. They both have purposes, which are aligned but still not the same. The teams want wins to generate income, the players are also wants to be successful, but in the meantime, receive the most salary. This offseason there is going to be a big salary cap alteration which will effect both sides. There is a relatively new field in basketball called sports analytics, which can help the teams to maximize their efficiency during this time. (Benjamin C Alamar: Sports Analytics Columbia University Press New York, 2013)

Materials and methods: This salary cap changing is generated by the new NBA – Turner Deal. The most relevant consequence is that teams can be paying for the players 88 million dollars, nearly 20 million more than before. So the cap is increased significantly, but the number of mandatory 15 players does not. My research aims are to apply performance analysis and create an "economical" player shopping list for teams who struggle to get into the playoffs. Therefore acquiring these players would be the first major step towards the ultimate goal. Using various

sports analytics formulas to set a level, which a team have to achieve, to participate in the playoffs. Several indicators will be used to create a thorough picture of a team, and to specify the required player/players attributions. (Dean Oliver: Basketball on Paper, Potomac Books, 2003) Meanwhile, also considering aspects of what the league can presently do and how could they avoid the lockout while keeping the players' salaries at a reasonable level.

Results and Discussion: The examined team results suggest that when a setback is detected, a defect in the offensive/defensive end may find the best player to fix that for the lowest money possible. (David Berri, Martin Schmidt, Stacey Brook: The Wages of Wins Stanford Business Books 2006) The teams have several possibilities, choosing the right player from multiple sources.

Conclusion and Summary: Comprehensive results overview will be complemented by a suggestion to fit key players into the existing rosters to increase team success. The chance of a lockout is also considered to be a threat.

Keywords: performance analysis, sports analysis, financing, NBA, salary cap

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Supervisors: Zsófia Mészáros, Ferenc Ihász

Differences of the mean values of Cooper-test between Sportsman, recreations students and high school students

Introduce: A 12-minute walking test run is one of the most suitable method for the characterization of stamina. Our aim is to analyse the cross-sectional comparison with physically active (athlete), the average activity

(recreation students, hobby athletes) and hypoactive (high school students) run capacity, body composition young adults and tests of the motor produced pulsus values.

Methods: During the investigation, a total of 121 recorded information in Győr and in Pápa in September 2015. Their activity according to the test persons are organized into three groups: 1. the competitive group of athletes (n1 = 21) 2. a group of University of West Hungary, Faculty of recreations and students of health promotion the Apáczai community students (n2 = 48), and 3. a group of students from a secondary school with a clear hypoactive (n3 = 52). We have determined the relative weight of the test persons (M%) or reduce (F%).

Results: According to the analysis, there isn't significant connection between the results of Cooper walk/run test. However there is significant connection between boys in category 1. and 2. Therefore the recreation boys' performance was the weakest. There isn't significant connection between girls in all categories. Overall the sportsmen's performance was the best, although they were far lagging behind their top forms.

Conclusion: Our results in the first group for boys are excellent, the second group for boys on average, while the third group for boys performed well. For the girls in the hypoactive group both body composition and motor rehearsals performed poorly.

Keywords: Cooper walk/run test, endurance, active, hypoactive, M%, F%

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Sport for development and peace – how to do it right?

Introduction: "Sport has the power to change the world (...) It is more powerful than government in breaking down racial barriers." – said Nelson Mandela, former president of South Africa. However, researchers must critically examine the social aspects of sport, including the continuously developing field of sport for development and peace (SDP). Researchers and SDP practitioners must not enlarge the community of so-called 'sport evangelists', who are looking at sport as a perfect panacea to cure all problems of individuals and societies (Giulianotti, 2004.)

Methods: The analysis of documents published by the main stakeholders of the SDP sector - both international development organisations and sport organisations - can inform us about how the sector evolved and how sport became a 'player' in international development. A survey is under preparation that will be sent out to various actors of the sector, both organisations and individuals to get knowledge about their perceptions of the work they are doing in the frame of the international development agenda. Lastly, a SDP case study is examined, and checked against a 12-step criteria that all SDP interventions need to go through.

Results: The document analysis shows that international organisations – as the United Nations – are expecting a lot from the sport sector, and they see a great potential in sporting interventions. However, in most cases the results of the projects don't meet the expectations for various reasons, like the different needs of the donors and the beneficiaries. It is one of the key findings of the case study as well.

Currently, the survey is being put together, and then will be sent out to be filled out online.

Key words: sport for development, sport for peace, international development

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The Prospective Association Between Habitual Cycling and Risk of Type 2 Diabetes: Results from a Cohort Study of Danish Adults

Background: Cycling is a recreational activity and mode of commuting with substantial potential to improve public health in many countries around the world. The aim of this study was to examine prospective associations between habitual cycling, as well as changes in cycling habits over time, and risk of type 2 diabetes (T2D) in Danish adults from the Diet, Cancer and Health cohort study.

Methods and Results: At baseline from 1993-1997, 27,178 men and 29,875 women from Denmark, 50-64 years of age, underwent a number of assessments, including completing a lifestyle questionnaire also addressing cycling habits. Approximately five years later participants completed a new, updated lifestyle questionnaire. Cox regression was used to estimate hazard ratios of incident T2D registered in the Danish National Diabetes Registry, according to cycling habits, with adjustment for a priori known T2D risk factors. During 743,026.2 person-years of follow-up (mean follow-up 14.2 years) 6,778 incident cases T2D were documented. Multivariable adjusted HRs were 1, 0.87 (0.82,0.93), 0.83 (0.77,0.89), 0.80 (0.74,0.86) and 0.80 (0.74,0.87) (p for trend = <0.001) for 0, 1-60, 61-150, 151-300 and >300 minutes/week of total cycling (recreational- and commuter cycling), respectively. How changes in total cycling from baseline to follow-up affected risk was also investigated and multivariable adjusted HRs were 1, 0.88 (0.78,1.01), 0.80

(0.69,0.91) and 0.71 (0.65,0.77) for non-cyclists and for those who ceased, initiated or continued cycling during follow-up, respectively where one was defined as a cyclist if above zero minutes pr. week of cycling was reported. Continued cycling was associated with a lower risk compared to both no cycling and cessation of cycling.

Conclusions: Habitual cycling was consistently associated with lower risk of T2D in Danish adults. Our results also provide evidence that late in life initiation of or continued engagement in cycling lowers risk of T2D.

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CORRELATION BETWEEN AGILITY AND EXPLOSIVE POWER IN ELIT AND AMATEUR YOUTH FOOTBALL PLAYERS

Introduction: Football demands complex abilities from professional footballers. According to Stolen et al. (2005), high-intensity activities occur approximately every 90 seconds during a match and last for 2 – 4 seconds. Elite players perform approximately 30 – 40 sprints of various lengths during a match and more than 700 turns (Bloomfield et al., 2007), and accomplish these high-intensity activities in 8.6% of game time (Bangsboo et al. 1991). Frequent stoppages in games allow players to recover between bouts of activity, thus allowing repeated high-intensity spells of play (Drinkwater, 2008). According to Matlák et al. (2014) the ability of performing efficiently these high-intensity movements, the international literature commonly use the keyword agility. Speed and explosive power are considered to be prerequisites for the

success of youth soccer players (Reilly et al., 2000a). The aim of the study is to introduce the correlation between explosive power and agility, as well as the difference in performance of elit and amateur players.

Methods: Study sample includes amateur 4th leagued youth players and players of a national elit football academy (U17, U19, N=58, elit 36, amateur 22). To manifest the results we used the two most applied agility test by international literature (Illinois, ZigZag test – with and without ball) and an explosive leg power test (horizontal jump). For the statistical analysis of the results we used SPSS 19.0 Statistics program.

Results: The elit footballers produced significantly better results in Illinois and ZigZag tests, than amateurs ($p < 0,05$). At explosive power, we did not find statistically evincible differences between the levels. Comparing the two age we determined, that U19 showed better mean results in all 5 tests, than U17, but we did not find significant difference between the results – except horizontal jump. We diagnosed strong correlation between agility tests ($r_1=0,839$; $r_2=0,801$; $p < 0,01$), especially between tests with ball and without it. But we did not find strong correlation between agility tests and horizontal jump.

Discussion: The agility test are suitable to distinguish the amateur and elit youth football players according to the results. To follow up the development of players, we think it is necessary to use different motor tests at both level. Furthermore we suggest to develop in football, beside explosive strength and agility tests, those motor tests, that take into consideration the two component of Young - agility model, so we get a wider knowledge about the performance of players.

Keywords: elit youth soccer, agility, explosive power, talent development

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Presence of eating disorders among regular gym visitors

Introduction: Our accelerating world's people have no time to gather together in a group and spend their free time doing team sports anymore. They exercise mostly in a gym on their own, alone or with a personal trainer. Nowadays nutrition is a key component of lifestyle-changing or better sport performance. Many publications suggest the connection between eating disorders and sport (Sundgot-Borgen, 1994). Eating disorders (ED) can directly effect to general life quality and sports performance also. In the present study the occurrence of a few different kinds of EDs were examined among male and female regular gym visitors.

Methods: 25 female (F) and 25 male (M) regular gym visitors and, as control groups, 155 physically inactive male (IM) and 129 physically inactive female (IF) were examined in the study. The possible occurrence of anorexia nervosa, bulimia and orthorexia was investigated by EDI (Garner, 1983) and ORTO-15 (Donini, 2005) questionnaires. Statistical analysis: Mann-Whitney U-test and Bonferroni's multiple comparison test.

Results: The first three subscales of EDI are capable to detect ED. The average point in 'Drive for Thinness' subscale was significantly higher among F (7.04 points \pm 1.13 S.E.M.) than M (2.36 \pm 0.47) and M reached more points than IM (0.75 \pm 0.2). There was no significant difference between the average scores of 'Bulimia' subscale between F (1.4 \pm 0.32) and M (0.72 \pm 0.2), however the scores of the F group were higher than IF

(0.44 ± 0.13), and IM (0.87 ± 0.18) reached more points than IF. A significant difference was discovered at the 'Body Dissatisfaction' between F (6.92 ± 1.06) and M (3.48 ± 0.79). The IF group also reached higher points (6.31 ± 0.64) compare to IM (3.69 ± 0.5). In the 'Drive for Thinness' subscale 8% of F and 2.08% of IF reached the critical cut-off scores. In the 'Bulimia' subscale none of the participants step over the critical limit from every group. In the 'Body dissatisfaction' subscale 2.25% of IM and 5.21% of IF reached the critical limit. The next five subscales of EDI measure psychopathology commonly associated with, but not unique to EDs. Significant differences were not detected in 'Interpersonal Distrust' and "Ineffectiveness' subscales. F felt stronger 'Interoceptive Awareness' than M. 'Perfectionism' of M was more significant than IM's. The feeling of 'Maturity Fears' were stronger among IF than IM, and F. The ORTO-15 test reveals that IF (38 ± 0.86) and IM (37.85 ± 0.55) reached significantly higher than F (35.16 ± 0.87) and M (35.8 ± 0.77). 12% of the M, 20% of the F, 31.82% of the IM and 36.36% of the IF reached the critical limit of orthorexia.

Conclusion: Our results reveals that regular gym visitors have more powerful compelling to be thinner compare to physically inactive people. Fortunately bulimia did not occur among the participants of the study. Our results suggest that the feeling of body dissatisfaction is stronger among both physically active and inactive females than males. Surprisingly, the physically inactive group is more vulnerable by orthorexia, the healthy food addiction.

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Quality Framework in Sport in the EU: the first can be the Athlete's Dual Career Services

The national competency is never overwritten by the EU's sport competency, contrary: it may bring positive changes and development to the national sports sector. One of the identified area of sports policy in the EU is Dual Career, thanks to the strategic document titled the "EU White Paper on Sport" published 2007. It effects 150 000 athletes in the EU. Dual career is defined as "a successful combination of education, training or work with sport to enable an individual to reach his or her full potential in life" in the latest EU Study on Minimum Quality Requirements for Dual Career Services (Dec. 2015). The EU study mapped all EU member states and came to the conclusion that there is a need for a Europe-wide framework on support systems and facilities for Dual Careers. They set up a quality framework listing the minimum requirements arranged in 5 dimensions and 97 categories that are essential for the successful operation in dual career. It is also recommended to develop this framework into an easily accessible online tool for all stakeholders. The study authors created 5 dimensions. Dimension 1 is about the athletes, who are at the centre of the quality framework. It is about they need different services at different career stages at both system and personal levels. It contains 5 categories. In Dimension 2 there are 3 subdimensions for the entourage. 1st includes parents, relatives, and friends, the 2nd includes coaches, trainers and sport managers, and the 3rd includes teachers and employers.

These 3 subdimensions contain 10 categories together. The 3rd dimension covers the different sectors, such as sport, education and labour market, that can or should promote effective dual career poli-cies, programmes and initiatives. This part of the study has altogether 42 categories. The 4th dimension is for the National governments (11 categories), while the last one, Dimension 5 is the International/ EU where 3 categories are set for quality assessment. As a student researcher I wish to promote the implementation of this quality framework in Hungary, as well.

Keywords: EU competency in sport, Athlete's dual career, Quality framework, Communication between stakeholders, Sport policy

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The effect of success: national identity and qualifying to EURO2016 in Albania and Hungary

In recent years, in international football the majority of research has been focusing on core football countries, and paid scarce attention to the countries in the periphery (Szerovay, et al., 2015). In 2016, the first 24-nation UEFA European Football Championship is to be organized; the increased number of participants leads to a broadening circle of countries affected by a major international football event. According to Castells (2006) nations were born as a result of the common history. In this sense, modern sport can be identified as a part of this common history. Former scientific articles have demonstrated that sport can contribute to the emergence to national identity (Horak & Spitaler, 2003), to the creation of collective identity and to the self-discovery of a nation (Heinrich, 2003) and

also to the strengthening integration in a country (Carrard, 2002). The style of the media coverages about a mega sporting event has an important impact on public experience of pride or shame (Maguire et al., 1999, Alabarces et. al., 2001, Poulton, 2004). The main objective of this research is to understand the social effects of qualification to EURO2016 in Albania and Hungary.

This paper aims at finding out how qualification influenced national identity and national pride in these countries. According to the global opinion theory (Rusciano, 2003) the construction of national identity evolves in two dimensions: a self-image and an image as perceived by others. Following this theory the paper addresses the following research questions: (1) How did qualification influence national identity in Albania and Hungary among the citizens? (2) How did qualification shape the perceived image about Albanian and Hungarian people among foreign people living in these countries? The research was conducted using four structured questionnaires, two for each country; one for their own citizens and one for foreigners.

The results are to be examined through qualitative analysis. The media plays an important role in this case; therefore the methodology involved content analysis, which was carried out through the investigation of an Albanian and a Hungarian sports newspaper in the five days following qualification. The results are to be presented in three dimensions: national pride, expectations about EURO2016 and the general image about football in the countries. The fact that Albania are debutants and that Hungary qualified after 30 years to an international football event fundamentally affect the results. The findings also give the opportunity to compare the effects in the two countries. These cases only stand for two from the several countries from the periphery. Further research and case studies in this field

would make great contribution to the deeper understanding of the effect of football success in the peripheral football countries, which might be restricted to being there rather than winning the tournament.

Key words: football, national identity, mega sporting events

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Does competitive sport reduce the fertility of women?"

Infertility has a growing importance in modern societies. The traditional family model has changed in the past decades, women have now access to more education, equal rights and responsibilities.

Nature is unfortunately highly unfair to women, because the postponement of family planning is accompanied with a greater risk of failure. The premature decline of the ovarian reserve is a well-known phenomenon even in the mid-thirties. Regarding the age, men are usually not endangered under normal circumstances.

Regular sport activity is a healthy condition and generally without a negative effect on fertility.

Competitive sports may, on the contrary, change the whole organism, nutrition and regulation of the endocrine organs, resulting in the alterations of body, metabolism and hormone levels.

Furthermore, the dietary, metabolic and medical interventions have a proven effect on physiological processes like growth, body composition and organ functions.

Unfortunately, the drugs occasionally consumed by athletes may have a profound impact on the normal menstrual cycle. Especially in the early phase of pubertal development is the hormonal environment very sensitive and vulnerable. The administration of performance-enhancing drugs like growth hormone may result in heart muscle hypertrophy; anabolic steroids cause androgen

side effects, liver dysfunction and menstrual disorder, and the so-called female athlete triad may induce a complete amenorrhea and osteoporosis.

The use of testosterone in men (even for reasons not associated with sport) is highly dangerous for the fertility. Sperm production can be destroyed for a long time.

The good news for women are however, that medical treatment is helpful in the restoration of the ovarian function, as far as the aging of the ovaries allows it. Fortunately the resting eggs in the ovaries survive the effect of different harmful agents, because they are very resistant against chemical, hormonal and nutritional factors in the early developmental stage.

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PECULIARITIES OF COMPUTER GAMES INFLUENCE TEENS ICE HOCKEY PLAYERS' NERVOUS SYSTEM

Research objective: to estimate computer games influence on sensomotor centers functional state of teens ice hockey players.

Material and methods: 20 teenagers hockey players who played a computer game "DOTA2" have taken part in the research. Such properties of nervous system as: excitability (time of Simple Visual-motor Reaction" - SVMR(ms)), mobility (Critical frequency of light flashings - the CFLF test), stability ("Reaction to Moving Object" - RMO), attention (Shulte-Platonov's test) were investigated. 3 control stages have been conducted: before the computer game start, in 30 minutes of the game and in an hour after it.

Results of research: After 30 minutes of game time of SVMR has significantly

decreased in comparison with its initial level: 219,1 vs 238,1. After the game within an hour this index has considerably increased to 248,8 ms. It shows development of exhaustion. Similar dynamics (improvement in 30 minutes and decrease in an hour of the game) was also mentioned on the nervous system mobility level (CFLF), attention (Shulte-Platonov's test) and RMO. In 30 minutes the number of teenagers with high tests results has increased because of gamers with average results number reduction. Due to such reduction the number of players with lowered nervous processes assessment has authentically increased in an hour.

Conclusion:

1. It is found out that positive influence of the 30 minutes long computer game on quantitative and qualitative peculiarities of excitability, mobility, stability and attention. takes place.
2. These peculiarities change after an hour of the game was negative, most of the gamers were exhausted.
3. The received results have confirmed influence of computer games during a certain time interval on the studied nervous system peculiarities, which may have an impact on their sports activity efficiency. Obviously, certain computer games can be useful in sports, if their duration is distributed properly.

Keywords: hockey players, teenagers, excitability, steadiness, computer games

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The association between brain-derived neurotrophic factor and a cluster of

cardiovascular risk factors in adolescents: The CHAMPS-study DK

Background: As a result of sedentary, western lifestyles, cardiovascular risk factors have been detected already in childhood and adolescence. Several studies have found associations between one or more cardiovascular risk factors and brain-derived neurotrophic factor (BDNF). However, results are conflicting and further research is warranted in order to clarify the relationship.

Objective: Researchers have proposed that a cluster of cardiovascular risk factors is a better method to detect children and adolescents with a high cardiovascular risk than including single risk factors only. The objective of this study is to examine the association between BDNF and a cluster of six cardiovascular risk factors; high-density lipoprotein cholesterol (HDL-C), triglyceride, blood pressure (BP), HOMA-IR, waist circumference (WC) and aerobic fitness.

Methods: The CHAMPS-study DK was conducted as a quasi-experimental longitudinal study evaluating a natural experiment. 10 schools in the region of Svendborg, Denmark, were included. Present study solely includes results from the most recent follow-up in 2015. Thus data will be examined as a cross-sectional study. The study included 623 adolescents between 12-17 years old. All measurements were collected at the schools. Information about socio economic status (SES), amongst others, was gathered using questionnaires. The test battery included aerobic fitness, anthropometrics, maturation, BP and blood samples measuring serum BDNF, HDL-C, triglycerides, blood glucose and insulin. All cardio-vascular risk factors will be standardized by gender and age. In addition, these z-scores will be summarised making a clustered score. Two clustered scores will be presented; one cluster in which aerobic fitness is included and one cluster

excluding aerobic fitness. The association between serum BDNF and cluster scores will be estimated using mixed effects regression adjusting for age, gender, maturation and SES. **Hypothesis:** It is hypothesized that analysis will show a significant association between BDNF and a cluster of cardiovascular risk factors. Results will be presented at the conference.

Keywords: BDNF, cardiovascular risk factors, fitness, cluster score, adolescents

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Testing the sensitivity of tensiomyography by comparing the left and right biceps brachii muscle

INTRODUCTION: Tensiomyography (TMG) is a non-invasive, repeatable and selective method, which enables the assessment of muscle contraction. As the method is quite new, it needs to be tested regarding its sensitivity and repeatability.

AIM: Our aim was to determine whether TMG is sensitive enough to detect the difference in at least one of the measured parameters and distinguish between the right (dominant arm) and left (non-dominant arm) biceps brachii muscle (BBM) in right handed test subjects.

METHOD: The study was conducted on twelve 23-year old healthy females, right handed, who did not participate in an intensive sport or other asymmetrical activity. For estimating the level of the hand dominance, we used the Edinburg handedness inventory (created by Oldfield, R. C). Using TMG, we measured the activity of

the left and right BBM. Surface electrodes were placed on the ventral aspect of the arm over the m. biceps brachii muscle and used to stimulate the muscle starting with a stimulus of 5mA and of a 1 ms duration; the stimulus was gradually increased to the maximum of 50mA. With TMG we measured the minimal response of the muscle, the supramaximal response of the muscle and the range between both of these responses. The amplitude of the stimulus needed for muscle displacement, the time parameters and the size of the muscle belly displacement were recorded. The following four time parameters were assessed: the delay time (Td), the contraction time (Tc), the relaxation time (Tr) and the sustained time (Ts), as well as the muscle displacement (Dm). Standard paired t-test was used for statistical analysis.

RESULTS: The Edinburg handedness inventory confirmed that all the participants were right handed in a range of 60% to a 100%. In the minimal responses, the statistically significant differences ($p < 0,05$) appeared in the parameters Td and Dm. In the supramaximal response, the statistically significant differences ($p < 0,05$) were noticed in parameters Td and Tc. The statistical significance in the range between both responses appeared only in Td. Other parameters did not significantly differ between the right and left arm.

CONCLUSION: TMG is sensitive enough to detect the difference between the left and the right biceps brachii muscle in at least one of the measured parameters.

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Development of fundamental abilities and technical skills in the U15 football players - using Polar Team2 pulse control - curing the winter preparatory period

Introduction: The development of physical abilities and technical skills is of great importance in football, especially during sensitive periods in the U15 team. The set goal of our research was to develop the specific biological indicators and physical components that determine the success and performance of the player both in individual and game situations. Furthermore, other important factors for increasing performance during the preseason are the integration of appropriate training intensity and periodicity as well as up-to-date nutrition methods satisfying the energy demands.

Materials and methods: During the research, we endeavoured to create a complex instrumental evaluation of the U15 football team. Prior to the six-week, preseason period an Inbody720 body-composition analysis and the evaluation of the resulting data took place, followed by a conference with the parents during which nutritional advice was provided. Effective speed was measured using OXA Starter+ infrared gate system (5, 10, 20, 30m), agility without ball was registered using the Illinois test, for agility with ball a Zig-zag dribbling test was used, and special endurance was measured by using the first stage of the Yo-Yo IR test. During the preseason the trainings were monitored with the Polar Team2 system. After the preparatory period control measurements took place.

Results: The measurements gave an accurate image of the players' momentary condition and highlighted potential shortcomings and areas in

need of development. Between the two measuring dates we endeavoured to ensure the progressive and multilateral development of abilities, the effectiveness of which we could directly confirm. Using the Polar Team2 system, the optimal intensity of the trainings was possible to ensure.

Discussion: By using standardised test, and with the intensive development of fundamental physical abilities, the preparation of the U15 football players can be made more successful. We believe that the methods we used could become fundamental elements of modern football and could aid in the individual and complex development of players especially in the sensitive periods.

Keywords: football, next generation of players, multilateral training, Polar Team2

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THE COMPARISON OF MOTIVATION ACROSS POSITIONS AMONGST ELITE YOUTH FOOTBALL PLAYERS

The success and efficiency of an athlete's preparation phase is critically determined by that athlete's psychological characteristics, e.g., motivation, coping, perceived motivational environment and stress tolerance (Révész 2008). According to Hardy and Parfit (1994), will power and motivation have a massive effect on becoming an elite athlete. Talent identification, selection and development in young football players at best incorporate psychological tests, as well as physiological, anthropometric and football specific physical tests (Csáki et al. 2013). The purpose of this study is to find out elite Hungarian youth

football players' motivation and perceived motivational environments, especially according to their specific position on the field.

Material and Methods: The sample of our study consisted a total of 183 elite Hungarian youth football players N=183, (goal-keepers=18, defenders=63, midfielders=60, attackers=42). Both sports motivation and perceived motivation tendencies for each position (Sport Motivation Scale, Pelletier et al., 1995; Perceived Motivational Climate in Sport Questionnaire, Newton et al. 2000) was administered for every player. Descriptive statistics and ANOVA test was performed with SPSS 22.0 for windows.

Results: Young football players have a good level of motivation (int.=5,91±0,88; ext.=4,49±1,10; amotivation=1,46±0,74). There were no significant differences between the positions of players. Furthermore, young players' TASK and EGO orientation values were also at an optimal level (Task=4,18±0,47; Ego=2,78±0,46). The ANOVA test showed a significant difference between the positions in the effort/improvement subscale (F(2,97); p < 0,05).

Discussion: The results presented in our study provided meaningful information for coaches, and can serve as an insight for technical staff about the current psychological status of the players. Young players train, perform and compete primarily due to intrinsic motivation and self satisfaction which confirms previous research findings. An interesting result which might require further research is the difference between midfielders and the other positions in the „strive to improve“ subscale.

Keywords: sportmotivation, youth football, motivational climate Introduction Motivation and success go hand-in-hand because it is responsible for triggering, controlling and maintaining one's behaviour (Szabó 2004).

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TRAINING TECHNIQUES THAT HELP EXPERIENCING 'FLOW' IN YOUTH HANDBALL TEAMS

Introduction: The main goal of regular physical activities at young age is for children to endear sports. Through this they can learn about the value of health and we can raise a generation with a lot more awareness about life itself. The 'flow' experience during these activities can become an asset which keeps the motivation creating a lifestyle that has such actions on a daily basis. Other than this, researches show that experiencing 'flow' results in better performance during competitions as well. The objective of our study is to compare subjective and physiological effects of traditional training methods, by mainly using external combined with internal motivation that can possibly create 'flow'.

Method: Our study is based on two handball teams, U10 (N=12, age=10.67 0.65, 83% male) and U12 (N=14, age=12.36 0.50, 100% male). We held 3 trainings with their normal routines and 3 trainings with techniques that help experience 'flow'. The trainer and the aim of these practices were the same. During these trainings we have measured the physiological indicators such as heart rate, respiratory rate, respiration volume, MET, EPOC, VO₂ and energy consumption. Apart from these indicators we have measured tiredness and mood before and after the practices.

Results: Our study shows that with the flow techniques, the average and the maximum values of the heart rate (pav=0.028; pmax < 0.001), the respiratory rate (pav=0.023; pmax=0.050), the respiration volume (pav=0.004; pmax=0.001), the MET

($p=0.005$; $p_{max}=0.001$), and the maximums of EPOC ($p=0.002$) and the VO₂ ($p=0.002$) are significantly higher than with the traditional training techniques. The physiological indicators have proven that the 'flow' trainings had higher intensity and better influence on stamina. The subjective tiredness of the children was also higher on the 'flow' trainings ($p=0.031$) but their moods did not show much difference ($p=0.347$).

Conclusion: The results show that these alternative training methods with the internal motivation and the possibility of a 'flow' experience do have a beneficial influence on the stamina and the cardiovascular system. As the trainer of these children saw it the higher intensity comes from the higher motivation and enthusiasm. This study shows that experiencing 'flow' at this age creates a happy and motivational environment for the kids and produces better rates than traditional training methods.

Keywords: flow, youth, handball, training methods, Firstbeat

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THE USE OF FITNESS TECHNOLOGIES EFFECTIVENESS FOR FLEXIBILITY DEVELOPMENT OF 14-16 AGED GIRLS, SPECIALIZED IN RACEWALKING

Research objective: to estimate fitness technologies effectiveness for flexibility development of 14 - 16 aged girls, specialized in racewalking.

Methods and study management: 40 sportsmen (14 — 16 aged girls having 1st or 2nd senior degrees in this kind of sport were tested during this research. 20 of them were a control group (CG), and 20 — an experimental

one (EG). Training lessons for CG sportsmen were conducted according to the track-and field programme for sport schools. For the EG some fitness technologies (stretching programmes, Pilates exercises, exercises of hatha yoga, «flexible power» exercises) were added to the preparatory and cool-down parts of their usual training lessons. These exercises were aimed at joints flexibility and mobility development. To evaluate flexibility some control exercises were used: «forward bend», «side split», «forward split» and «hurdle step». Hip joint mobility level development was also evaluated.

Results of research: At the research beginning majority of the sportsmen had low levels of flexibility and joints mobility development. On completing the research increase of the studied indices in both groups was noted. In the EG this increase was more evident than in the CG. For example flexibility index in the CG before the experiment was + 2,4 sm, and on completing - + 6,2 sm. The same results in the EG were + 3,8 sm and + 10,2 sm accordingly. The same dynamics was shown for hip joint mobility indices while performing side splits, forward splits and hurdle steps. Hip joint mobility indices difference of CG and EG for «forward split» was 29,2% (right leg), 22,3 % (left leg); «side split» - 22%; «hurdle step» - 1,6% (right leg), 12,1 % (left leg).

Conclusion: Unidirectional veracious change of the both groups sportsmen's (racewalkers) flexibility indices is stated. It proves that the loading was adequate to the sportsmen's state and training level. More significant flexibility changes in the experimental group can be accounted for the accented flexibility and joint mobility development. It is evident, that training lessons with fitness technologies affect flexibility development of girls, specialized in racewalking positively.

Keywords: fitness technologies, flexibility, 14-16 aged girls, flexibility, development, racewalking.

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Mind does matter-the psychological effect of ankle injury in sport

Introduction: According to previous sportpsychological studies the therapy of ankle sprain does not extend to psychological support of the injured athletes. The aim of this study is to emphasize the significant role of a complex approach and to help athletes in coping with the injury.

Methods: To estimate the psychological consequences of ankle sprain, between October and December of 2014 we asked athletes to complete our questionnaire, of 28 items. In February of 2015 the answers were evaluated by SPSS. Results 15,6% of athletes were satisfied with the acute care, and 25% of athletes were satisfied with the rehabilitation. Satisfaction rates showed correlation with the motivation and with the attitude to rehabilitation and training. The rate of motivation affected the attitude to training and the opportunity of quitting sport. The latter was affected by the fear of reinjury as well. The most important consequence of sport injuries was missing a tournament (36,1%). The importance of social support was proved as well: 38,1% of athletes could share their problems and feelings with their family, 31,1% with the coach and the team, and 23,8% with friends and their boy- or girlfriend. After the injury 61,1% of athletes

could decrease anxiety with relaxation, exercise, psychotherapy or conversation. The most common reactions to the injury were fear, pain, shock, misadventure, frustration, disappointment and hope.

Conclusions: Results confirm our previous hypothesis, that for the earliest return to play injured athletes need psychological rehabilitation and they require psychological interventions as well as social support in the post-injury period. The team physicians and coaches should acquire communication skills, motivational methods and relaxation techniques to enhance support.

Key words: ankle injury, sportpsychology, team physician, biopsychosocial rehabilitation, psychological intervention

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Female Athlete Triad - Presence of its risk factors at University of Szeged

Introduction: The diagnosis of female athlete triad (FAT) requires the presence of eating disorder (ED), amenorrhea (AM), and osteoporosis (OP). The relevant literature is controversial about the frequency of FAT among athletes or non-athletes. Our purpose was to determine the prevalence of FAT's risk factors among female collegiate athletes and physically inactive university students to define which population is more vulnerable by FAT.

Methods: 58 collegiate athletes (AT) and 64 physically inactive (PI) university students participated in the study. We used the method of Torstveit and Sundgot-Borgen (2005) completed with bone densitometry to identify the risk factors of FAT. The risk factors of ED were low BMI, pathogenic weight-control methods (use of diet pills, hunger-repressive pills, laxatives, diuretics, or vomiting to reduce

weight), self-reported eating disorder, results over the critical limits in 'Drive for Thinness' or 'Body Dissatisfaction' subscales of Eating Disorder Inventory (Garner, 1983). The risk factors of AM were self-reported menstrual dysfunction (primary amenorrhea, secondary amenorrhea, oligomenorrhea, or short luteal phase). The risk factors of OP were self-reported stress fracture and low bone mineral density (t-score <-1).

Results: Any risk factor(s) of ED occurred at similar rate in both groups (AT: 32.76%, PI: 40.63%). There was no significant difference in the presence of any risk factor(s) of AM (AT: 56.9%, PI: 50.0%). Incidence of OP risk factor(s) was significantly more frequent in the PI group (AT: 22.41%, PI: 48.44%^{*}). The rates of participants with risk factors of ED and AM together (AT: 22.41%, PI: 21.88%) or ED and OP together (AT: 12.07%, PI: 17.19%) were similar. The common occurrence of AM and OP were more frequent in the PI group (AT: 10.34%, PI: 26.56%^{*}). A not significantly higher percentage of PI university students (84.37%) have one or more risk factor(s) of any component of FAT than ATs (75.86%), but no more than 10.94% of PIs – in comparison to ATs' 5.17% – has one or more risk factor(s) of all the three components of FAT.

Conclusion: Our results suggest that the risk factors of FAT are very prevalent in the observed population. The most frequent risk factors are the menstrual irregularities. The group of physically inactive university students are more vulnerable than collegiate athletes mainly in the aspect of osteoporosis and amenorrhea from the components of FAT.

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AMATEUR AND ELITE YOUTH FOOTBALL PLAYERS: TALENT IDENTIFICATION, SELECTION, DEVELOPMENT AND COACH-ATHLETE RELATIONSHIP

Introduction: Hungarian football has gained a lot more attention in the areas of talent identification, selection, and management. Still today, both winning and the dynamic youth development as well seem to be the most important determinants in football. In this development process the objective measurement of talent identification, selection, youth development and the coach-athlete relationship is highly needed (Csáki et al., 2013). Nevertheless, the coaches and scouts subjective opinion is also important in the process (Reilly et al., 2003). In football external and internal factors also have influential factors in these areas. Our current study aims to determine the selection, youth development and the coach-athlete relationship in the amateur and elite level youth footballers.

Methods: The Hungarian youth teams in the U17 and U21 age group on the amateur and elite level (N=121, n_{pro}= 58, n_{amate}= 63). Likert scale type of questionnaire survey was administered to assess the players' level of agreement in the areas of talent identification, selection, management and the optimal coach-athlete relationships. Independent T-test was used to compare different levels and ages of players with SPSS 21.0 for Windows.

Results: Among the elite and amateur youth footballers, significant differences were found in the area of selection: "I wanted to feel good" and "my parents were doing sports, they expected of me" (p <0.01). In the area of youth

development there were an overwhelmingly significant differences in the external factors: I owe my results to my family ($p < 0.01$). In spite of this, the internal factors have shown no differences. There was no difference in the coach-athlete relationship between the elite and amateur players.

Discussion: There were a few differences between amateur and elite young football players in the aspects of the process of selection, talent management and the coach-athlete relationship. This indicates that the questionnaire could be useful for the distinguishing the different levels and ages of players. In addition to the coach's role, the role of the family was especially important in their achieved results. Furthermore these factors give a proper basis and motivation for training, which is essential for further success.

Key words: selection, talent development, elite and amateur football players

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Football Referee and Stress

Background: As the optimal zone theory of Hanin says, everybody has their optimal zone which can be affected by stress. For this reason I used the new innovative electrogastrogram (EGG), what I have read in the study. As I am a referee I was curious about how huge impact the stress has on the football referees compare with those who aren't interested in football. This was the first test of this kind with the referees.

Methods: I checked talent referee ($n=4$) and their average age was 19,5 ($sd=1,91$), and a control group ($n=4$) with 21,5 years age average ($sd=1,5$). The EKG and EGG

measurement happened like this: The time of the registration period was 20 minutes, and in the 8th and the 13th minutes the subjects get a visual stress stimulus. The unit of the measured data is cycles per minute (CPM) és $Y_{max}(PS)$ values the whole stomach, small intestine and colon frequencies. During the statistic evaluation I used the one aspect ANOVA model. The changing of the time I rate with variance analysis. The data of the beginning and the following times were compared with double trial. We count The EKG measurement with averages.

Results: In the case of the small intestine the difference between the groups with one aspect variance analysis showed significant differences CPM average (4-6 minutes), CPM average near the first visual stimulus (7-9 minutes), CPM average near the second visual stimulus (12-14 minutes), $Y_{max} PS$ average at the beginning of the test (4-6 minutes) and $Y_{max} PS$ average near the first visual stimulus (7-9 minutes). The result of the repeat variance analysis is showed significant difference by the case of the data and the groups, in the case of the $Y_{max} PS$ data and the data of the groups differ significantly in the case of CPM data. In the case of the small intestine with the double T-test there was a significant difference in the whole population in the case of the initial rest period and between the two stimulus period in the case of the $Y_{max} PS$ data. In the case of the colon in the double T-test there was a significant difference in the following cases: • In the case of the initial rest and in the end, in case of the measured data of the whole population (CPM average (4-6 min) - CPM average (15-20 min)) • In the case of the initial rest and in the end, in case of the measured data of the referees (CPM average (4-6 min) - CPM average (15-20 min))

Conclusion: The stress was caused by The two visual stimulus in both groups, but in case of the referees after the stimulus the normal

operation came back sooner in the intestines than in the control group. So we can conclude that the referees deal better with stress than the athletes, or than those who aren't interested in football.

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The research of swimming instruction's efficiency in schools based on two different methods

Introduction: Swimming is known in addition to its health preserving and –developing and life saving function, for its many important effects which justify that every child should be able to learn the basics of this sport in a school setting. In our country the „Every child should learn to swim!” program indicated by the everyday PE and the World Aquatics Championship, introduced in 2013 is providing broader opportunities for the realization of swimming instruction in a school setting.

Goal: The goal of my work is to show the realization and efficiency in a school setting through comparing two swimming instruction methods - all in conjunction with the optimal timeframe that can be spent on teaching.

Material, methods: I tested the swimming skill levels of first and second grade students (n=474) coming from two county seats (Pécs, Kaposvár) one by one, based on the same criteria, directly after the end of last semester. I processed the resulting data with simple mathematical-statistical methods (average and percentage calculation) using excel program.

Results: Based on my results the fact that the majority of students learn the basics of

different swimming moves in the lessons provided by the school's time frame can be proved, though it's not enough to reach the European standard in swimming skills (200 m continuous swimming), or to be recommended for water sports.

Keywords: swimming instruction, comparison, swimming skills

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Examination of the relationship between the connections of body mass index and flat feet

In order to have a healthy developing of a child it is necessary to have a healthy lifestyle, which includes good nutrition and having a right model of living from their parents as well as from nursery schools. Unfortunately, surveys and statistics show that the health condition of mankind is increasingly deteriorating. This is closely related to childhood improper lifestyle and bad examples. According to a healthy lifestyle, most diseases start to occur in childhood. For example spinal deformity, spinal weakness, flat feet etc. To prevent these diseases they must include preventive exercises during the physical education session as well as at nursery schools and at elementary schools. The majority of today's children live in an environment where they don't really have the opportunity to live out their need for movement. However, regular exercises, a healthy lifestyle and caring are the essential foundations for children's health education. We know the old saying that movement is the corner stone of our personal development. All the activities which are somehow related to moving our body have various effects on our health and lifestyle.

Unsystematic exercises could be one of the reasons to have several diseases and health problems. A very common disease of our childhood is the above mentioned arch abnormality of the feet. The only thing what we can do about it is PREVENTION. What we must say again is that physical education can play the main role in prevention. On the other hand, the correct selection of children's footwear is also very important. The main purpose of our work was to measure the lesions of children's feet at the elementary school in Gerle in Slovakia. Our predictions were: first of all we predicted that with each method we will measure at least 35% deformity on the right and left foot. And the second prediction was that foot deformity has connection between the BMI index.

Methods: BMI and WHR index of Plantography in this we used Bartošik's line and index methods. N=54 elementary pupils participated in our survey. We summarized the reasons, hypotheses, methods, the results of the mensuration. We had examined children's BMI (body mass index) and WHR (waist to hip Ratio) indexes and also we took their footprints. Our research could be defined as a case study. Our predictions were proven right: on the left foot we measured 37.04% and on the right foot 35.19%. The last prediction proves us right that BMI index influenced the feet deformity. Hopefully it may rises everybody's attention towards the problem of feet deformity. If teachers, in cooperation with parents, will pay more attention to the importance of prevention it can contribute to the development of a healthier future generation.

Keywords: deformation of the foot, prevention, flat feet, elementary school



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