

The 7th INSHS International Christmas Sport Scientific Conference

**"Qualitative and Quantitative Research in
Sport Science"**



Final Programme

9th -11th December 2012

**University of West – Hungary, Savaria Campus,
Institute of Sport Science and INSHS (International
Network on Sport and Health Science)**

Szombathely – Hungary



The 7th INSHS International Christmas Sport Scientific Conference



“Qualitative and Quantitative Research in Sport Science”

Summary Programme

9th December 2012 (Sunday) – Park Hotel Pelikan

15.00 - Arrival and registration

15.00 – 20.30 Xmas Market visit and Xmas Gluhwein drinking on the Main Square or Wellness at Park Hotel Pelikan (optional)

20.30 – 22.00 Dinner – Park Hotel Pelikan

10th December 2012 (Monday) – Park Hotel Pelikan

08.30 – 10.00 Arrival and registration

10.00 – 10.20 Opening Ceremony

10.20 – 13.00 Keynote and Presentations of participants

13.00 – 14.30 Lunch

14.30 – 16.00 Keynote and Presentations of participants

16.00 – 16.30 Coffee Break

16.30 – 17.30 Presentations of participants

17.30 – 18.30 POSTER PRESENTATIONS

18.30 - 19.00 INSHS Performance Analysis Subgroup and “IPPAS 2013” meeting.

20.30 – Xmas Dinner and Xmas Programme and Disco in Hotel Pelikan

11th December 2012 (Tuesday) – Park Hotel Pelikan

9.30 – 11.30 Keynote and Presentations of participants

11.10 – 11.40 Coffee break

11.40 – 13.10 Keynote and Presentations of participants

13.10 – 14.30 Lunch

14.30 – 16.30 Presentations

16.10 – 16.40 Coffee Break

16.40 – 17.40 Presentations of participants

17.40 – 18.00 Introduction of Journal of Human Sport and Exercise – The official Sport Scientific Journal of INSHS.

Themes of the Conference:

- 1. Teaching, Coaching Methodology**
- 2. Sport and Society**
- 3. Sport Pedagogical and Psychological aspects**
- 4. Sport Physiology**
- 5. Performance Analysis**

Please see the finalized detailed programme :

- 1. posted at the conference Hall**
- 2.) at the registration**
- 3. we have also emailed to everybody**

www.sportprofnet.com

(Please note: free internet in the Conference Hall)

Final Programme

MONDAY 10th December

ORAL Presentations

10.00 – 10.20 **Official Welcome**

Chair : **Prof. Nic James**

10.20 – 10.40 **Ongoing Projects – International Network on Sport and Health Science.**

Dancs, H.

University of West Hungary, Szombathely, Hungary.

10.40 – 11.00 **A comparative study on the motor-autobiography of Italian kindergarten and primary school will be teachers.**

Nadia Carlomagno¹, Gilda Cecoro², Rosa Sgambelluri², Pier Giuseppe Rossi³,

¹ University Suor Orsola Benincasa of Naples, Italy

² University of Salerno, Italy

³ University of Macerata, Italy

11.00 – 11.20 **Natural interfaces and gesture recognition: psychomotor activities in early reading and writing skills learning.**

Paola Aiello, Stefano Di Tore, Pio Alfredo Di Tore, Felice Corona, Rodolfo Vastola and Maurizio Sibilio,
Università degli Studi di Salerno.

11.20 – 11.40 **COFFEE BREAK**

| |
|--|
| 1. Teaching , coaching methodology |
|--|

11.40 – 12.00 **Futsal didactics by videoanalisi in education and training.**

Di Tore, P. A., Napolitano, S. and Raiola, G .,L. Polidoro
Università degli Studi di Salerno.

12.00 – 12.20 **Social-educational evolution of crawling.**

Filippo Gomez Paloma, Cristiana D'Anna and Filomena Agrillo,
Department of Human, Philosophical and Educational Science,
Education Science, University of Salerno, Italy

12.20 – 12.40 **NUI's: Natural User Interfaces in rehabilitation and motor activities teaching.**

Filippo Gomez Paloma, Pio Alfredo Di Tore, Stefano Di Tore, Cristiana D'Anna, Filomena Agrillo ¹ and Nadia Carlomagno ², Giuseppe De Simone

¹ Università degli Studi di Salerno,

² Università Suor Orsola Benincasa, Napoli.

12.40 – 13.00 **High diving: evaluation of water impact influence and considerations on training methods.**

Napolitano, S., Di tore, P. A. and Raiola, G.,
Università degli Studi di Salerno.

1300 – 1430 **LUNCH**

Chair: - **Prof. Mike Hughes**

14.30 – 14.50 **Evaluation model of aerobic gymnastic.**

Raiola, G., Giugno, Y. and Di Tore, P. A.,
Università degli Studi di Salerno.

14.50 – 15.10 **Video analysis applied to volleyball didactics to improve sport skills.**

Parisi, F., Di Tore, P. A. and Raiola, G.,
Università degli Studi di Salerno.

3. Sport Pedagogical and Psychological aspects

15.10 – 15.40 **KEYNOTE PRESENTATION**

Personality and sensation seeking in extreme sport.

Rhonda Cohen,
School of Health and Education, Middlesex University, UK.

15.40 – 16.00 **Sports gymnastics as a part of curriculum of sports management university studies in the Czech Republic.**

Petr Hrusa and Dagmar Hrusova,
Department of Recreology and Tourism,
Faculty of Informatics and Management,
University of Hradec Kralove, Czech Republic.

16.00 – 16.20 COFFEE BREAK

Chair: Dr. Agnes Toth Nemethne

16.20 – 16.40 Body and didactic mediation. - experimental use of a *sense wear armband* in a university context.

Pier Giuseppe Rossi¹, Rosa Sgambelluri², Valentina Prenna¹, Gilda Cecoro² and Maurizio Sibilio²,

¹University of Macerata, Italy.

²University of Salerno, Italy.

16.40 – 17.00 Parent's perception about motor - sport activity in Italian primary schools.

Filippo Gomez Paloma, Filomena Agrillo and Cristiana D'Anna,
Department of Human, Philosophical and Educational Science,
Education Science
University of Salerno, Italy

17.00 – 17.20 An assessment of the perception of physical activity, eating habits, self-efficacy and the knowledge about healthy food in Albanian adolescents.

Robert Çitozi, Dhurata Bozo and Genti Pano,
Faculty of Physical Activity and Recreation, Department of Physical Activity Recreation and Tourism; Sport Sciences Research Institute,
University of Sport of Tirana, Albania.

17.30 – 18.30 POSTER PRESENTATIONS

Chair: Dr. Rhonda Cohen

SEE PAGE 54 AND ONWARDS FOR ABSTRACTS

POSTER TITLES

| |
|--|
| 2. Sport and Society |
|--|

The young adults leisure –time habits on the University of Alicante

Katalin Nagyvárad, Katalin Bíróné Ilcs and Tibor Polgár,

University of West Hungary, Savaria Campus, Szombathely.

3. Sport Pedagogical and Psychological aspects

The aptitude of young volleyball players (children and adolescents).

Katalin Biróné Ilics and Adrienn Baloghné Bakk
University of West Hungary Savaria Campus, Szombathely
University of West Hungary Benedek Elek Faculty of Pedagogy, Sopron

Lower primary school teacher trainees' and pupils' interactions on PE lessons

Kiss Zoltan,
Kaposvári Egyetem, Kaposvár, Hungary.

4. Sport Physiology

The acute effects of acupuncture on glucose and heart beat-pressure product of normal tension after exercise on cycle ergometer.

Pernambuco, Carlos Soares,
Universidade Federal do Estado do Rio de Janeiro – UNRIO – Rua Xavier Sigaud 290, Rio de Janeiro – CEP – 22290-180 – BRAZIL.

Comparison of the results of the plate tapping test in the Czech adult population.

Zuzana Hlavonova,
Masaryk University, Faculty of Sport Studies, Brno, Czech Republic.

Muscle strength, functional autonomy and body composition of an elderly man with frontotemporal dementia undergoing a resistance training program: a case report.

Cláudio Joaquim Borba-Pinheiro^{1,2,3}, Nébia Maria Almeida de Figueired¹, Carlos Soares Pernambuco¹, André Walsh-Monteiro², Olavo Raimundo Macedo da Rocha Júnior³, Roseane Monteiro-Santos³ and Estélio Henrique Martin Dantas¹,

¹- Universidade Federal do Estado do Rio de Janeiro (UNIRIO/LABIMH). Programa de Doutorado em Enfermagem e Biociências (PPEnfBio), Rio de Janeiro, Brazil.

²- Instituto Federal do Pará (IFPA) Campus de Tucuruí, Brazil.

³- Universidade do Estado do Pará (UEPA) campus XIII Tucuruí, Brazil.

The comparison of flexibility in the Czech population aged 18–59 years

Eduard Hrazdíra, Pavel Grasgruberand Tomáš Kalina,

Masaryk University, Faculty of Sport Studies, Brno, Czech Republic.

Comparison of selected characteristics of gait in men and women.

Jan Došla, Pavel Korvas, Martin Zvonař, Martin Sebera, Radek Musil and Jan Šenkýř ,
Faculty of Sports Studies, Masaryk University, Czech Republic.

The study of vertical ground reaction during walk of Czech women.

Korvas, P., Musil, R., Šenkýř, J., Kolářová, K., Pavlík and J., Došla, J.,
Department of Kinesiology, Faculty of Sports Studies, Masaryk University, Brno, Czech
Republic.

Anthropometric characteristics of the young Czech population and their relationship to the national sports potential.

Pavel Grasgruber,
Faculty of Sports Studies, Masaryk University, Brno.

Analysis of the behavior of peak expiratory flow in acute effect of acupuncture.

Sergio Lima Guilhon^{1,2,3}; Sabrina Lindemberg Malfacini²; Carlos Soares Pernambuco⁴.

¹ State Institute of Cardiology Aloisio de Castro. Rio de Janeiro. RJ.

² - Federal University Fluminense. Niteroi. RJ.

³ - University of Barra Mansa. Barra Mansa. RJ.

⁴ - Postgraduate Program in Bioscience Strictu Sence - Federal University of the State of Rio de Janeiro, Brazil.

Data on the biological development of Kaposvár (South-West Hungary) children (a preliminary study).

Csilla Suskovic¹, Bíróné Katalin Ilics¹, Katalin Nagyvárad¹, Némethné Orsolya Tóth¹,
Kocsis Csabáné¹, Róbert Horváth¹, Áron Kertész¹, István Krizonits¹, Rita Reidl¹, Zsolt Tóth¹,
Gábor Tóth²,

¹West-Hungarian University, Savaria Campus, Faculty of Physical Education, Visual Arts
and Music, Institute of Sport Sciences

²West-Hungarian University, Savaria Campus Faculty of Sciences, Institute of Biology

Arm stroke: a comparative analysis between competitive swimming and waterpolo athletes.

Tursi, D., Napolitano, S . and Raiola. G.,

¹ University Suor Orsola Benincasa of Naples, Italy

² University of Salerno, Italy

³ University of Macerata, Italy

Motor imagery based training artistic gymnastic.

Raiola, G., Scassillo, I. and Di Tore, P. A.,

¹ University Suor Orsola Benincasa of Naples, Italy

² University of Salerno, Italy

³ University of Macerata, Italy

Tactics-based waterpolo training.

Napolitano, S., Cerrotta, M., Parisi, F. and Raiola, G.,

¹ University Suor Orsola Benincasa of Naples, Italy

² University of Salerno, Italy

³ University of Macerata, Italy

Kinanthropometric variables relationships and different strategies for predicting performance on Judo adult beginners.

Carvalho, Mauro C. G. A.^{1,2,5}, Dubas, João P.¹, drigo, Alexandre J.^{1,4}, Junior, Homero S. N.^{1,3}, Pernambuco, Carlos⁵, Dancs, Henriette⁶; Estélio Henrique Martin Dantas⁵,

¹JUDÔjo - Grupo de Estudos e Pesquisas de Judô,

²Colégio Pedro II,

³UNESA,

⁴UNESP-RC,

⁵LABIMH-UNIRIO, Brasil.

⁶West Hungary University, Hungary.

19.30 -18.00 **INSHS Performance Analysis Subgroup and “IPPAS 2013” meeting.**

20.30 **Xmas Dinner, Xmas Programme –Disco (Hotel Pelikan Restaurant)**

TUESDAY 11th December

1. Teaching , coaching methodology

Chair:- Prof. Mike Hughes

09.30 – 09.50 Introduction of *SportProfNet*: The New Worldwide Community in Sport Science.

Dr. Henriette Dancs,
University of West Hungary, Savaria Campus, Szombathely, Hungary.

2. Sport and Society

09.50 – 10.10 Physical activities in Czech sociological perspective.

Aleš Sekot,
Faculty of Sport Studies, Masaryk University, Czech Republic.

10.10 – 10.30 Handball vs. Volleyball. women in team

Piroska Béki,
Semmelweis University Budapest,
Faculty of Physical Education and Sport Sciences.

10.30 – 10.50 Determination of socio-cultural characteristics on somatic Parameter body mass index in the Czech adult population.

Jaromir Sedlacek , Martin Sebera, Josef Michalek and Jan Cacek,
Faculty of sport studies, Masaryk University, Brno, Czech Republic.

10.50 – 11.10 Sighted volunteers' motivations to assist people with visual impairments in freetime sport activities.

Judit Gombás,
Semmelweis University, Department of Sport Sciences, Hungary.

11.10 – 11.40 COFFEE BREAK

Chair: Dr. Rhonda Cohen

KEYNOTE PRESENTATION

11.40 – 12.10 The Ratjen case or the problems a man has to play the role of a woman.

Volker Kluge, Berlin, Germany.

12.10 – 12.30 **Brno, City of Culture or Sport?**

Ondřej Štaud,
Faculty of Sport Studies ,Masaryk University, Czech Republic

3. Sport Pedagogical and Psychological aspects

4. Sports Physiology

12.30 – 12.50 **Moderate and vigorous physical activity in the 55+ teachers' daily routine.**

H. Ekler Judit¹, Nagyváradi Katalin¹, Kiss-Geosits Beatrix¹ and Csányi Tamás²,
¹University of West Hungary, Savaria Campus.
²Eötvös Loránd University, Faculty of Primary and Pre-School Education.

13.00 – 14.30 **LUNCH**

Chair:- **Dr. Goran Sporis**

14.30 – 15.00 **KEYNOTE PRESENTATION**

Exercise Physiology: Endurance testing past and future.

Fugedi Balazs,
UWH, Hungary.

15.00 – 15.20 **Relationship between isokinetic muscle strength and sprinting power of road cyclists.**

Indrek Rannama, Kristjan Port and Boris Bazanov,
Institute of Health Sciences and Sport, Tallinn University, Estonia.

5. Performance Analysis

Chair: Dr. Fugedi Balazs

KEYNOTE PRESENTATION

15.20 – 16.00 **Factor analysis in Performance Analysis – an experimental orientation.**

Prof. Goran Sporis,
University of Zagreb, Croatia.

16.00 – 16.30 **Profiling in sport using momentum and perturbations.**

Mike Hughes*, Peggy Bürger**, Michael T. Hughes***, Stafford Murray**** and Nic James*,

* London Sport Institute, Middlesex University, London, UK

**Otto von Guericke Universitat, Magdeburg, Germany.

*** PGIR, Bath, UK.

**** English Institute of Sport, England.

16.30 – 16.50 **COFFEE BREAK**

KEYNOTE PRESENTATION

16.50 – 17.20 **The hot hand phenomenon: Measurement issues using golf as an exemplar.**

Nic James and Luke Heath,
London Sport Institute, Middlesex University, London, UK.

17.20 – 17.40 **IPPAS (Intensive Programme in Performance Analysis of Sport) – can Europe really work?**

Mike Hughes,
London Sport Institute, Middlesex University, London, UK.

1740 – 1800 **Introduction of Journal of Human Sport and Exercise – The official Sport Scientific Journal of INSHS.**

Alfonso Penichet Tomás
University of Alicante, Alicante, Spain

ABSTRACTS of ORAL PRESENTATIONS

MONDAY 10th December

1. Teaching, coaching methodology

Comparative study of motor-autobiography in future kindergarten and primary Italian school teachers of the University of Macerata and University Suor Orsola Benincasa of Naples

Nadia Carlomagno¹, Gilda Cecoro², Rosa Sgambelluri², Pier Giuseppe Rossi³

¹ University Suor Orsola Benincasa of Naples, Italy

² University of Salerno, Italy

³ University of Macerata, Italy

The proposal of an authentic assessment, supported by current international scientific literature (Shepard, 2000), creates new qualitative perspectives of the evaluation of motor activities within school contexts. Authentic assessment is a possibility for the evaluation to encourage and enhance the quality of educational processes, with it uncovering a vision of evaluation as a research subject that deals with the contexts and processes governing the representation that the subject constructs of his skills, previous experiences as well as the relationship they assume in various situations (Sibilio, 2012). In the motor context, authentic assessment can be explained as an autobiographical process capable of contextualizing the different meanings that the motor-sport experiences lived during a lifetime have for the subject (D'Elia et al., 2008; Galdieri et al., 2008). Simultaneously, this self-rating process promotes an awareness of possible differences between the subjective perception of their motor skills and the actual dimension that they have, on both a quantitative and qualitative level. It is, therefore, important in education to make clear to the students those assumptions that individually enable or facilitate performance, execution, movement and gesture that allow for a necessary and important process of self-assessment and metacognitive awareness. "Such an assessment can address not only the product one is trying to Achieve, but Also the process of Achieving it, That Is the habits of mind That contribute to successful writing, painting and problem solving" (Wiggins, 1989). In evaluating movement, an *authentic assessment* and its implications within the learning-teaching experience is reflected not only in the clear definition of the criteria but also the use of self-rating tests, *checklists* and *rating scales*, as well as in the development of *peer assessment*, feedback and transfer mechanisms.

This paper documents the phases of a comparative study, currently being carried out in the Faculty of Education at the University of Suor Orsola Benincasa Naples and University of Macerata, on future kindergarten and primary school teachers. Firstly, the research aims to evaluate the ability of self-assessment of university students on their own motor skills and past experiences, by building an autobiographical motor profile, and, secondly, to assess the awareness of how their motor experiences affect the redefinition of their own learning needs. The distribution of the sample on two different territories could result in different patterns in both learning as well as self-rating ability. Due to the research involving a homogeneous sample, age and educational experiences (first-year students of the Faculty of Education), the analysis of the motor autobiography will also provide an insight into the adhesion between the motor activities currently being carried out in school, with particular reference to primary school, and activities in the programs in force during the period studied (programs of 1985).

The sample consists of 233 first-year students of the Faculty of Education at the University of Suor Orsola Benincasa, Naples and University of Macerata. Students were given a

questionnaire, developed with the aim of evaluating the *motor autobiography*. The questionnaire includes closed-ended questions, articulated on the following topics:

- personal history of curricular and extra-curricular skills at school;
- formative role of motor-sport activities in school skills;
- frequency of motor and sports activities on extracurricular time;
- role of Teacher, Class Council, Principal of Institute, Structure and Organization of motor and sports activities, curricular and extra-curricular;
- formative role of motor activity in kindergarten and primary school.

A perspective of evaluation based on *authentic assessment* highlights the ethical and aesthetic aspects of education (Kucey, Parson, 2012) as well as the learning aspect of the assessment, which is expressed in a dialogic mode and offers a sharing process that transforms the assessment into an important stage of the learning path.

This type of evaluative inquiry shifts the focus of research from the product, which is represented in the motor field by execution, performance or gesture, to the understanding of learning strategies for students, enabling them to reflect on their own elaboration processes and development of the educational process through the use of the teaching of the body and movement (Sibilio, 2012). The expected results, therefore, will provide a redefinition of the educational needs of the students that are created due to the greater awareness of their education – motor path.

Key Words: authentic assessment; motor autobiography; motor skills; teaching – learning process

References

- Carlomagno, N., Cecoro, G., Ambretti, A., Prospero, R., Mustafa Uslu, Gomez Paloma, F., Sibilio, M., (2012). *Research on the function of the motor autobiography as a self-assessment methodology for future teachers of the Italian kindergarten and primary school*. Turkish Journal of Teacher Education, 2012
- D'Elia F., Carlomagno N., Galdieri M., Prospero R., Mantile G., Aiello P., Sibilio M. (2009). *Analysis of training needs for teachers to improve teaching activities in primary schools in the province of Naples, Italy*. Acta Kinesiologica, 3(1), 12-17.
- Galdieri M., Carlomagno N., D'Elia F., Prospero R., Baldassarre G., Aiello P., Sibilio M. (2009). *The autobiographical approach as a tool of self-assessment for teaching skills of primary school teachers in the motor field: the experience of Campania*. Sport Science, 2(1), 68-71.
- Kucey S., Parson J. (2012). *Linking past and Present. John Dewey and assessment for learning*. Journal of Teaching and Learning, 8(1), 107-116.
- Shepard, L. A. (2000). The role of assessment in a learning culture. Educational Researcher, 29(7), 4-14
- Sibilio, M. (2012). *Elementi di complessità della valutazione motoria in ambiente educativo*. Giornale italiano della ricerca educativa, Vol. 8. Giugno 2012.
- Sibilio, M. (2002). *Il laboratorio come percorso di ricerca. L'esperienza laboratoriale a carattere motorio nel curricolo formativo degli insegnanti della scuola primaria*. Napoli: Cuen.
- Wiggins G. (1989). *A True Test: toward more authentic and equitable assessment*. Phi Delta Kappa, 70(9), 703-713.

Natural interfaces and gesture recognition: psychomotor activities in early reading and writing skills learning.

Paola Aiello, Stefano Di Tore, Pio Alfredo Di Tore, Felice Corona, Rodolfo Vastola and Maurizio Sibilio,
Università degli Studi di Salerno, Italy

In the present paper we intend to give advance notice of the start of a research whose goal is to design of open source software tools that use natural interfaces (NUIS) to enable the manipulation, in order to encourage and improve, in terms of effectiveness and efficiency, the learning process of students presenting Educational Special Needs. The aim is the acquisition of early reading and writing skills, through the proposition of educational software that enables the involvement, in the teaching – learning process, of the body and movement such as elements for alternative access to knowledge (Sibilio, 2012)..

Scientific literature highlighted as early reading and writing skills difficulties classified under learning disabilities are of biological nature, and are associated with information processing at visual and visuo-spatial level (Pavlidis, 1985), at hearing level (Tallal, 1991), at phonological level (Temple & Marshall, 1983) and metaphonological level (Lovett, 1992).

These difficulties have not pathological nature but represent "an individual variant of development determining subject conditions that hinder acquiring and developing certain skills" (Stella, 2003).

In individuals with Reading Disorder (which has also been called "dyslexia"), oral reading is characterized by distortions, substitutions, or omissions; both oral and silent reading are characterized by slowness and errors in comprehension. [...] With early identification and intervention, the prognosis is good in a significant percentage of cases. [...] Disorder of Written Expression is commonly found in combination with Reading Disorder or Mathematics Disorder. There is some evidence that language and perceptual motor deficits may accompany this disorder" (American Psychiatric, 1996).

NUIS offer the ability to recover in a digital environment cognitive-motor methodologies and psychomotor activities with proven success in acquiring early reading and writing skills (Di Tore, 2012; Jeannot, 1973; Michelet, 1972; Neri, 2005)

This research is a pilot study, whose methodology required:

- The survey of the scientific literature on early reading and writing skills in primary school pupils with Special Educational Needs;
- The survey of the literature on the role of the body and manipulation in early reading and writing skills acquisition;
- The design of a gesture recognition based software module;

The aim of the software is to identify significant difficulties that some pupils have in coordination of visual perception and motor skills. Early detection is the foundation to prevent or compensate for difficulties with future educational and pedagogical interventions. The visuomotor integration skill is in fact a prerequisite for the acquisition of basic skills such as reading, writing and calculation. Many difficulties classified as Specific Learning disability (dyslexia, dysgraphia, dysorthography, dyscalculia) are correlated with visuomotor integration skills.

Keywords: Early reading and writing skills, Gesture Recognition, Educational Special Needs, Learning disorders, Psychomotor activities

References:

American Psychiatric, A. (1996). *DSM-IV Manuale diagnostico e statistico dei disturbi mentali*. Masson, Milano-Parigi-Barcellona. Bartholomew, K., Horowitz, LM (1991),

- Attachment styles among young adults: A test of a four-category model, Journal of Personality and Social Psychology*, 61, 226-244.
- Di Tore, P. A. & Raiola, G. (2012). Exergames in motor skill learning. *Journal of Physical Education and Sport*, 12(3), 4. doi: **DOI:10.7752/jpes.2012.03053**
- Jeannot, J. (1973). *Face ...: à l'écriture; méthode Jeannot*: Éditions ESF.
- Lovett, M. W. (1992). Developmental dyslexia.
- Michelet, A. (1972). *La pédagogie de l'action*: Delachaux & Niestlé.
- Neri, A. (2005). *Scrivere con il corpo. Attività psicomotorie per l'apprendimento della letto-scrittura*: Centro Studi Erickson.
- Pavlidis, G. T. (1985). Eye Movements in Dyslexia Their Diagnostic Significance. *Journal of learning disabilities*, 18(1), 42-50.
- Sibilio, M. (2012). *Il corpo e il movimento nella ricerca didattica. Indirizzi scientifico-disciplinari e chiavi teorico-argomentative*: Liguori.
- Stella, G. (2003). *La dislessia: aspetti clinici, psicologici e riabilitativi*: FrancoAngeli.
- Tallal, P. (1991). Hormonal influences in developmental learning disabilities. *Psychoneuroendocrinology*, 16(1), 203-211.
- Temple, C. M. & Marshall, J. C. (1983). A case study of developmental phonological dyslexia. *British Journal of Psychology*, 74(4), 517-533.

Futsal training by videoanalysis.

Pio Alfredo Di Tore, Loris Polidoro, Salvatore Napolitano, Gaetano Raiola ,
University of Salerno, Italy.

Futsal is a team sport that originated in Uruguay and it was born in 1933 when a professor at the ACM Montevideo, Juan Carlos Ceriani Gravier, driven by the necessity to allow his students to play football in a small gym or on the basketball courts, devised the formula. His goal was to devise a team game that could be practiced both outdoor and indoor facilities, taking advantage of the already popular handball, basketball and volleyball courts. It is particularly suited to the development of motor skills for technical characteristics, space and game rules, where the time of analysis, evaluation, development and implementation is limited compared to other team sports (Schmidt et al. 2000). Motor imagery can enhance motor learning if included in the weekly training plan.

The aim of the pilot study is to check if in a sample group, which is subjected to the vision of execution motor models movies, there are better learning of specific techniques (Wrisberg, 2009) compared to the control group that did not use movies.

The research is divided into three stages:

In the first stage (input) was conducted a pre-assessment of skills through some technical tests (control of the ball with the sole oriented, shooting the ball with the tip and run the ball with the sole) of pre-adolescents of 9-10 years divided by the coach in two homogeneous groups (group sample $n = 10$, control group $n = 10$).

In the second stage, (full season, nine months), the sample group ($n = 10$) is involved in watching videos about technical gestures to perform. A video will be presented of a correct model of execution carried out by a high-level futsal player (Italian National Team Under-21).

The last stage will see the final assessment of the two groups to describe the effectiveness of the methodology. This assessment will be made by the same high-level futsal player involved into videos, through the compilation of sheets prepared during the observation of the pupils as they perform the three technical gestures predetermined.

The result could be useful to improve the teaching method by addition video analysis in didactics to enhance motor skills learning. The sample size does not allow to generalize the results in statistical terms, but certainly lays the foundation of observation for the development of research on a larger scale.

Keyword: Kinovea, shot tip, stop sole, driving the ball

References

- Hughes, M., Tavares, F. (2001), Notational Analysis of Sport - IV, Porto: Faculty of Sports Sciences and Education Portugal
- Hughes, M., Bartlett, R. (2002) Special edition on performance analysis. Journal of Sports Sciences, 20, 735-737. UK.
- Wrisberg, G. A. (2009), Sport Skills for Coaches, Human Kinetics, Champaign IL, USA

Social-educational evolution of crawling.

Filippo Gomez Paloma, Cristiana D'Anna and Filomena Agrillo,
Department of Human, Philosophical and Educational Science, Education Science,
University of Salerno, Italy

For an adult who observes, a crawling baby is a tender and fun image, even though you can't imagine what can be hidden behind this movement. There are a lot of thoughts on it, for example the idea that crawling is easier than walking alone and so children prefer it as it is their first physical movement (Galardi, A., Quadrio Aristarchi, A., 2003). In spite of this we consider that crawling is a motor sequence neither simple or immediate (De negri, 1999), especially for a baby whose average crawling age is of eight months, (Garrett M, McElroy AM, Staines A., 2002). The interest of this issue comes out from the question "crawling or not crawling?", it is a frequent question of parents with children who are going to walk. Many children don't crawl and their parents wonder what is the right path for a correct psycho-physical development (Siegel, A.C., Burton, R.V., 1999). The aim of this work is to think about the value of the crawling during the psycho-motor development of a person. A qualitative research has been carried out to show the changes and the evolution of this motor action from the parents' childhood period to that of their children's in the same sample group.

Thirty couples of parents, whose children attended the same nursery, have been analysed through a questionnaire of 45 questions anonymously given out. The same information received about the parents and their children give us the possibility to compare the two generations.

The research has allowed us to reflect on the typical motor action from all points of view: the amounts of crawling within the reference group; changes regarding the average age when this movement develops (Crouchman, M., 1986); the influence by early childhood tools, for example the use of the box and the walker, frequently use by many parents today.

The data obtained gives us some points of reflection, but it also puts in evidence the different ways of movement, the different development of human beings (Zoia, S., 2004) and the numerous developments that can be manifested in a child.

The subjectivity that characterises the psycho-motor development puts in a difficult position the traditional approach and stereotyped idea of fixed phases (Siegel, A.C., Burton, R.V., 1999). It's important to underline that apart from the neurological development of the child their can also be psycho-motor, mechanical and environmental factors, for example their previous experiences, their motivations, external stimulations and various other aspects that can change according to different individuals.

Keywords: childhood, crawling, motor activity, psycho-motor development, parents, children, environment.

References

- Crouchman, M. (December 1986). *The effects of baby walkers on early locomotor development*. Developmental Medicine and Child Neurology Review.
- De negri, M. (1999). *Neuropsicopatologia dello sviluppo*. Padova: Piccin Nuova Libreria.
- Fedrizzi, E. (2004). *I disordini dello sviluppo motorio*. Padova Piccin Nuova Libreria.
- Galardi, A., Quadrio Aristarchi, A.(2003). *Lo sviluppo delle competenze: il ciclo di vita*. Milano: Vita e Pensiero editore.
- Garrett M, McElroy AM, Staines A.(2002). *Locomotor milestones and babywalkers: cross sectional study*. British Medical Journal.

- Le Blouch, J.(1975). *Vers un science du mouvement humain. Introduction à la psychocinetique*. Parigi : ESF edizioni.
- Sibilio, M.(2001). *Il corpo e il movimento*. Napoli :CUEN editore
- Siegel, A.C., Burton, R.V.(October 1999). *Effects of baby walkers on motor and mental development in human infants*. *Developmental and Bheavioural Pediatrics Review*.
- Zoia, S. (2004). *Lo sviluppo motorio del bambino*. Roma: Carocci editore.

NUI's: Natural User Interfaces in rehabilitation and motor activities teaching.

Filippo Gomez Paloma, Pio Alfredo Di Tore, Stefano Di Tore, Cristiana D'Anna, Filomena Agrillo¹ and Nadia Carlomagno², Giuseppe De Simone

¹ Università degli Studi di Salerno,

² Università Suor Orsola Benincasa, Napoli, Italy

Natural interfaces (NUI), which form the current paradigm in human machine interaction, are interfaces based on traditional paradigms of human interaction, such as touch, sight, gesture and speech.

NUIs are the prevalent form of interaction in exergames, games that combine physical exercise with interactive video games in computer-simulated environments, can produce cognitive benefits (Di Tore, 2012).

So says a study conducted by the Neuropsychology Lab at the Union College in Schenectady, New York (Anderson-Hanley et al., 2012). This study proposes an argument, the relationship between video games and cognitive functions, already widely discussed in the literature, placing emphasis on recent significant developments in the field of video games: the possibility of physical exercise in computer simulated environments.

The potential of exergames in facilitating the learning of motor skills is documented in the literature. However, many studies have investigated the effects of software designed for the gaming market and not specifically focused on educational or rehabilitative purposes. The survey of the scientific production on exergaming has shown that there are very few products developed specifically for the educational or rehabilitative field.

This paper documents the stages of development and alpha testing of two educational exergames developed at the University of Salerno and oriented to motor control and learning, in order to assess the effectiveness of software specifically designed for educational and rehabilitation.

This research is a pilot study, whose methodology required:

- to analyze the literature on virtual learning environments to create a theoretical framework on the cognitive implications of the use of exergames
- to design two learning environments based on natural interfaces for the development of visuomotor integration and for the study of the relationship between stimulus-response compatibility and reaction times in virtual environments. The methodology involves comparison between the results obtained with the use of Exergame and the results obtained with other scientifically validated instruments (VMI Developmental Test of Visual-Motor Integration)(Beery, 2004)

The alpha testing of exergames was conducted on a sample of 50 primary school students and has demonstrated the functionality of the software. The high correlation coefficients between scores on tests and exergame scores seems to confirm the existence of a relationship between the ability of visual-motor integration and the activities proposed by the softwares.

The results encourage us to start the stage of experimental tests to evaluate the effectiveness of these technologies in the physical activities teaching and rehabilitation.

Keywords: Exergaming, Natural User Interfaces, Motor Control, Rehabilitation, motor activities teaching

References

Anderson-Hanley, C., Arciero, P. J., Brickman, A. M., Nimon, J. P., Okuma, N., Westen, S. C., . . . Kramer, A. F. (2012). Exergaming and Older Adult Cognition: A Cluster Randomized Clinical Trial. *American Journal of Preventive Medicine*, 42(2), 109-119.

- Beery, K. E. (2004). *The Beery-Buktenica Developmental Test of Visual-Motor Integration, (Beery VMI-5)*. Minneapolis: NCS Pearson.
- Di Tore, P. A., & Raiola, G. (2012). Exergames in motor skill learning. *Journal of Physical Education and Sport*, 12(3), 4. doi: **DOI:10.7752/jpes.2012.03053**

High diving: evaluation of water impact influence and considerations on training methods.

Salvatore Napolitano, Pio Alfredo Di Tore and Gaetano Raiola,
University of Salerno, Italy

High diving is a sport that became popular in recent years. Since 2013, FINA has added it to the official list of swimming disciplines.

This pilot work focuses on two specific aspects of the High diving:

- 1) the impact with water: in high diving competitions the platforms are located at a height between 25 and 28 meters. The impact with the water exposes muscles, articulations and the whole athlete body to abnormal solicitations (Snyder&Snow, 1967).
- 2) the lack of opportunities for athletes to train in an environment similar to that in which the performance occurs: divers can practice only on the day before the competition; they can't practice on a daily basis (Paulev&Zubieta-Calleja, 2007).

The aim of this study is to develop a training methodology that takes into account these two peculiar difficulties and, on a scientific basis, looks for methodological and technological supports.

The approach of research is integrated and composed by two distinct methods:

- With regard to the influence of impact with the water, the coefficient of impact was calculated using pre-existing data in scientific literature, by reference to studies, conducted in the aeronautical field, concerning the impact of the water on the objects.
- With regard to the technical side, three international competitions have been studied using video analysis methodology: 2 events related to Red Bull Cliff Diving World Series, and an event relative to Maremeeting Campionato Mondiale di Cliff Diving di Furore (SA). Aim of video analysis was to analyze the various segments of technical execution of each single dive executed by the athlete during the competition in order to better prepare and individualize the strengths and weaknesses of the athlete in each single execution.

The athlete's body takes the maximum charge when it is partially submerged. This is verified with the following numbers: 12994,525 [N] in a "dt" of 0,001s (at 9,14 m/s , 4,25 m in height, maximum force 3661,86 [N]).

In other words, a diver of 80 kg with a surface impact equal to 0,000508 m² (foot in hyperextension) jumping from a height of 28m finds its highest stimuli at 12994,525 N at 1.64 mt of water penetration. The duration of the maximum stimuli is equal to 0.001 seconds. As is easily understood, the diver's body, even for a short time, is subject to a notable stimuli.

Based on the results, it is possible to develop a model that, given height, weight and anthropometric values :

- 1 - Calculate the body segment that will suffer the most stress on impact.
- 2 - Calculate the changes in the coefficient of impact based on the exposed surface.

Also constructed model may help athletes to develop a type of training that protects privileged way in the body segments most vulnerable to and including and prevent the consequences of any errors

Keywords: high diving, water impact, training methodology, videoanalysis

References

- Snyder, R, Snow, C., 1967. Fatal Injuries Resulting from Extreme water Impact. *Aerospace Medicine*, 38, 8.
- Paulev, PE, Zubieta-Calleja, G., 2007. High Altitude Diving Depths. *Research in Sports Medicine*, 15, 3, 213 – 223. DOI: 10.1080/15438620701526795

Evaluation model for aerobic gymnastic.

Gaetano Raiola, Ylenia Giugno and Pio Alfredo Di Tore,
University of Salerno, Italy.

Due to the complexity and the speed with which you perform the technical elements of Aerobic Gymnastic, the introduction of video analysis is essential for a qualitative and quantitative evaluation of athletes' performance during the training. "The performance analysis can enable the accurate analysis and explanation of the evolution and dynamics of a historical phenomenon and motor sports" (Hughes and Bartlett, 2002). "The notational analysis is used by technicians to have an objective analysis of performance. Tactics, technique and individual movements can be analyzed to help coaches and athletes to re-evaluate their performance and gain advantage during the competition "(Hughes and Franks, 2004).

The purpose of the following experimental work will be a starting point for analyzing the performance of the athletes in an objective way, not only during competitions, but especially during the phases of training. It is, therefore, advisable to introduce the video analysis and notational analysis for more quantitative and qualitative examination of technical movements. The goal is to lead to an improvement of the technique of the athlete and the teaching of the coach. The experimental project will include a first phase of evaluation to the naked eye by the coach of an element of difficulty of Aerobics: *the helicopter to wenson*. The quantitative evaluation will be to give an athlete first score, without the support of video analysis, taking into account the minimum requirements set by the Code of Points of the Aerobic Gymnastic. In a second step we will divide the athletes into two groups: the group n. 1 will continue his training simply by filling in cards evaluation by the technician without video support, three times a week for a month; the group n. 2 instead will be evaluated through video analysis, three times a week for a month. The coach will examine in deferred time the gesture by analyzing errors of the athlete. With the use of 6 cameras, placed one in front and another behind the athlete, two on the right side and two on the left side, one will have a full assessment of the movement in examining different points that can help the technician to easily identify errors not visible to the naked eye. Only at the end of the experimental phase, the evaluations of the two groups will be compared, the differences and possible improvements of the group who has been training with video support will be noted in order to verify the effectiveness of performance analysis in Aerobic Gymnastics. After that the cameras will be placed at various points, always different (e.g. in the corners, 2 in front and side, 1 front and 2 side), in order to establish what were then the best prospects for a more accurate and fair assessment.

For this project the software Kinovea will be used, that will allow the trainer to analyze each stage of the movement, trace trajectories with a marker placed on a body part, to revise errors committed in slow-motion and quantify distances, angles and lengths if they are essential to the understanding of the error. The expected results of the research will help the technician to identify, analyze and correct errors made by the athletes more quickly than by the mere visual assessment on the group n. 1. It's desirable that the introduction of video analysis will lead to an improvement of the group n. 2 in spite of the group n. 1 as regards the rapidity of correction of the gesture and also thanks to the visual self-assessment made by the athlete with the videotape, while the coach will be easier to adopt new teaching strategies to be presented to athletes for better technical correction, teaching and executive action.

Keywords: Performance Analysis, Video Analysis, Qualitative and quantitative assessment, Technology, Education.

References

Hughes M., Lipoma M., Sibilio M., La performance analysis. Elementi di base e aspetti applicativi in campo educativo e integrativo;
Hughes, M.D., Franks, I.M. (2004), analysis of National Sport 2nd Edition-better system for improving on coaching and performance, London: E. & F.N. Spon. UK;
Hughes, M., Bartlett, R. (2002) Special edition on performance analysis. Journal of Sports Sciences, 20, 735-737. UK.
Code of Scores, Italian Federation of Gymnastics (2008-2012)

Video analysis applied to volleyball didactics to improve sport skills

Fabio Parisi, Pio Alfredo Di Tore, Gaetano Raiola,
University of Salerno, Italy

The feedback method is increasingly used in learning new skills and improving performance (Hughes and Robertson, 1998). "Recent research, however, showed that the most objective and quantitative feedback is, the greater its effect on performance." The video analysis, that is the analysis of sports performance by watching the video, is used primarily to evaluate from a quantitative point of view of the performance of athletes through the notational analysis (Hughes and Franks, 2008). It may be useful to combine the quantitative and qualitative analysis of the individual technical movements (Tavares et al) for use in real-time Training. Currently there are no specific studies on volleyball on the use of performance analysis during training. The scope of work is to carry out a preliminary study on the use of video analysis in volleyball to build a motor execution model to be proposed for each athlete singol, sports skill. This training method is part of the planning of educational training to improve the performance of athletes.

Video analysis of spike skill of 4 male athletes, category under 13, which will be compared to a video-execution reference model. The comparison parameters are:

- Preparing to hit the ball and angle of the body with the floor;
- Horizontal Speed and Step Length (left foot); 2 Next Steps (right-left), and their length
- Angle of the arms;
- air phase with shot and heights reached by knee and hand;
- fall to the ground with both feet.

The four athletes will be divided into two groups of two people: Both group A, the control group, the B group, the experimental group will be filmed at the beginning and end of the project, and every day in training, both follow the same training program, for 30 meetings. Group A will not be provided feedback during the course of their performance, while group B will be offered each day the video of the execution of the skill related to training earlier.

At the end of the research, we will make comparisons of the training done to verify the performance improvements. The tool used for the analysis of video Kinovea is a free and open source software used for video analysis from a lot of coaches.

The differences in the comparison of results will contribute to the choice of this method in training and possibly deepen the problem in other ways.

Keywords: Performance Analysis, Video Analisi, Didattica, Sport, Aspetti qualitativi e quantitativi

References

- Hughes, M.D. and Franks, I.M. (2008). *Essentials of Performance Analysis*. London: E. and F.N. Spon.
- Hughes, M. and Robertson, C. (1998). Using computerised notational analysis to create a template for elite squash and its subsequent use in designing hand notation systems for player development. In A. Lees, I. Maynard, M. Hughes and T. Reilly (eds) *Science and Racket Sports II*. London: E. and F.N. Spon, pp. 227-234.

3. Sport Pedagogical and Psychological aspects

Personality and sensation seeking in extreme sport.

Rhonda Cohen,
School of Health and Education, Middlesex University, UK.

Base jumper ? Drag racer ? Off the piste skier? Is the personality of those involved in an extreme sport different from those participating in more traditional sport? The study of the relationship between personality traits and sporting performance has flourished over the past four decades. Using two standardised psychometric tests, a Sensation Seeking Scale (Zuckerman 1994, SSS-V) and Eysenck's EPI (1968), due to its lack of measure for impulsivity as well as frequent use in past sport studies, this research examined the difference between extreme sport enthusiasts, general sport participants and a traditional homogeneous sample. In addition, the study controlled for age, gender and level of expertise. Results indicated that there was a significant difference in neuroticism, sensation seeking disinhibition, as well as thrill and adventure seeking . Level of performance was shown to be a significant variable as was gender.

Keywords: extreme sport, sporting performance, sport participants

Sports gymnastics as a part of curriculum of sports management university studies in the Czech Republic.

Petr Hrusa and Dagmar Hrusova,
Department of Recreation and Tourism,
Faculty of Informatics and Management,
University of Hradec Kralove, Czech Republic.

Current approaches to systemize gymnastics differ in understanding the content of this concept; however, the authors agree that gymnastics is an open system of human conscious motion activities that contribute to the physical, aesthetic and social development.

In our study we focused on studies of sports management, as a young field of study that appeared at Czech universities in the past two decades. The aim was to analyze sports gymnastics as a subject with practical applications in the field of sports management, to find out sports gymnastics representation in this field at selected universities in the Czech Republic and to compare practical entrance exams and subjects of curricula with focus on sports gymnastics, by content analysis. We analysed and compared curricula of full-time bachelor's studies of sports management, with regard to sports gymnastics, at the universities in the Czech Republic.

We give results for two consecutive academic years (2009/10, 2010/11) regarding the number of students enrolled to the study, the number of students having attended subjects of sports gymnastics within their curriculum, and their success rate for credit requirements in the given subjects.

Gymnastic training is targeted to develop coordination and motor-functional preparedness. An approach based on health related physical fitness and optimal physical function requires an effective involvement of the deep stabilization system, which ensures strengthening and stabilization of spine. In gymnastics the body strengthening and stabilization is essential for proper technical execution of each exercise. Here we find a relationship between the function of motion system and gymnastic exercises, and we recommend them as a basis for other sports.

Keywords: Gymnastic System, Gymnastic Training, Bachelor's Studies, Study Subject.

Body and didactic mediation. - experimental use of a *sense wear armband* in a university context.

Pier Giuseppe Rossi¹, Rosa Sgambelluri², Valentina Prenna¹, Gilda Cecoro² and Maurizio Sibilio²,

¹University of Macerata, Italy

²University of Salerno, Italy

In the last decades, there is a growing awareness in cognitive science of the need to consider the embeddedness of the brain in the body and in the world to understand aspects of cognition (Chiel, Beer, 1997).

Many authors and perspectives have moved in this direction: Husserl's phenomenology (1900), Merleau-Ponty's phenomenology of perception (1945), Maturana's studies on *autopoiesis* (1976), the concept of *embodied mind* of Lakoff and Johnson (1999), the perspective of the Embodied Cognition (Kiverstein and Clark, 2009) and finally the Enactivist theory (Varela, Thompson, Rosch, 1991, but also Begg, 2000; Proulx, 2004, 2008; Noe, 2010).

The findings on mirror neurons (Gallese, Rizzolatti, 2001; Welsh, 2007) in the field of neurosciences have contributed a lot to enhance the connection between *mind-body-artifact-world*, so as to suggest that the cognitive unit lies into the organism-environment unit (L. Damiano, 2009, 2011). There is a body that speaks, listens, learns (Sibilio, 2011).

If theoretical insights have gathered awareness about this strong relationship, experimental researches that allow us to compare bodily and metabolic data with activities and behaviors related to cognitive and learning processes haven't been developed yet.

In the field of sport and motion analysis, tools that provide data related to caloric and energetic expenditure of subjects are developed. These instruments have so far found little application in the non-motor didactic.

We propose to test their use within a non-specialistic school setting. An experiment is in progress to verify the potential of such a combination. The tool used in the experiment is a *Sense Wear Armband*. It is a metabolic multi-sensor band that is worn on the triceps of the right arm for a continuous period of time (in our experiment, a week); it provides information about the energetic expenditure of the subject tested (in our case, the Professor). Video recordings of lessons have also been made to be analyzed with video analysis.

The research is carried out at the Faculty of Science of Education, University of Macerata-Italy, during lessons of General Didactic: the aim is to understand whether instruments used for motion analysis can detect significant information about the processes of learning and teaching.

Keywords: Enactivism, embodiment, Sense Wear Armband

References

- Begg, A. (2000). Enactivism: A Personal interpretation.
<http://www.ioe.stir.ac.uk/docs/Begg%20Enactivism%20.DOC> (verified in October 2012).
- Chiel, H.J., Beer, R.D. (1997) The brain has a body: adaptive behavior emerges from interactions of nervous system, body and environment, *Trends Neurosci*
- Damiano, L. (2009). *Unità in dialogo. Un nuovo stile per la conoscenza*, Milano: Bruno Mondadori.
- Damiano, L. (2011). Vita, cognizione e scienza come processi di co-emergenza. Segmenti dell'evoluzione teorica ed euristica della scienza dialogica, *Riflessioni Sistemiche*.

- Fogassi, L., Gallese, V., Rizzolatti, G. (2001). Neurophysiological mechanisms underlying the understanding and imitation of action In: *The Embodied Self. Dimensions, Coherence and Disorders*, 2, September.
- Gallese, V. (2007). Dai neuroni specchio alla consonanza intenzionale. Meccanismi neurofisiologici dell'intersoggettività, *Rivista di Psicoanalisi*, LIII.
- Kiverstein, J., Clark, A. (2009). Introduction: Mind Embodied, Embedded, Enacted: One Church or Many?, *Topoi*
- Lakoff, G., Johnson, M. (1999). *Philosophy in the Flesh : The Embodied Mind and Its Challenge to Western Thought*, New York: Basic Book.
- Marsh, K.L., Richardson, M.J., Schmidt, R.C. (2009). Social Connection Through Joint Action and Interpersonal Coordination, *Topics in Cognitive Science*, 1.
- Merleau-Ponty, M. (1945). *Fenomenologia della percezione*.
- Noe, A. (2004). *Action in perception*, Cambridge, Mass.: MIT Press.
- Noe, A. (2009). *Out of our heads. Why you are not your brain, and other lessons from the biology of consciousness*, New York: Hill and Wang A division of Farrar, Strauss and Giroux.
- Proulx, J. (2004). The Enactivist Theory of Cognition and Behaviorism: An Account of the Processes of Individual Sense Making, *Proceedings of the Complexity Science and Educational Research Conference*, Canada, 115–120.
- Proulx, J. (2008). Some differences between Maturana and Varela's theory of cognition and Constructivism, *Complicity: an International Journal of Complexity and Education*, V,1,11-26.
- Sibilio M. (2011). Approccio metodologico centrato sulla significatività dell'esperienza corporea. in M. Sibilio (ed.) *Ricerchare corporeamente in ambiente educativo* (pp. 55-71), Lecce: Pensa.
- Thompson, E. (2007). **Mind in Life: Biology, Phenomenology, and the Sciences of Mind**, London: Harvard University Press.
- Thompson, E., Stapleton, M. (2009). Making Sense of Sense-Making: Reflections on Enactive and Extended Mind Theories, *Topoi*, 28, 23–30.
- Varela, F.J., Thompson, E., Rosch, E. (1991). *The Embodied Mind*, London: MIT Press.

Parent's perception about motor - sport activity in Italian primary schools.

Filippo Gomez Paloma, Filomena Agrillo and Cristiana D'Anna,
Department of Human, Philosophical and Educational Science, Education Science
University of Salerno, Italy

The educational value of motor-sport activity in Italia Primary School had its full acknowledgement through a historical development that have seen the legislative evolution and scientific research to carry on together. This increase has inevitably conditioned the school that had to adapt its educational proposals to the new cultural changes. The child with his needs and his personal needs becomes the pivot around which all educational interventions. Participation in activities polyhedral investing synergistically motor, affective and cognitive, became one of the guiding principles of the program to enable the student to achieve by "doing" self-awareness (Gomez Paloma, 2012). The school, in this sense, must be able to recognize and appreciate the personal attitudes, and aim to strengthen them through the development of basic skills in relation to levels of perception, psychomotor and manipulative, the processes of symbolization, logical skills, expressive, communicative and social, the spatial representation and rhythm (Vayer P., 1982).

This study was addressed to the parents was analyzing their views on physical education in schools. Such opinions may, in fact, have a strong impact on the motivation and interest of their children to discipline. The parental representations, as has been amply demonstrated in studies on the construction of gender identity, affect the natural predispositions or personal attitudes of children (Ainsworth, Bowlby, 1991).

The tool used for the research is the Nominal Group Technique (Van de Ven, Delbecq, 1972). Its aim is to study, analyze and investigate all those elements, problems, ideas, that cannot be examined through a quantitative analysis of the facts. What makes possible the survey is its structure. It presents itself as a union of two different phases: data collection and brainstorming. The collection of data (first time) appears to be a support for brainstorming (second moment), which is the true focus of the instrument .

From a global analysis of parent's statements, we perceived that:

- in the sport halls, children don't learn only movement and schools are not only involved about theoretical aspect;
- the motor activities haven't a subordinate role compared with the logical mathematic and linguistic disciplines;
- the motor activities, in the school, are not an extension of recreation;
- children learn even if they don't stay seated, because the movement is not the distraction.
- body and movement encourage the cognitive development;
- through his body kid learn himself, others and world around (Sibilio M., 2005).

Keywords: Motor-sport activity, education , parent's perception, primary school.

References

- Ainsworth M. S. and Bowlby J. (1991). An ethological approach to personality development, *American Psychologist*, **46**(4), 333-341.
- Gomez Paloma F., (2012). *Didattica...mente corporea. Dai domini scientifici al curricolo del docente*, Napoli: Guida Editore.
- Sibilio M. (2005). *Lo sport come percorso educativo. Attività sportive e forme intellettive*, Napoli: Guida Editore.

Van de Ven A.H. and Delbecq A. L. (1972). The nominal group as a research instrument for exploratory health studies. *American Journal of Public Health* March **62**, No. 3, pp. 337-342.

Vayer P. (1982). *Educazione psicomotoria nell'età scolastica*, Roma: Armando Editore.

An assessment of the perception of physical activity, eating habits, self-efficacy and the knowledge about healthy food in Albanian adolescents.

Robert Çitozi, Dhurata Bozo and Genti Pano.

Faculty of Physical Activity and Recreation, Department of Physical Activity Recreation and Tourism; Sport Sciences Research Institute, University of Sport of Tirana, Albania

The present study evaluates eating habits and behaviors, and nutritional and food safety knowledge of a group of Albanian adolescents. A dietary questionnaire previously constructed and tested was self-administered during school time. Each section was evaluated using a separate score. The study was carried out as a part of a nutritional surveillance project in the capital of Albania, Tirana

Three hundred and forty (340) adolescent subjects (180 males, 160 females), aged 15.2 ± 0.5 years, attending the 8-9 years of secondary schools participated in the study. We evaluated eating habits, physical activity, meaning of healthy and unhealthy dietary habits and food, self-efficacy, barriers affecting healthy food choices, nutritional and food safety, weight, height, Body Mass Index (BMI).

Only 33.1% of the sample have satisfactory eating habits; 16.8% have a very active lifestyle; only 7.9% have quite good nutritional knowledge.

The results point out unhealthy behaviors influencing adolescents' eating habits and suggest which of these must be considered in order to develop tailored nutrition interventions, improving adolescents' consciousness aimed at adopting a healthy lifestyle.

Keywords: [dietary questionnaire](#), [education](#), [eating](#), [behaviour](#), [adolescents](#).

Transformation of sports management studies in a new specialization of recreation and sports products in travel and tourism in economics and management studies.

Blahoslav Komestik and. Bohumil Puza,
Department of Recreation and Tourism,
Faculty of Informatics and Management,
University of Hradec Kralove, Czech Republic.

In 1993, we accredited a bachelor's programme of Sports Management studies and today there are over 300 specialists – our graduates, employed in the field of leisure and recreation. The labour market seems to have been filled in the given field. However, a new social need and demand for higher attractiveness of travel and tourism products is emerging, and there is an increasing interest in active physical recreation. This corresponds to our university education scheme that will offer management of specific recreation and sports products in travel and tourism. University education is required for licensure in this field.

Our goal is to transform the original sports management studies in a new specialization under the studies of Travel and Tourism Economics and Management. Methods and techniques used for the transformation are historical, legislative and content analyses, and comparison and evaluation of study programmes of other universities both in the Czech Republic and abroad.

As a result we have set the structure of three principal modules of theory, three principal modules of practice, and twenty-eight key subjects - core of the specialization, supplemented with practice and licenses.

Teaching of the new specialization has been based on our rich fifteen-year experience in the field of sports management. Our faculty and university consider the study programme of Travel and Tourism Economics and Management with a specialization of Recreation and Sports Products in Travel and Tourism based on the original concept of Sports management to be an essential part of their innovative studies.

Keywords: Bachelor's Studies, Teaching, Curriculum, Innovation.

NOT PRESENTING

Assessment of physical activity in office employees groups in Albania.

¹Dhurata Bozo, ¹Genti Pano and ² Robert Çitozi,

¹ Sport Sciences Research Institute, Sports University of Tirana.

² Faculty of Physical Activity and recreation, Sports University of Tirana.

Insufficient Physical Activity (PA) is very common in office employees and due to this they are at higher risk for metabolic, cardiovascular and many more other health related risk factor diseases. There is a lack of data regarding the PA of office employees groups in Albania. Thus the aim of this paper was to identify the PA in typical representative groups of this category. A total of 154 randomly selected office employees, out of which 97 (52 females and 45 males) from one mobile company and 67 (37 females and 30 males) from a bank, participated in this study. An Albanian modified version of the short International Physical Activity Questionnaire (IPAQ) was used to assess some indicators dealing with all kinds of PA jobs, everyday life and leisure and time expenditure on PAs of different intensity. The weekly activity level was measured through time, frequency and intensity, expressed in MET*minute. The subjects were classified in 3 main PA categories: HIGH (1500-3000 MET*min), MODERATE (600-1300 MET*min) and LOW (<600 MET*min). The results show that both groups declared an average PA Level classified under the LOW category. The values of the mobile company group was around 950 MET*min with a difference between the genders of 280 MET*min (1070 in males and 790 in females); while the bank group revealed lower values, i.e. 890 MET*min as average and a difference of 220 MET*min between the two genders (980 in males against 760 of females). The differences between the two groups under investigation can be explained through various factors such as the general PA gender differences, type of sedentary work, type of different work position/role and working spaces. These results may be also a consequence of improper individual activity habits, low information and awareness of health benefits of PA and lack of proper promotion for a healthy and active lifestyle.

Keywords: office employees, Albania, physical activity level

TUESDAY 11th December

1. Teaching , coaching methodology

2. Sport and Society

Physical activities in Czech sociological perspective.

Aleš Sekot,
Faculty of Sport Studies, Masaryk University, Czech Republic.

We are living a time when society, culture and science have become increasingly aware of the great importance of sport not only as a part of mass culture, but broadly understood, for individual and social health and well-being. Physical activity of people plays increasingly more important role in scientific interest regarding way of life of contemporary society and it is very important factor in the process of officiating of the level of healthy and active life style, quality of life and health in general. Indispensable role of physical activity in the course of human life is permanently scientifically confirmed also in context of prevention of obesity. The development of a sedentary life style is the result of a socialization process towards physical inactivity developed in youth and continued into adulthood. At the present we face in our cultural settings apparent tendency: People are more and more individualized, loosing beneficial impacts of community activities, involved in passive way of life lacking proper level of physical activities and active sport. Some preliminary data of the time of being in progress research of physical activity of Czech population are presented to describe specific relation of sport and sedentary society. The Czech Republic is on the level of mass sport strongly influenced with the existence of new development of the city structure, including fitness centres, cyclo paths, roller skates stadiums, beach volleyball playing fields, golf courses. General conclusions of the paper is concentrated on the questuin what Czech society expects from sport in given context of existing tendencies in mutual realtion of sport and society

Keywords: Physical activity, sport, obesity, society, socialization, built environment, nutrition.

Handball vs. Volleyball. women in team

Piroska Béki,

Semmelweis University Budapest, Faculty of Physical Education and Sport Sciences.

Based on Metheny's theory (1965), women can choose from three completely different categories of sports, which are considered socially accepted for females. At the two ends of this spectrum, we can find masculine sports which are not recommended for women, and the sports which are regarded especially feminine. The first group contains activities in which there is physical contact with the opponent or heavy equipment is used, and the body is exposed to long-term workload. The third group, that is the opposite end, is composed by sports which are done with light equipment, are aesthetically nice, or opponents are separated by spatial borders, or sports which are characterised by mobility and quickness. The rest of sports belong to the middle category.

The presentation reports on the results of the second phase of a PhD research, which deals with gender stereotypes related to female representatives of Olympic sports. Before the present study we worked with female national boxing and rhythmic gymnastics team members. This time, national female volleyball and handball players' opinions on their own sports and themselves and on the other sport and its representatives were investigated.

In the research, the following questions were put forward:

- What is the athletes' opinion on one another and the representatives of the other sport?
- Which social strata are the athletes recruited from?
- Are there differences in the childhood sport socialization processes of the representatives of the two sports?
- Are there differences in the gender identities of female athletes?
- What was the motivation behind their choice of sports?

Some of our hypotheses:

- Handballers think, that volleyball is not interesting and not watchable, volleyballers think, that the handball is a very rude sport because of body contact.
- Representatives of the two sports come from the same social strata.
- Handballers consider themselves more incitefull, than volleyballers.
- Volleyball players think female handball players are masculine.
- Volleyball is thought to be a feminine sport by representatives of both sports.

Research methods: semi-structured interviews were conducted with Hungarian female national handball team members (N=14) and Hungarian female national volleyball team members (N=14). All the interview questions were predefined.

Key words: gender, female roles, gender identity, handball, volleyball

Referencies:

- D. Margaret Costa, Sharon R. Guthrie: Women and Sport, Földesiné Szabó Gyöngyi, Gál Andrea, Dóczi Tamás (2010): Sportszociológia, Budapest
- Metheny, E. (1965): *A collection of speeches about sport and dance as significant forms of human behavior*. Dubuque, Iowa: W. C. Brown Co.

Determination of socio-cultural characteristics on somatic parameter body mass index in the Czech adult population.

Jaromir Sedlacek , Martin Sebera, Josef Michalek and Jan Cacek,
Faculty of sport studies, Masaryk University, Brno, Czech Republic.

In this contribution are presented results of testing 569 Czech adult people (273 males and 296 females) older than 18 years. There are discussed results in BMI, which was measured by machine Inbody 720. By questionnaire were learned parameters of sport practicing, magnitude of settlement, life status and education level. Presented results show negative trends. BMI parameter increases when the age arises: most of male groups and two oldest female groups are of overweight. Majority of adult Czech population does not practice any sport activity (71%). This of course influences BMI parameter, when those individuals, who do not practice sport mainly among male groups have again overweight and obesity. Magnitude of settlement also slightly determine watched parameter: in male groups is BMI level decreased with greatness magnitude of settlement, while in female groups can be seen opposite trends. Those who are single or possess good education level have better results in watched BMI parameter.

The project "Creating a research team for the purpose of determining the level of physical activity (inactivity) in selected age groups of the population of men and women in the Czech Republic" (CZ.1.07/2.3.00/20.0044) is financed by the European Social Fund and the state budget of the Czech Republic.

Key words: BMI, Czech adult population, socio-cultural characteristics

Sighted volunteers' motivations to assist people with visual impairments in freetime sport activities

Judit Gombás,
Semmelweis University, Department of Sport Sciences, Hungary.

Since the changing of the political and economic system of 1989-1990 in Hungary, volunteer movements have become increasingly active. Volunteers of different ages and socioeconomic backgrounds are engaged in a wide range of activities, wishing to add values to the lives of others in need, hoping to improve their micro or/and macro environment etc. Volunteering has also appeared in the field of sport. The present research investigates why sighted volunteers join Hungarian Sports and Leisure Association for the Visually Impaired (Látássérültek Szabadidős Sportegyesülete, LÁSS), what their impressions and experience on blind and partially sighted people's social inclusion and opportunities for sport participation are, and examines their motivations.

An online questionnaire was conducted amongst sighted LÁSS volunteers. Responding was voluntary (N=42) and anonymous. The questionnaire contained multiple choice and likert-scale questions, most items were closed, but adding personal comments was in numerous items possible.

Results confirm that joining LÁSS was in very few cases (N=3) motivated by having a family member with visual impairments. A quarter of volunteers (N=11) were informed about the NGO by their sighted friends, volunteering however in the case of 18 respondents is not at all motivated by the fact of having relatives or friends who volunteer. 23 respondents confirmed that they volunteer not only with LÁSS but elsewhere, too. As for respondents' motivation to volunteer with people with visual impairments, it is outstanding that on an 1-5 scale 17 respondents marked 1 and 16 respondents marked 2, meaning that sorrow for blind and partially sighted people is not at all or is hardly present in their case; one single respondent marked 5. 30 answers confirmed with a 5 that sharing the joy of physical activity is the most motivating factor in their voluntary participation. As regards the social integration of people with visual impairments, the vast majority of respondents marked 2 on an 1-5 scale, meaning they find it unsatisfactory.

Blind and partially sighted people's sport participation rates are extremely low in Hungary. Their physical activity levels can only be increased if efficient stimuli, accessible opportunities, a wide range of choice and the necessary human resources are at their disposal. It is also clear that a high number of sports, e.g. running, biking, skating, skiing, hiking etc. Are only accessible with the help of sighted assistants. Consequently, the number of visually impaired participants and that of sighted guides in many cases must be the same. In the context of leisure it is not realistic to expect such a high number of qualified helpers. The enthusiasm and openness of sighted volunteers is thus indispensable and is an available and cost-efficient solution for providing the necessary help for those in need.

KEYNOTE PRESENTATION

The Ratjen case or: the problems a man has to play the role of a woman.

Volker Kluge,
Berlin, Germany.

Since women have taken part in competitive sport on an equal footing, the danger of women becoming too masculine has been conjured up. This impression was strengthened by the appearance of hermaphrodites, although their athletic ability extends over a wide range. During the 'Cold War' the dispute attained a new dimension. The introduction of sex tests had a deterrent effect but did not solve the problem. For that reason the IOC abolished the rules regarding sex definition in 2000, since these were regarded as scientifically dubious. The recent fiery debate about the South African 800m runner and 2009 women's world champion Caster Semenya resulted in a simplified new version, which is intended to achieve more fairness under conditions retaining human dignity.

In contrast the only real masculine masquerade in the history of sport was covered up and wretched in silence for decades: the case of the German high jumper Dora Ratjen, who had come fourth in the 1936 Berlin Olympic Games and was unmasked as a man only a few days after her victory at the 1938 European championships with a world record of 1.70m. She disappeared unnoticed from the public eye and was forced by a court decision to adopt a male identity under the first name of 'Heinrich'.

Ratjen's fate was long thought to be a further inter-sex case, but today is considered as the only documented report of how a hormonally and genetically healthy boy was brought up by his social milieu as a girl, although from the start of sexual maturity he felt he was a man. The conclusion is that the role of upbringing in the formation of sexual identity is by far over-estimated. On the other hand it cannot be definitively clarified whether the Nazi sports leadership knew about Ratjen's sexual determination and if they willingly accepted his participation in women's events for the sake of success.

Keywords: Gender determination, hermaphrodites, cold war, intersex, propaganda games, masculine masquerade.

Brno, City of Culture or Sport?

Ondřej Štaud,
Masaryk University, Czech Republic

Work is inspired by increase tension between representative of Brno theatres and representative of Brno professional sports clubs. This theme introduces us to a conflict between axiology concept of culture and professional sport from view of passive spectators. In beginning we acquaint with traditional concept of culture, its development and function in society. We certainly acquaint with sport and its categorization into system of kinantropology (culture of body). First crucial chapter is comparison of culture and sport facilities development in historical context. In case of culture this description starts in the seventeenth century and in case of sport in early twenties. Thus after sport has become society-wide phenomenon. We can compare these two different terms after beginning of twenty century. Here we can observe particularly material facilities and attitude to construction of new facilities used just those institutions. Subsequently work deals with position and quality of facilities today. Main results of this thesis are compares especially in sphere overall attendance, municipal subsidies, extraordinary subsidies and aggregate impact from economical view to the city.

Attila Szabó

University of Szeged Faculty of Art Graduate School of Educational Sciences
Szeged, Hungary

In our study we compared the psychological immune competence values of two groups. The participants are former kayak-canoe competitors, and teachers who don't do any sports. 50 former competitors and 50 teachers participated in our study. The participants filled four questionnaires. This study is based on two models, that is, the Flow theory of *Csikszentmihályi* (1991) and that of *Antonowsky's* (1979). During trainings the body should be strengthened so as to be able to tolerate and bear strains and stress. A special tailor made training plan will enable competitors to cope with this flow while preparing sportsmen/women for competitions. It is evident that this stress and hard work bring about other personal/individual problems. The questions may be relevant for them. Valid outcome can be gained only in the state of flow. Each successful professional has already experienced flow. This psychological immune system strengthened by trainings and competitions will support the individuals life and career. Bearing this fact in our mind indicate that we should develop the educative and pedagogic strategy of trainings. It is also crucial to make a plan that focuses on enhancing the awareness of the importance of experiencing FLOW as well positive thinking.

Keywords

flow, health education, increasing of performance

4. Sport Physiology

Moderate and vigorous physical activity in the 55+ teachers' daily routine.

H. Ekler Judit¹, Nagyvárad Katalin¹, Kiss-Geosits Beatrix¹ and Csányi Tamás²

¹University of West Hungary, Savaria Campus

²Eötvös Loránd University, Faculty of Primary and Pre-School Education

Health behavior and the lifestyle with preference of doing physical activity in it have a direct relation with the health status at all ages, so belong into the factors which determine the quality of life. The health of teachers aged over 50 is endangered by several risk factors related to the age and today's social conditions. We have researched the level of moderate and vigorous physical activity (MVPA), which is regarded as a health protective factor; and the relationship between physical activity and health status in the daily routine of senior teachers.

The sample consisted of 21 teachers, aged 52-65 from universities (n=9, male=5, female=4) and secondary schools (n=12, male=2, female=10).

The data, which shows their physical activity, was recorded through combined data collection, as the international background literature suggests it; with the help of the Actigraph GT3X+ triaxial accelerometer and a diary about their daily routine. For data analysis we chose 60 secs. epoch time (Cain and Geremia, 2011). For the analysis of their energy usage we set the Freedson (2011) type of Vector magnitude algorithm. We determined the cut point values along the threshold values of Vector Magnitude Sasaki, John and Freedson (2001), which is designed for adults. The actual physical condition was estimated with the help of InBody720 body composition analyzer and CardioVision 2000 oscillometric blood pressure monitor. For comparing the parameters of the activity level and health condition the Paired Samples T Test was applied; for finding correlations we used correlation analysis (Spearman).

The values of men's average energy usage ($p=,002$; $F=,769$; $df=20$) and of MVPA ($p=,017$; $F=,034$; $df=20$) are significantly higher than women's ones. The values of the number of steps per minute are significantly lower in the case of 10 kilos of extra body weight ($p=,011$; $F=,029$; $df=11$). 81% of the researched sample reached the weekly minimum (150 minutes) via their weekly activities, which is considered to be a protective MVPA factor. Those ones who did less MVPA activities than this are regarded to belong to the endangered health category, as a tendency ($p=,131$; $F=41,6$; $df=13$).

We found that the senior teachers reach the MVPA – that is regarded as the protective factor of health status – via activities which are related to daily transport, housekeeping, education and sporting. Sport activities and the resulted VPA characterise mainly the Physical Education teachers. With the minor exception of P.E. teachers, lifestyle changes are mostly suggested to those ones who have 10 kilos of extra weight.

Key words: accelerometer, MVPA, health protective factor

KEYNOTE PRESENTATION

Exercise Physiology: Endurance testing past and future.

Fugedi Balazs,

University of West Hungary, Institute of Sport Science, Szombathely, Hungary.

Modern laboratory testing of endurance athletes has evolved over six decades, beginning with the establishment of maximal oxygen consumption (VO_{2max}) as a valid and repeatable measure of aerobic capacity. While A.V. Hill introduced the concept of VO_{2max} already in the 1920s, it was Henry Taylor, Per-Olof Åstrand and Bengt Saltin in the 1950s and 60s who performed seminal methodological studies that established appropriate protocols and physiological indicators for its measurement (Seiler, 2011). Wildor Hollman, from the German University of Sport in Cologne, was almost certainly the first to display ventilatory and blood-lactate responses as a function of intensity and to identify a breakpoint, presenting his findings at an American congress in 1959. Unfortunately he did not publish in English, so all credit for the concept went to Karlman Wasserman (McArdle Katch & Katch, 2007). Technological advances continue to make physiological testing more sport specific while adhering to the strict demand for valid and reliable quantification of work rate. Field methods of controlling training intensity based on power or velocity measurements from modern instrumented bicycles, GPS watches, etc. can be extremely useful tools for training monitoring and periodization planning that do not really depend on laboratory based measurement of oxygen consumption or blood lactate responses to standard workloads (Seiler, 2011). With increasing technology advances the human performance's parameters are also increasing. Future expectations are highly outstanding parameters (e.g. VO_{2max} 85ml/min/kg, HR 200BPM, SV 200ml, etc.) (Györe, 2008). Where is the top of human performance?

Key words: exercise physiology, endurance test, VO_{2max} , ventilatory- and blood lactate threshold

Relationship between isokinetic muscle strength and sprinting power of road cyclists.

Indrek Rannama, Kristjan Port and Boriss Bazanov,
Institute of Health Sciences and Sport, Tallinn University, Estonia.

The ability to produce high short term (anaerobic) power is an important component of success and tactical economy in road cycling competitions. Important component of power is lower limb muscles strength. There have been studied joint moments and power in sprinting conditions (1), were found relationships between cycling power and lower limb multi joint strength (2) and power values (3). Also have been some studies that have found relationship between anaerobic power and isokinetic strength values of knee and hip extensors in non-cyclists population (4). There is a lack of information how different lower limb muscle groups strength parameters have related with sprinting power in competitive cyclists population. The aim of this study was to examine the relationship between isokinetic muscle strength across three lower limb joints and cycling sprinting power.

Power output of 17 competitive road cyclists (age 20.5 ± 3.8 yrs., mass 180.8 ± 5.7 kg, height 174.3 ± 7.0 cm) was measured during isokinetic test on a Cycclus2 Ergometer. Best peak (P-max) and 10 sec average (P-avr) power from three tests with cadences 100, 120 and 140 rpm were taken to further analysis. Also isokinetic strength of ankle plantar flexors (A-pf), ankle dorsal flexors (A-df), knee (K) and hip (H) extensors (ex) and flexors (fl) were measured with Humac NORM isokinetic dynamometer in angular speeds 60, 180 and 240 deg/s. Isokinetic strength values were expressed as mean of dominant and nondominant leg. The correlation and multiple linear regression analyse between cycling power and isokinetic strength parameters were performed.

No significant ($p > 0.05$) correlations between power (neither with P-max and P-avr) and H-fl strength were found. All other joint strength parameters were significantly correlated with P-max and P-avr. Stronger correlations between power values and strength of A-pf were in angular speed 60 deg/s ($r = 0.78$ and 0.74 p-max and p-avr respectively), A-df in 240 deg/s ($r = 0.64$ and 0.59), K-ex in 240 deg/s ($r = 0.74$ and 0.73), K-fl in 60 deg/s ($r = 0.69$ and 0.80) and H-ex in 180 deg/s ($r = 0.87$ and 0.90). Also was detected negative relationship between power and K-ex strength contralateral deficit values in angular speed 180 deg/s ($r = -0.59$ and -0.56 p-max and p-avr respectively). In multiple linear regression there was found 3 component models $P_{max} = 331 + 4.62 \cdot X1 + 3.62 \cdot X2 - 13.0 \cdot X3$ ($r^2 = 0.94$, $p < 0.01$) and $P_{avr} = 365 + 3.12 \cdot X1 + 2.76 \cdot X2 - 8.76 \cdot X3$ ($r^2 = 0.87$, $p < 0.01$) where X1 is A-pf strength in 60 deg/s, X2 is K-ex strength in 240 deg/s and X3 is K-ex strength contralateral deficit values in 180 deg/s.

The strongest correlations with cycling power have strength values of hip extensors and no significant correlations have hip flexors. The earlier study with non-cyclists population find in angular speed 180 deg/s strongest correlations with knee flexors ($r = 0.96$) and extensors ($r = 0.87$) strength, correlations with hip flexors were also strong ($r = 0.71$) and hip extensors were not so strongly ($r = 0.68$) correlated. The differences may be related with lower upper body position and smaller hip joint angle of cyclists.

The sprinting power have strongest relation with hip extensors strength in angular speed 180 deg/s and have no significantly related with hip flexors strength. 87-90% of sprinting power variation can be explained by model that contains A-pf strength in 60 deg/s, K-ex strength in 240 deg/s and K-ex strength contralateral deficit values in 180 deg/s.

Keywords: isokinetic muscle strength, sprinting power, road cyclists.

References

Martin J.C. (2009). *J Biomech*, 42:474–479.

Sanding D. *et al.* (2008). *Isokinetics and Exercise Science*, 16 (3): 189.
Davies C. T. M. *et al.* (1989). *Eur J Appl Physiol*, 58:838-844.
Smith D.J. (1987). *Can J Sport Sci.*, 12(1):3-5.

NOT PRESENTING

Exercise intensity during Zumba fitness and Tae-bo aerobics.

Kristína Hižnayová and Stela Bajnerová,
Faculty of Physical Education and Sport, Comenius University, Bratislava, Slovakia.

This study analyzed and compared the exercise intensity in Zumba fitness and Tae-bo aerobics. Object of the research was monitoring of the heart rate and energy consumption in kcal during exercise unit, by using Heart Rate Monitor Suunto Memory Belt. All measurements were attended by randomly selected 11 women. The data we collected during the six units of the Zumba fitness and six units of the Tae-bo aerobics. Obtained data were evaluated in three main parts of workout: in the warm up, in the main part of the workout and in the cool-down. We found that during the main part of all exercise units all women were working in their individual aerobic zone. Median of the heart rate prove, that the exercise intensity in the warm up and in the main part of workout was significantly higher in all 6 zumba fitness units than in tae-bo aerobics ($p < 0.05$). Documented energy consumption (in kcal) burned per whole workout was also significantly higher ($p < 0.01$) in all 6 Zumba fitness units.

The research was conducted with the support of VEGA, grant project designed in the years 2011 - 2013, no. 1/0503/11 entitled: Functional and motor skills of athletes of all ages and performance in relation to selected parameters of the cardiovascular system.

Keywords: Exercise intensity, Zumba, Tae-bo aerobics.

The benefits of interval training to vo₂ max in 18 - 20 years soccer players.

Perparim Ferunaj, Bashkim Delia and Zylfi Shehu,
Sports University of Tirana, Albania.

Nowadays interval training is used widely for increase of aerobic fitness in different sports. However, in Albania, the soccer coaches are still using general cardiovascular training, neglecting interval training. Twenty four recreational soccer players [mean (SD) age 18.7 (5.8) years, height 174.8 (6.8) cm, body mass 77.8 (8.9) kg] participated in an 8-week progressive Interval-training program to investigate the possible improvement in VO₂ max. We measured VO₂ max using intermittent test, before and after interval training, where the subjects covered the distance of 20 m, run 15 sec. followed by rest 15 sec. within a period of ten minutes; we have chosen such a test because of the similarity to soccer game movements, where the players run, jog and stop during the match. The interval training was performed 2 days/week for the first 4 weeks and 3 days/week for the final 4 weeks and consisted to running and jogging for 30 minutes, with a ratio rest/work 3:1. There was an improvement in VO₂ max from 49.3 ± 1.6 to 51.8 ± 1.7 ml kg⁻¹ · min⁻¹. In conclusions, the soccer coaches should incorporate interval training, in addition to general cardiovascular one, to improve VO₂ max for their players.

Key Words: Intermittent test, aerobic fitness, cardiovascular.

The comparison of maximal and endurance strength of quadriceps femoris in trained and untrained elderly.

Ferunaj Perparim¹, Shehu Zylfi¹, Harald Tschan² and Spiro Kuvarati¹,

¹Sports University of Tirana,

²University of Vienna, Austria.

The purposes of this study were to examine the differences in knee extensor maximal and endurance strength in elderly. **Methods.** Sixteen healthy elderly served as subjects, eight of them trained, age 61.0 ± 8.9 yrs; height, 170.6 ± 6.8 cm; weight, 71.8 ± 11.7 kg [mean \pm standard deviation] and eight untrained 61.4 ± 8.1 yrs, height 174.6 ± 7.4 cm; weight 83.9 ± 14.2 kg. Maximal strength in single leg extension exercise was measured unilaterally with the dominant leg until the subjects reached their 1 RM covering the full ROM. Muscular endurance was obtained with a load of 75% of 1-RM for 3 consecutive sets, with 2 min rest periods till failure.

Load at 1 RM was lower in absolute terms in untrained, but not significant, while the relative 1-RM test was significantly lower in untrained subjects (0.20 vs. 0.25 kg load/kg body weight) ($p < 0.05$). The number of repetitions and amount of weight lifted performed of all 3 sets was higher in trained subjects, but not significant. In the trained group both repetitions and the load managed in the third set was significant lower compared with the first two sets.

The result that maximal force output is more affected compared to muscular endurance in these subjects might be due to the habitual use of quadriceps femoris muscles during activity of daily living in both trained and untrained elderly.

Key words: Knee extensors; Relative 1RM; Absolute 1RM.

The influence of interval training in physical preparation of 16 – 18 years soccer players.

Bashkim Delia¹; Silva Delia²; Moza Nogu³
Sports University of Tirana,

The survey according to interval methods make up a necessary basis related to enhancement of effective training load. The survey on application of interval methods at the junior football teams during 2005 – 2006. The purpose of the study is to examine the effects of the players during the interval training in their physical and technical preparation. Based on the data obtained from the survey analysis training controls, their discussions with trainers who complete theoretical level regarding training methods, especially the training interval system has significant limitations and uncertainty. This theoretical and methodological gap tends to fill out this survey further specifying the classification of training methods. The training methods used during the experiment are based on these contemporary concepts, I have used these methods. Based on a physiological point of view: 1-Stability method or the method of the continuous run. 2-Intermission method (aerobic strength) 3-The method based on the game. 150 footballers between the ages of 17 and 18, gave their consent and volunteered to be part of this study. All of the participants were fully informed for the study's nature and its demands, also for the possible risks that may be caused to their health. Interval training is manipulated through five variables as distance, intensity, repeating of rest and the kind of activities during the rest allows the growth of intensity on lactic- anaerobic and aerobic system. Training with interval method creates a wonderful atmosphere for the youth.

Key words; Interval training, soccer players, training, stability method, aerobic strength

5. Performance Analysis

KEYNOTE PRESENTATION

Factor analysis in Performance Analysis – an experimental orientation.

Goran Sporis,
University of Zagreb, Faculty of Kinziology, Croatia.

Experimental orientation has been connected with the process of solving three crucial, interrelated methodological issues:

1. Kinesiometric issues should have been solved to find out instruments and procedures adequate for unbiased measurement and assessment of the components of training effects and sport form.
2. Issues related to data analysis methods should have been also solved, that is, certain ways should have been found to process the collected data and to transform them into clusters of useful information for operational purposes of designing training programmers.
3. Didactic issues should have been solved, that is, optimal methods and algorithms should have been defined for designing of efficient programmers of sport training, competition and recovery, as well as for training effects control in various points and cycles of sport preparation.

Several directions are recognisable in the research on sport games;

1. measurement and assessment of basic and specific anthropological characteristics and performance indicators,
2. factorial studies aimed at determination of latent structure of variedly structured manifest variables assessing particular components of preparedness (fitness) of players,
3. studies on relations between predictor variables and variedly defined criterion variables describing performance,
4. studies on the differences among samples of subjects in indicators of fitness and sport form, divided according to age, gender, sport experience and sport quality,
5. studies aimed at determination of training effects, that is, of influence of various programmes of training on transformation of abilities, characteristics and motor knowledge (skills) at various points in the periodisation of sport preparation.

Profiling in sport using momentum and perturbations.

Mike Hughes*, Peggy Bürger**, Michael T. Hughes***, Stafford Murray****, and Nic James*,

* London Sport Institute, Middlesex University, London, United Kingdom.

**Otto von Guericke Universitat, Magdeburg, Germany.

*** PGIR, Bath, UK.

**** English Institute of Sport, England.

Looking at a team's performance from a physical point of view their momentum might indicate unexpected turning points in defeat or success. Scientists describe this value as to require some effort to be started but also that it is relatively easy to keep it going once a sufficient level is reached (Reed and Hughes, 2007). Unlike football, rugby, handball and many more sports, a regular volleyball match is not limited by time but by points that need to be gathered. Every minute more than one point is won by either one team or the other. That means a series of successive points enlarges the gap between the teams making it more and more difficult to catch up with the leading one. This concept of gathering momentum, or the reverse in a performance, can give the coaches, athletes and sports scientists further insights into winning and losing performances.

Momentum investigations also contain dependencies between performances or questions if future performances are reliant upon past streaks. Squash and volleyball share the characteristic of being played up to a certain amount of points. Squash was examined according to the momentum of players by Hughes et al. (2006). The initial aim was to expand normative profiles of elite squash players using momentum graphs of winners and errors to explore 'turning points' in a performance.

Together with the analysis of one's own performance it is essential to have an understanding of your oppositions' tactical strengths and weaknesses. By modelling the oppositions' performance it is possible to predict certain outcomes and patterns, and therefore intervene or change tactics before the critical incident occurs. The modelling of competitive sport is an informative analytic technique as it directs the attention of the modeller to the critical aspects of data that delineate successful performance (McGarry and Franks, 1996). Using tactical performance profiles to pull out and visualise these critical aspects of performance, players can build justified and sophisticated tactical plans. The area is discussed and reviewed, critically appraising the research completed in this element of Performance Analysis.

Keywords: Profiling, performance, sport, momentum,

References

- Reed, D. and Hughes, M. (2006). An exploration of team sport as a dynamical system. In Dancs, H., Hughes, M. and O'Donoghue, P. (eds) **Notational Analysis of Sport - VII**, Cardiff : UWIC, pp. 63 – 72.
- Hughes, M. T., Howells, M., Hughes, M. and Murray, S. (2006). Using perturbations in elite men's squash to generate performance profiles. In **Science and Racket Sports IV**. (edited by A. Lees, J.-F. Kahn and I. Maynard). London: E and F. N. Spon.

KEYNOTE PRESENTATION

The hot hand phenomenon: Measurement issues using golf as an exemplar

Nic James and Luke Heath,

London Sport Institute, Middlesex University, London, United Kingdom.

The so called “hot hand” phenomenon refers to the commonly held belief amongst sports fans, coaches and players that sports players can, on occasion, produce sequences of consistently superior (compared to their normal) performance. This prompted American basketball fans to call a player, perceived to be in such a state, as having “hot hands”. Gilovich, Vallone and Tversky (1985) first alerted the scientific community to this phenomenon but concluded that the belief in the hot hand was nothing more than a misperception of random sequences. Whilst their paper was meticulous and thought provoking it has subsequently encouraged hundreds of similar studies in search of the elusive hot hand since almost all sports fans believe that they have witnessed periods of play where performance is elevated beyond the normal. Researchers have argued that the statistical methods used to test the hypothesis of randomness and its antithesis streakiness (a more inclusive term for hot hand) were flawed. As a result many different statistical methods have been proposed but at this point in time there is no definitive method that researchers agree upon. Different sports have been analysed on the basis that some may be more prone to streaky performance due to the nature of the sport. For example, golf involves relatively long pauses between shots and if, as is commonly suggested, a mechanism that accounts for streakiness is psychological momentum, then golf may be prone to these effects more than some other sports. However, golf is different to basketball shooting and other sports where there is a clear success (score a basket) and fail (miss) outcome. In golf each shot can be rated on a scale from excellent to poor but this classification is both player dependent and arbitrary. Of course some shots could go directly into the hole but for the vast majority of shots this is not likely or indeed possible. Consequently determining success or failure in golf is not straightforward and previous efforts can easily be challenged. For example a common measure of success in golf has been whether a player has hit a requisite number of shots on one hole, this has commonly been either a “par or better” or a “birdie or better”. The problem with these measures of success is that they are the same for all players irrespective of their standard and they don’t account for the hole difficulty on the day the hole is played. This paper discusses these issues and presents a new method for evaluating streakiness in golf.

References

Gilovich, T., Vallone, R., and Tversky, A. (1985). The hot hand in basketball: On the misperception of random sequences. *Cognitive Psychology*, **17**, 295-314.

IPPAS (Intensive Programme in Performance Analysis of Sport) – can Europe really work?

Mike Hughes,
London Sport Institute, Middlesex University, London, United Kingdom.

The students (N=60) on the course were recruited through the INSHS network (28 universities across Europe) and had to have qualifications in sport (either 1 or 2 years of a degree or coaching qualifications), and are looking to increase their knowledge of analysis and feedback, perhaps with a view to applying for an MSc in PAS.

The main objective of the programme was to bring together expert staff from different universities (12) across Europe, and commercial software firms, to contribute to an intensive course in Performance Analysis of Sport (PAS) – 2 modules at Level 3, undergraduate (equivalent to 20 CATS each in the UK, or 10 ECTS each in Europe). The staff from the SME's, (Performance Innovation Ltd., Scotland, CSIR, South Africa and Sportstec, NZ) contributed a pragmatic practical approach that complemented the academic delivery of the Universities' staff.

A subsidiary aim was to use the course as a platform for the development of innovatory methods of delivery, (interactive electronic software) that will eventually enable distance learning, electronic assessments and also video and electronic feedback to the students of their performances. All the lecture powerpoints have been pooled on an a website (<http://science4performance.com/>), together with electronic versions of all associated reading materials (an estimated total of 5 books and over 200 research papers). Hopefully by the end of the project, all these methods will be tried and tested and, with the content provided by all the partners, can then be taken back to all the partner universities to be used in their respective degrees.

The staff of the organising university (UWH) did their best to provide a very rich and contentful social programme for the foreign visitors. This included sport, culture and gastronomical elements. The organisers created the possible most convenient circumstances for the academic programme in the Lakeside Restaurant Conference Center and in the university as well. It was very comfortable for all participants that the accommodation of students and the restaurant and the venue of lecturing were at the same place. The location of the venue (the lake, the parks, sport courts) were very nice and unique. To the end of the 10 days event the participants became almost like a big happy „family”. The attitude of all the staff and of the students were absolute positive, very openminded, cooperative and friendly. All the staff learned from each other, and will now be able to use these materials and resources when they return home, to improve their own courses.

Four of the universities now involved teach PAS at Masters' level, an increase of 2 from the first year, whilst NTU, Otto von Guericke and Valencia deliver a Joint International MSc in PAS, all universities teach some elements of PAS at different levels. The shared lecture materials and resources will enable the staff at the other universities to develop modules, undergraduate and/or postgraduate courses in PAS depending on the motivation of each university.

Towards the end of the modules (Days 5 and 9), feedback questionnaires distributed to all the students and staff taking part in the Programme – these 2 sets of data were then analysed, using appropriate statistics – the results are shown and discussed.

2. Sport and Society

The young adults leisure –time habits on the University of Alicante

Katalin Nagyvárad, Katalin Bíróné Ilics and Tibor Polgár,
University of West Hungary, Savaria Campus, Szombathely.

The issues of healthy lifestyle and workout are occurring more and more frequently nowadays. The topic has a great impact on everybody, since health, which we do not achieve by various therapies, medical interventions, but by health promotion, is fundamental to our life.

Health behaviour and health value are culture-dependent factors so the systems of norms and values in a society greatly contribute to the formation of them.

The health culture of a country is indicated by what kind of protective and predictive health behaviour attitudes the citizens have. These elements are reflected in our lifestyle which influences our health condition in a complex way. The most important aim of health promotion is changing our lifestyle for which we need individual pursuit, acts on social level, and above all, monitoring the health behavioural habits.

The sample is made up of 65 students. Data were collected through questionnaires consisting of closed question, administered in person applying random sampling method. The collected data was processed by coding the questionnaires and questions, using **mathematical statistical** methods.

Key words: health condition, lifestyle, leisure time, university students

3. Sport Pedagogical and Psychological aspects

The aptitude of young volleyball players (children and adolescents).

Katalin Biróné Ilics and Adrienn Baloghné Bakk
University of West Hungary Savaria Campus, Szombathely
University of West Hungary Benedek Elek Faculty of Pedagogy, Sopron

In order to identify the supposed performance of a child in his chosen sport, firstly we have to find out whether he is suitable to pursue that sport or not. We have to know whether the external and internal conditions are given to him to be able to fulfil the requirements of that sport. External conditions mean mainly the role of parents, family, the work of P.E. teachers, coaches, the influence of friends and peers who are the same age. Additionally, another influential factor can be the quality of trainings, the existence of suitable equipment; the relationship with teammates. Internal, genetic factors affect the expected height, body type, the individual physiological functions, psychological features. The genome also influences the general and the specific motor abilities and their development pace, which can give information about the trainability and expectable level of performance. Anyway, measuring the motor abilities is regarded as a favoured field in sport science as the measurements can be easily carried out and repeated at any time.

Girls and boys aged 13 to 14 and 15 to 16 years were participants in this research which objective was to assess the players' aptitude for playing volleyball. It contains tests of anthropometry; general motor ability tests; special methods which measures the precise performance of technical elements in volleyball and questionnaires for the parents and athletes. After analysing the performance of athletes and based on the given results, later we plan to prove these players' suitability in reality, as well.

Keywords: volleyball, attitude, performance

Lower primary school teacher trainees' and pupils' interactions on PE lessons

Kiss Zoltan,
University of Kaposvar, Hungary.

Teaching activities on PE lessons are quite different from the ones on other lessons because of the interactions while teaching activities. One of the main characteristic features is that pupils answer the teacher with motorist activity, so lesson work is not based on dialogues. These reasons guided Svoboda to work out the category system of monitoring PE lessons. We used his interaction analysis method in our research to monitor PE teacher trainees' lessons. The aim of the research was to know the most widely used teacher activities (out of 13) and pupil activities (out of 7) on PE lessons held by teacher trainees.

4. Sport Physiology

The acute effects of acupuncture on glucose and heart beat-pressure product of normal tension after exercise on cycle ergometer.

Pernambuco, Carlos Soares,
Universidade Federal do Estado do Rio de Janeiro – UNRIO – Rua Xavier Sigaud 290, Rio de Janeiro – CEP – 22290-180 – BRAZIL.

The blood pressure and heart frequency have been used as a diagnostic and prognostic on subject with heart diseases and the double product is a good non invasive marker to evaluate the myocardium muscle on rest or work. The arterial blood pressure and heart rate [HR] were measured to explore the cardiovascular response to acupuncture, that different modes of manual acupuncture stimulation exert a differential psychophysiological response in healthy subjects. The aim of this study is observe the acute changes promoted by acupuncture on glucose and heart beat-pressure product of normal tension during and after exercise on cycle ergometer. Method: The subjects elected to take part of experiment were submitted an anthropometric procedure: Age - 25.63 ± 7.34 ; body mass index [BMI] - 26.29 ± 2.83 ; glucose [GL], heart frequency [HF] and blood pressure. The BP and HF were collected twice, twenty minutes and immediately before start the test on cycle ergometer who were calibrated to work 1,5 kilopounds, on 10 minutes and twenty minutes. Were made a measure one minute and three minutes after end of the test., The subject were oriented to maintain the intensity as someone hard – hard [13- 15] at the Borg`s visual scale and 70% of maximum heart frequency [MHF], that was obtained by estimate formula $220 - \text{age}$. One Month later the subject were submitted a same test but they received a acupuncture stimuli on spleen 3 [SP3] point for 20 minutes. The statistical procedure used Anova to compare the results and Tukey post hoc, and Shapiro Wilk was applied to identify the homogeneity of the sample, significance $p < 0,05$. Results: after 10 minutes. heart beat pressure product without acupuncture [SEMA] 19515,57 and with acupuncture [COMA] 16.393,14; after 20 minutes - [SEMA] 22.238,86 and [COMA] 16562,29; one minute after exercise - [SEMA]15.720,86 and [COMA] 10.977,31; Glucose no significative defference. Conclusion: The acupuncture procedures promoted acute reduction on blood pressure, heart frequency during and after the exercise.

Comparison of the results of the plate tapping test in the Czech adult population.

Zuzana Hlavonova,
Masaryk University, Faculty of Sport Science, Brno, Czech Republic

The objective of this study was to compare results of the standardized plate tapping test among various age categories of the Czech population. It was hypothesized that results of the dominant and non-dominant hand would differ and that they would be mutually independent on each other. The verification of this initial hypothesis was determined by the T-test (with the level of statistical significance set at 0,05) and by correlation analysis. The results show that there is a very strong correlation between the performance of the dominant and non-dominant hand. At the 5% level of statistical significance, we can also demonstrate that these results are almost identical in all age categories of men and women.

Key words: plate tapping, hand dynamometry, T- test, , correlation analysis

Muscle strength, functional autonomy and body composition of an elderly man with frontotemporal dementia undergoing a resistance training program: a case report.

Cláudio Joaquim Borba-Pinheiro^{1,2,3}, Nébia Maria Almeida de Figueired¹, Carlos Soares Pernambuco¹, André Walsh-Monteiro², Olavo Raimundo Macedo da Rocha Júnior³, Roseane Monteiro-Santos³ and Estélio Henrique Martin Dantas¹,

¹- Universidade Federal do Estado do Rio de Janeiro (UNIRIO/LABIMH). Programa de Doutorado em Enfermagem e Biociências (PPEnfBio), Rio de Janeiro, Brazil.

²- Instituto Federal do Pará (IFPA) Campus de Tucuruí, Brazil.

³- Universidade do Estado do Pará (UEPA) campus XIII Tucuruí, Brazil.

The aim of this research was to investigate the effects of a resistance training program on muscular strength, functional autonomy and body composition of an elderly man with frontotemporal dementia.

A volunteer male with 80 years of age and 75.7 kg of body weight. The cerebral atrophy of temporal lobes was diagnosed by a CT scan. To evaluation of muscle strength the 10RM test (repetition maximum), for functional autonomy the protocol of the Latin American Development to Maturity Group – (GDLAM) and body composition determined by Dual Energy X-ray absorptiometry (DXA) were used. The training period of four months consisted of eight exercises with intensity of 65% to 90% of 10RM, with three sessions weekly of the 60 min/session. The student t test was used. **Results:** Statistical improvement was observed for % fat ($\Delta\% = -2.93\%$, $p = 0.041$), for exercises of leg press 45° ($\Delta\% = 48\%$, $p = 0.001$), horizontal leg press ($\Delta\% = 18\%$, $p = 0.01$) and knee extension ($\Delta\% = 12\%$, $p = 0.04$). In addition, the put on and remove a t-shirt test ($\Delta\% = -7.19\%$, $p = 0.018$) and the Index GDLAM ($\Delta\% = -8.53\%$, $p = 0.014$) of functional autonomy. **Conclusion:** It is concluded that the resistance training program was effective for the case study, as improved functional autonomy, the muscle strength of the legs, and the fat percentage of the volunteer.

Key words: Dementia, Physical activity, Activities of daily living.

The comparison of flexibility in the Czech population aged 18–59 years

Eduard Hrazdára, Pavel Grasgruber and Tomáš Kalina,
Masaryk University, Faculty of Sport Science, Brno, Czech Republic

The objective of this study was to compare flexibility in the Czech population aged 18 – 59 years. The recorded values were obtained using a sit-and-reach test (maximal horizontal reach in a sitting position).

In comparison with previous standards of the sit-and-reach test, our results are above-average. Higher levels of flexibility were recorded in women, physically active people and in younger age categories. The most striking decrease of flexibility was demonstrated between the two youngest age categories of men. The achieved results are affected by some body characteristics, mainly by the degree of obesity and by the waist-to-hip ratio.

Keywords: Flexibility, flexibility testing, sit and reach, movement activity

Comparison of selected characteristics of gait in men and women.

Jan Došla, Pavel Korvas, Martin Zvonař, Martin Sebera, Radek Musil and Jan Šenkýř ,
Faculty of Sports Studies, Masaryk University, Czech Republic.

The significance of walking as a motor activity in today's dehumanized world is still growing. It is necessary to deal with walking not only as a means to increase physical fitness; it is also important to study its quality. Some physical features such as obesity have a significant influence on the distribution of plantar pressures (Hills, A. P., Hennig, E., McDonald, M. a Bar-Or, O. 2001, Dowling, A. M, Steele, J. R a Baur, L. A. 2004). Static and dynamic characteristics of the foot change not only in children (Müller S, Carlsohn A, Müller J, Baur H, Mayer F. 2011) but in adults as well (Korvas, P. et al. 2012). Our study compares selected parameters of gait in men and women aged 30-39.

In our research, 20 men and 20 women aged 30-39 were observed. The average age of men was 34.0 years, of women 34.1 years respectively. Average BMI was 25.0 for men and 23.0 for women. For measuring, pressure shoe insoles were used (Pedar Mobile, Novel Munich, 99 sensors, 100 Hz). Each person had three attempts: two trial attempts, the third one was measured. For observation, we selected three stances of each leg, always between the third and eighth stride. We compared the following parameters: F1 - maximal vertical ground reaction force peak during absorption stage (loading response, LR), F2 - lowest force during decline between both peaks, F3 - maximal vertical ground reaction force peak during propulsive stage (terminal stance, TSt), Fm - average vertical force of whole stance and also five time characteristics.

Significant differences between men and women were found in stance duration in the active part of stance while the passive part of stance was similar. With applied force (F1, F2, F3) during stance, after recalculating per a kilogram of weight, no statistically significant differences were found.

References

- Dowling A.M., Steele J. R & Baur L. A. (2004). *What are the effects of obesity in children on plantar pressure distributions?* International Journal of Obesity, Vol. 28
- Hills A. P., Hennig E., McDonald M. & Bar-Or O. (2001). *Plantar pressure differences between obese and non-obese adults: a biomechanical analysis.* International Journal of Obesity, Vol. 25
- Korvas P., Musil R., Dosla J. & Cacek J. (2012). *Cross-Sectional Comparison of Selected Gait Characteristics of Women of Different Ages*, European Association for Sport Management
- Müller S., Carlsohn A., Müller J., Baur H., & Mayer F. (2011). *Static and dynamic foot characteristics in children aged 1–13 years: A cross-sectional study.* Gait & Posture

The study of vertical ground reaction during walk of Czech women.

Korvas, P., Musil, R., Šenkýř, J., Kolářová, K., Pavlík and J., Došla, J.,
Department of Kinesiology, Faculty of Sports Studies, Masaryk University, Brno, Czech
Republic.

Walk is a basic skill of a human; its individual characteristics and individual variability are the representative parameters of the automatic stepping mechanisms of gait. Typical course of vertical ground reaction force during stance includes two peaks and one decline between the peaks (Ayyappa 1996). Our research of dynamic walk analysis reveal that there are two types of walkers: some generate bigger vertical ground reaction force in the initial part of stance, in the course of Loading Response, others reach higher values in the second peak during Terminal Stance.

The aim of this study is to find out whether it is possible to explain different plantar loading during absorption and propulsive stages of stance in the observed persons by means of basic body indicators or time characteristics of gait.

Material and methods

Subjects: 51 women with ordinary physical activities participated in the study; their age range was between 30 and 60 years of age. The women were divided into two groups according to whether they reached higher values of vertical ground reaction during absorption (group A) or propulsive (group B) stage of stance.

Instrumentation: capacitive pressure insoles in the shoe (Pedar Mobile, Novel Munich, 99 sensors, 100 Hz).

Protocol: laboratory survey, each woman performed three attempts of natural walking in the length of 15 meters, two of them were for training and the final attempt was monitored. Three stances of each leg were assessed, always from between the third and eighth steps.

Parameters: Five parameters had been chosen for monitoring, three recording force characteristics of gait and two time parameters. F_1 – vertical ground reaction force during absorption stage of stance, loading response, F_2 - vertical ground reaction force during propulsion stage of stance, terminal stance, %BW - plantar vertical force in percentage of body weight, t_1 - time of absorption stage of stance, it is time from initial contact (IC) to the end of MSt, t_2 - time of propulsive stage of stance, it is time from the start of TSt to terminal contact (TC).

Statistics: descriptive statistics, correlation, t-test.

Usual course of vertical ground reaction force during stance with two peaks and one decline between the peaks was found for all subjects. In group A, 8 women (16 %) were found with a higher value of F_1 than F_2 , and 41 women (84 %) in group B with the opposite course of force plantar loading. At F_1 , Group A reached relative value of 121 % of BW during the first stage and 110 % of BW during the second one respectively. The other group reached 105 % in the initial stage, and 117 % of BW in the other stage. A significant difference was found for F_1 parameter between groups A and B, which illustrates basic differences in plantar loading during stance in the observed groups of women. In the other stage (Terminal stance, Preswing), the amount of force was equal (the difference was not significant) because if both groups want to maintain their typical walking velocity, it is necessary to generate sufficient motive force as well as generate sufficient vertical ground reaction forces.

Women with higher F_1 during absorption stage manifested, on average, shorter duration of both stages of stance, however, such difference was not significant when compared to group B. The level of relationship between stance duration as well as its stages and force manifestations in both groups of women was very low (from $r = .010$ to $.015$). Similarly, in group A, the weight of the women correlated with relative values of both F_1 and F_2 ($r = -0,795$, $r = -0,625$ resp.).

We can conclude that in group A, there is a certain relationship between the course of plantar loading and the height and relative weight of the women. In the other group, such relationship was not discovered.

We found out some interesting results, however, to get more relevant results which could clarify the substance of the differences in plantar loading during stance, kinematic analysis needs to be employed as well as a follow-up survey.

Anthropometric characteristics of the young Czech population and their relationship to the national sports potential.

Pavel Grasgruber,
Faculty of Sports Studies, Masaryk University, Brno, Czech Republic

Anthropometric characteristics of young Czech men and women haven't been measured since 2001, due to the cancellation of the traditional anthropological survey in 2011. The project „Physical activity in the Czech republic“ thus offered an opportunity to fill this gap and add some useful information about another physical features of the Czech population that usually aren't addressed in anthropological studies.

The investigated sample in the youngest age cohort (18-29 years) included 142 men and 137 women, and consisted of volunteers, who were measured during various public actions (primarily in Southern and Central Moravia) during 2011-2012. Although the number of studied individuals was relatively small, their average height (181.0 ± 6.2 cm in men and 168.8 ± 6.7 in women) fits favourably the long-term trends of the secular height increase and confirms that Czech men and women belong to the very tallest in the world. Furthermore, the documented values of sitting height and arm span indicate that the Czech population can be viewed as short-limbed, when compared with other European nations. Considering that the average BMI of Czech national team members at Summer Olympics is consistently moderately above-average in comparison with other Europeans, it can be concluded that Czech men and women are physically well endowed mainly for strength sports of a more dynamic nature, where height is an important performance factor. These observations can have fundamental implications for the development and funding of talent programs, because they enable to target specific sports, whose requirements best correspond with the body type present in the Czech population.

Keywords: anthropometry, secular trend of body height, body proportions, sports talent selection.

Analysis of the behavior of peak expiratory flow in acute effect of acupuncture.

Sergio Lima Guilhon^{1,2,3}; Sabrina Lindemberg Malfacini²; Carlos Soares Pernambuco⁴.

¹ State Institute of Cardiology Aloisio de Castro. Rio de Janeiro. RJ.

² - Federal University Fluminense. Niteroi. RJ.

³ - University of Barra Mansa. Barra Mansa. RJ.

⁴ - Postgraduate Program in Bioscience Strictu Sense - Federal University of the State of Rio de Janeiro, Brazil

For the bases of Physiology Energy Traditional Chinese Medicine (TCM), acupuncture governing, there are anatomical sites, the acupoints for each symptom or dysfunction. According to the foundation of Traditional Chinese Medicine (TCM), the diseases are due to energy imbalances in the body, with various causes that predispose individuals to disease. There are already a large number of proofs in various publications trying acupuncture, but proportionately few can objectively measure the influences of these points by measurements with devices already used in health, for example in physical therapy. The meter Peak Flow (PF) is part of routine physiotherapy care to the patient lung disease. The aim of the research was to evaluate changes in peak expiratory flow, caused by the insertion of acupuncture needles at points related to respiratory dysfunction.

Patients were treated with acupuncture, 80 volunteers, 18 male, mean age = 29, SD = 5 ± 9.5. Were grouped randomly into 3 groups according to the acupuncture point and a control group, 12 subjects, mean age = 27, SD = 1.4;

Group1 (G1) - VC 22, n = 30; Group2 (G2) - IG 20, n = 21; Group3 (G3) - IG 4, n = 29; Group4 (G4) - Control = 12.

Three measurements were made of peak expiratory flow (PEF) before the permanence of needles (20'), and 3 measurements after removal of the needles. We analyzed the correlation coefficient and regression before and after.

For G1 - From 30, 24 showed an increase in post measures, and 2 did not differ before and after. Correlation Coefficient = 0.9076. Critical r SD = ± 0.3610. Coeff of Det r² = 0.8238.

For G2 - from 21, 19 decreased as post. Coefficient of correlation = 0, 9294. Critical r SD = ± 0.4329. Coeff of Det r² = 0.8638. All of this group showed variation between pre and post.

For G3 - Of the 29, 16 showed an increase in measures post. Correlation Coefficient = 0.8485. Critical r SD = ± 0.3673. Coeff of Det r² = 0.7200. All of this group showed variation between pre and post. Only 0.25% of the total sample showed no change in values post. The relevance index = 0.05 for the 3 groups.

It was concluded that G1 had greater relevance in the values obtained. A correlation and regression sample. Control group in progress.

Key Words: Physiotherapy, Peak expiratory flow, acupuncture.

**Data on the biological development of Kaposvár (South-West Hungary) children
(a preliminary study).**

Csilla Suskovic¹, Bíróné Katalin Ilics¹, Katalin Nagyvárad¹, Némethné Orsolya Tóth¹,
Kocsis Csabáné¹, Róbert Horváth¹, Áron Kertész¹, István Krizonits¹, Rita Reidl¹, Zsolt Tóth¹,
Gábor Tóth²,

¹West-Hungarian University, Savaria Campus, Faculty of Physical Education, Visual Arts
and Music, Institute of Sport Sciences

²West-Hungarian University, Savaria Campus Faculty of Sciences, Institute of Biology

It was planned to involve 35% (3000 children) of the 6-15-year-old Kaposvár children in the investigation. In the case of the present survey there are data of 665 children (298 boys and 367 girls). The aim of this study was to analyse directions and velocities of secular growth changes from 1928 to 2012 in 10-14 year-olds. In 2012 the anthropometric programme involved 28 body measurements according to the Martin technique (Martin and Saller 1957), with regard to the recommendations of the International Biological Programme (Weiner and Lourie 1969), but this paper focused on the changes in height and weight. Positive secular changes have been observed in Kaposvár in the last more than eighty years, which can be explained by changes of economical, social factors of environment.

Key words: Growth study, Secular changes; Body height; Body weight.

Arm stroke: a comparative analysis between competitive swimming and waterpolo athletes.

Daniela Tursi, Salvatore Napolitano and Gaetano Raiola,
University of Salerno, Italy

Water polo is a collective sport and efforts of high intensity are made in less duration, where the players must swim, jump, and send the ball with moments of rest or low intensity; it is also a contact sport where the players conduct battles against their adversaries like blockades, beatings, contacts, and pushes (Smith, 1998; Wakayoshi, 1992). In waterpolo, the skill that is used for the majority of the game is swimming.

“Water polo consists of high intensity bursts of sprinting, interspersed with short periods of low to moderate intensity swimming.” (Hohmann A & Frase R, 1992).

In this perspective, swim conditioning is obviously an important aspect of training for Water Polo.

In swimming, conditioning training assumes a consistent role to achieve the better goals (Raiola et al, 2011). The arm stroke used in waterpolo is a lot shorter and quicker and is used primarily to protect the ball.

The objective of this study is to demonstrate that training for water polo athletes is most effective when done always in the presence of the ball, as the ball-handling does not adversely affect the timing.

The hypothesis is that the ball-handling does not affect significantly swimming times swim in water polo athletes of high level.

Eleven well-trained competitive athletes were recruited and asked to swim the test of the 300 fastest (15 reps of 20 meters), one time with ball, and one time without ball. For each swimmer was calculated the mean and standard error of times per test, both with and without the ball. Analysis was conducted individually for each athlete, and in total for each test. All performances were recorded and analyzed by dartfish to detect angles and extensions of strokes.

The results showed that this study can help the coach to train the team for improving the analyzed skills in different mode, creating a methodological system training to enhance the performance.

Coaches are suggested to carefully monitor swimming rhythm during trials, and to increment ball-handling in every training condition.

Keywords: Waterpolo, Arm stroke, Video analysis, swimming, ball-handling

References

- Hohmann A & Frase R. *Analysis of swimming speed & energy metabolism in competition water polo games*. In: MacLaren D, Reilly T, Lees A (eds) *Swimming science VI: biomechanics & medicine in swimming* (1992). E& FN Spon, London, pp 313–319
- Raiola G., Capasso A., Di Tore A., (2011), *Planning and periodization in swimming: a case study* Scientific Report Series Physical Education and Sport, no 15 (1/2010), Pitesti, Romania
- Smith, HK. (1998), *Applied physiology of water polo*. *Sports Med.*;26(5)317-334.
- Wakayoshi, K., Ikuta K., Yoshida T., Udo M., Montani T., Mutoh Y., Miyashita M. (1992) *Determination and validity of critical velocity as an index of swimming performance in the competitive swimmer*. *European Journal of Applied Physiology and Occupational Physiology*, 64(2): 153-57.

Motor imagery based training in artistic gymnastic.

Gaetano Raiola, Isabella Scassillo and Pio Alfredo Di Tore,
University of Salerno, Italy.

The motor imagery is a cognitive process of mental simulation of an action in absence of physical movement. The mechanisms underpinning motor control, motor cognition are investigated by Decety in 1996, Driskell and Copper in 1994, Gallese and Rizzolatti between 1996-2012, Lafleur in 2002, Sanders in 2004. It is also defined as a state of general activation during which a person feels himself to perform an action. The motor imagery should be distinguished from mental practice, the first refers to the cognitive process while, the second refers to the process of mental training that takes advantage of the first process. There are two types of motor imagery: in first-person and in third-person. In first person mode, the subject imagines himself to perform an action but not in the sense of seeing himself as an external or reflected image, in the sense to see what he would see, if he performed a movement and at the same time feel emotions, excitation, stress and changes of arousal. In third person mode, the person sees himself or another person as an external image, as with the use of a camera. During the motor imagery the cerebral areas of the premotor cortex, the same which a muscular contraction would put in action, are activated. There are two methods of motor imagery: in first person and in third person. The biological basis on which the motor imagery theory is founded, is formed by: mirror neurons. The mirror neurons are a particular class of visual-motor neurons which permit to learn and to optimize a motor gesture without executing it. The mirror neurons are the basis for learning and understanding of motor events intentions. Starting from these scientific assumptions the aim of this study wants to evaluate the effects and the potential benefits of motor imagery in order to contribute to the strengthening of young athletes performances in the artistic gymnastic. The tool selected for this purpose is the Vividness of Movement Imagery Questionnaire-2 (Roberts *et al*, 2008).

On this basis, if “athlete would be able to image to some degree, this should improve the effectiveness of the imagery intervention. If the athlete had a lower score than this, you might encourage them to develop their imagery skills by doing some basic imagery exercises before planning a specific sporting imagery intervention” (Roberts *et al*, 2008)..

Keyword: Mirror neurons, VMIQ and MIQ-R, Motor skills

References

- Astin, J. A., Shapiro, S. L., Eisenberg, D. M., & Forsys, K. L. (2003). Mind-body medicine: State of the science, implications for practice. *Journal of the American Board of Family Practice*, 16, 131-147.
- Curry, L. A., & Maniar, S. D. (2003). Academic course combining psychological skills training and life skills education for university students and student-athletes. *Journal of Applied Sport Psychology*, 15, 270-277.
- Curry, L. A., & Maniar, S. D. (2004). Academic course for enhancing student-athlete performance in sport. *The Sport Psychologist*, 18, 297-316
- Jeannerod, M. (2006). Motor cognition: What actions tell the Self. Oxford University Press.
- Jeannerod, M. (2002a). *Le Cerveau intime*. Paris: Editions Odile Jacob.
- Jeannerod, M. (2002b). *La Nature de l'esprit*. Paris: Editions Odile Jacob.
- Rizzolatti G, Sinigaglia C.(2006) *So quel che fai. Il cervello che agisce e i neuroni specchio*, [Raffaello Cortina Editore](#), Milano
- Roberts, R., Callow, N., Hardy, L., Markland, D., & Bringer, J. (2008). Movement imagery ability: Development and assessment of a revised version of the vividness of

movement imagery questionnaire. *Journal of Sport & Exercise Psychology*, 30, 200-221

[Rymal A M](#), [Ste-Marie M](#) (2009) Does Self-Modeling Affect Imagery Ability or Vividness
[Journal of Imagery Research in Sport and Physical Activity](#)

Tactics-based waterpolo training

Salvatore Napolitano, Maresa Cerrotta, Fabio Parisi and Gaetano Raiola,
University of Salerno, Italy.

Notational analysis quantifies the technical and tactical playing aspects of a game through game-related statistics based mainly on frequencies and effectiveness percentages (Lozovina et al., 2004).

Several studies applied the notational analysis technique to waterpolo (Argudo et al., 2007; Hughes et al., 2006). This work concern the assessment of tactical aspects in high performance water polo trough performance analysis. The analysis was conducted on 9 matches of the Italian Serie A1 Women's Water Polo played by Volturmo.

Tactical patterns suggested by the coach were compared with tactical patterns implemented during the game and to actions outcome, in order to acquire elements useful to create a codified tactic system.

The results showed a positive correlation between the compliance of tactical patterns implemented during playing with patterns designed by the coach and the final outcome of the action.

The data recruitment has been entrusted to the performance analysis, conducted by a team of performance analysts, coaches and statisticians. The video analysis of matches was conducted using the Dartfish TeamPro software. The measurement involved the following technical and tactical parameters: frequency of occurrence of actions, time duration, average number of players involved and passes, frequency of occurrence of turnovers, and frequency of occurrence of number, result, position and type of conclusions. The assessment of compliance for the tactical patterns has prescribed by the coach with the tactical patterns implemented in training session, based on previously determined parameters

The performance analysis was performed to evaluate parameters as frequency of occurrence of actions, time duration, number, result, position and type of shots in relation to tactical patterns, and an evaluation table was constructed by combining the Boolean evaluation of the coach on the compliance of patterns with the action final outcome. The results show a positive and statistically significant correlation coefficient between tactical compliance and action outcome

The result showed a significant correlation between the tactical patterns compliance and offensive effectiveness. This correlation confirmed the need of developing a common methodology for teaching and training waterpolo through tactics.

Keywords: Waterpolo, Performance analysis, Tactical patterns

References

- Argudo, F.M., Roque, J.I.A., Marín, P.G. and Lara, E.R. (2007) Influence of the efficacy values in counterattack and defensive adjustment on the condition of winner and loser in male and female water polo. *International Journal of Performance Analysis in Sport* 7, 81–91.
- Hughes, M., Appleton, R., Brooks, C., Hall, M. and Wyatt, C. (2006) *Notational analysis of elitemen's water-polo*. In: *Proceeding of 7th World Congress of Performance Analysis*, Szombathely, Hungary. Eds: Dancs, H., Huges, M. and P. O'Donoghue, P., International Society of Performance Analysis of Sport. 137-159
- Lozovina, V, Pavii, L. and Lozovina, M. (2004) *Analysis of indicators of the load during the game in the activity of the centre in waterpolo*. *Nae More* 51, 135-141.

Kinanthropometric variables relationships and different strategies for predicting performance on Judo adult beginners.

Carvalho, Mauro C. G. A.^{1,2,5}, Dubas, João P.¹, drigo, Alexandre J.^{1,4}, Junior, Homero S. N.^{1,3}, Pernambuco, Carlos⁵, Dancs, Henriette⁶; Estélio Henrique Martin Dantas⁵,

¹JUDÔjo - Grupo de Estudos e Pesquisas de Judô,

²Colégio Pedro II,

³UNESA,

⁴UNESP-RC,

⁵LABIMH-UNIRIO, Brasil.

⁶West Hungary University, Hungary.

The present study investigates tournament performance relationships at college Dangai competition with different kinanthropometric variables (weight, height, sum of skinfolds of triceps, supraespinale and calf, somatotype indexes, hand grip, Carvalho Tai-sabaki Test, pushups test and the side of the kicking foot). Subjects were PE students at UNESP-RC. The tournament had 4 weight-classes for males, 4 for females and free weight-class. The measuring instruments were: scale, measuring tapes, handgrip dynamometer Jamal, CTT electronic device, Lange skinfold caliper, anthropometer and chronometer. The cluster analysis showed that: somatotype revealed better association with the classification order for the weight classes and for the free weight class. Stronger women tend to accomplish the movement of Tai-sabaki-3 more quickly ($r = -0.55$, $p < 0.05$). Judokas, in general, tend to execute Tai-sabaki more quickly, if they have less body fat ($r = 0.40$, $p < 0.05$) and if they are stronger in the movement of pushing forward with the arms ($r = -0.37$, $p < 0.05$). The t test showed that there is significant difference between competitor and beginners upon mesomorphy ($p = 0.001$) and ectomorphy ($p = 0.04$). Only within the males Light weight class ($n = 8$), it was observed that the quicker judokas tend to reach perform better in competition, where $r = 0.781$ and $p = 0.022$. It was also verified if that is a tendency to execute the movement of Tai-sabaki-3 more quickly on the kicking foot side among beginners, as observed in previous study. Therefore it can be inferred that Judokas should begin their practice through their kicking foot side. This study has met strong indications that some of the studied variables can represent decisive factors for sport performance among beginners.

Keywords: Judo, sport performance, motor tests.