CRNOGORSKA SPORTSKA AKADEMIJA • MONTENEGRIN SPORTS ACADEMY •

MSA PODGORICA 2015

MSA Conference 2015

12th International Scientific Conference on

Transformation Processes in Sport

SPORT PERFORMANCE

BOOK OF ABSTRACTS

2nd - 5th April 2015, Podgorica - Montenegro

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12th International Scientific Conference
on Transformation Process in Sport "Sport Performance"

MONTENEGRIN SPORTS ACADEMY

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BOOK OF ABSTRACTS

Edited by:
Bjelica, D., Popovic, S., Akpinar, S.

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Welcome

Dear colleagues and friends,

on behalf of the Montenegrin Sports Academy (MSA), I am aware of the distinguished honor to announce Podgorica, a gorgeous city at the crossroads of several historically important routes, as the host city of the 12th International Scientific Conference on Transformational Processes in Sport, entitled "Sport Performance". I also wish to welcome academicians and students from all over the world on April 2nd to 5th, 2015.

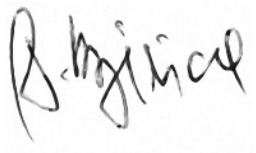
Since the first event in Bar in 2003, the MSA Conference has been a huge success, providing a great opportunity to promote and develop Sports Sciences through networking, study and research. This year, under the traditional patronage of the Ministry of Education, Ministry of Science and the Ministry of Tourism and in collaboration with Faculty of Sport and Physical Education at University of Montenegro as well as Pan Sport Medical, I.M.A.S., European College of Sports Science, Faculty of Sport and Physical Education at University of Novi Sad, Faculty of Sport Studies at Masaryk University and Institute for Sport and Exercise Sciences at the University of Münster, we have put together a high profile scientific programme with plenary and parallel sessions (oral and poster) and two workshops, accompanied by social events and free time to discover and enjoy the amazing city of Podgorica. The upcoming conference aims to contribute to the development of global approaches in the different specialized areas and to provide an even broader view of Sports Sciences. Hopefully, sport scientists will be able to find the best paths through the field.

We are confident you will enjoy the whole conference experience, the sharing of knowledge and contribution this will make to our institution and to our field of study and work.

Podgorica is an open city: open to the various people, to various cultures, to the world and to science. What better place in which to join forces in developing sport performances.

See you to Podgorica!

Prof. Duško Bjelica, PhD
Conference President



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Plenary Presentations

WHOLE-SCHOOL APPROACH TO PHYSICAL ACTIVITY PROMOTION: LESSONS LEARNED.

Djordjic, V.[1]
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Introduction: Schools should promote physical activity and other healthy behaviours in children, since they influence the lives of most children in all countries (WHO, 2004). Children spend up to 1000 hours per year in schools, which have a public mandate to enhance their healthy growing and development. Trained staff, facilities and equipment are usually available, as well as partnerships with families/local communities. For some students school-based physical education is the only opportunity to engage in meaningful and developmentally appropriate physical activity. Whole-school approach. Since regular physical activity enhances children's physical and mental health, may improve their academic performance and prevent health-risk behaviors (CDC, 2010; Penedo, & Dahn, 2005) it is important to employ every aspect of the school to promote physical activity. A whole-school approach, delineated by The Ottawa Charter for Health Promotion (1986), consists of three key elements: the school physical and social environment, the school curriculum and schools' relationships with parents and the community. Evidence suggests that a whole-school approach is more efficient in addressing health related issues than single-intervention approaches (St Leger, Young, Blanchard, & Perry, 2010). The critical factors that make the school effective in physical activity promotion are: duration and continuity of intervention, modified physical education curricula and policies, collaborative effort of different partners and soundly based evaluation. By changing the settings, rather than the individuals, a whole-school approach makes physical activity an integral part of students daily lives. An evidence-based initiative „Aktivne škole", aimed at physical activity promotion and supported by provincial government, has been recently launched in Serbian province of Vojvodina. Discussion: As effectiveness of a whole-school approach in physical activity promotion may be undermined by discrepancy between intended and actual intervention, process evaluation should be carefully conducted. The remaining research questions refer to: effectiveness of a whole-school approach in achieving different health and educational outcomes; the most favorable combination of intervention components; special target groups interventions; sustainability issues etc. References: CDC (2010). The association between school-based physical activity, including physical education, and academic performance, Atlanta, GA: U.S. Department of Health and Human Services. Ottawa charter for health promotion: an International conference on health promotion: the move towards a new public health (1986). Ottawa, Canada: Health and Welfare Canada. Penedo FJ, Dahn JR (2005). Curr Opin Psychiatr, 18(2), 189-193. St Leger L, Young I, Blanchard C, Perry M (2010). Promoting health in schools: From evidence to action, Saint-Denis Cedex, France: International union for health. WHO (2004). Global strategy on physical activity and diet, Geneva: World Health Organization.

FALLING IN SPORT: FRIEND OR FOE?

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Introduction: We can encounter falls in many areas of life. Not only in sport and physical education, but also in everyday situations. Despite the fact that the concept of fall is intuitively clear for every human being, its definition is not clear. It is necessary to distinguish between the concepts of the fall in its various semantic meanings in the area of physics, philosophy, medicine, politology, and of course, in sport. Multiple meanings of the concept of fall assures us that it is necessary to distinguish the concepts of the fall and the falling technique. Methods: The purpose of this study is to analyse potential danger of unwilling falls in sports as well as to highlight falling techniques as necessary skill in other sports. Results: In different sports, falls are not only an important physical skill affecting the sports performance, but also a means to make the sports discipline more attractive. For example, in volleyball considers Roque, et al. (2001) falls as part of the game and the most exciting part of the game. We can see the same also in other games. Combat sports athletes are considered the most skilful in falling techniques. But also other sports can be useful. Vives (1999) describes a methodology of correct falls and standing up when downhill skiing. In both falls and falling techniques is the biomechanical structure based on the work of Carter, et al. (2001), who examined falls from the biomedical point of view. In our point of view, the phases landing and landing position are the most emphasized ones at falling technique. Discussion: Complete season for ten volleyball teams was examined. Average frequency of fall was one per 81 seconds. It means, that there were 63.4 falls performed in one match in average. Similar results were find in football, where falling techniques are in close connection with other combative activities. Falling techniques seems be very important in various sports. In many combat sports, the decisions of the referees on the evaluation of the throwing ones is indirect by nature of the fall of the opponent naturally developed in the effort to learn how not to fall according to the rules, so that the rivals aren't given positive assessment. Some coaches even went so far as not to teach correct falling techniques at all. They use only so-called unorthodox falls, turnouts (Lafon, 2005). However, each fall means an increase of the risk of injury (Gerrard, 1998).It is necessary to teach a correct falling technique, include strength training to create a protective layer of muscles, and include a training programme for the prevention of accidents. References: Roque E (2001). AAF Volleyball coachuing manual.: Amateur Athletic Foundation, Los Angeles. Gerrard DF (1998). Sports Med, 25(5), 329-332. Lafon, G. 2002. Turnouts: Unorthodox ukemi. Retrieved from http://www.JudoInfo.com (Accessed March 2, 2002). Carter ND (2001). Sports Med., 31(6), 427-438. Vives J (1999). Backcountry Skier.Human Kinetics, Champaign.

TEMPERATURE CHANGES ON THE FOOT DURING PREGNANCY AFFECTED BY WEARING BIOMECHANICAL SHOES.

Zvonař, M.[1], **Vavacek, M.**[1], **Cierna, D.**[2]
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Introduction: New knowledge in sport science says about the importance of using functional training, or just physical activities its contribution to the acquisition of fitness and ability to solve various problems during pregnancy. The subject, which is studied, is the basic temperature changes

during human locomotion- walking. Everyone needs to walk; however, many people have problems with walking caused by non-standard condition or function of their feet, which in some cases can be easily recognized by thermography methods. The question is which internal actors can influence plantar temperature. Methods: 20 pregnant women from Czech and Slovak Republic in early stage of pregnancy, aged from 24 to 38 years old were included in the research. Measurement results were subjected to statistical processing and on the basis of optimum motion formula described walking during pregnancy. In our case, we used one- group two- factor time-phased research. In this research, we followed the course of temperature-rested feet and feet after exercise for pregnant mothers in the different trimesters of pregnancy. Our task during the experimental research was to verify the functionality of special shoes. Results: When we examined the temperatures of left and right sole in pregnant women, we noticed significant differences between right and left leg on 1 % level of statistical significance. Discussion: Therefore, we are within our research focused on the research plantar flexion and plantar pressures in a group of pregnant women, where the right foot and passes its functionality overexposed period of his rule and possible dysfunctions or junk status arch has negative effects much more than time outside of pregnancy. Body weight gain is directly proportional with increased pressure on future mother's sole. Increased body weight and pressure on the sole connected with it increases blood flow of the tissue. More blood flowing increases the friction and the temperature of the sole (Zwinger, 2004; Behinová, 2012) . However, we did not recognize statistically significant increase or practical significance. Surprisingly, from second to third trimester we noticed decrease in temperature on thermographical photograph after walking. We explain this by increased physiological requirements of fetus before delivery. References: Behinová, M.; Kaiserová, K., 2012, Nová velká kniha o mateřství, Mladá Fronta, 2012, 367s, Zwinger, A. et al. Porodnictví. 1. vyd. Galén, 2004.

SPORT AND NATIONAL IDENTITY IN REUNIFIED GERMANY.

Meier, H.E.[1]
[1] *University of Münster (Münster, Germany)*

Introduction: The 20th century has seen the rise of international sports and of sportive nationalism (Tomlinson and Young 2006). Germany constitutes a particular interesting case for studying the relationship between sport and national pride because of its long tradition of using sport as vehicle of identity politics. Moreover, the central role of sports for cold war politics raises the question whether sport divides or unites West and East Germans. Method: Results from several studies are presented. First, demand for national team football in West and East Germany is traced. Second, a large longitudinal representative survey covering the period between 1988 and 2008 is analyzed. Each of the five survey waves includes data on ca. 3,500 respondents. Results: First, it becomes evident that although German national team football enjoys outstanding popularity, it is substantially less popular in East Germany, which might indicate long-lasting socialization effects of the sporting cold war. Second, it is shown that sporting pride is increasing over the years and is closely correlated with general national pride. Since sportive nationalism is positively associated with ethnic exclusionism it might appear problematic for multi-ethnic societies. Sportive nationalism is more common among younger age groups, males, and individuals with right wing attitudes and lower socio-economic status. Moreover, prevailing differences between East and West Germany document persistent socialization effects of sport centred identity politics. Discussion: The findings strongly

indicate that identity politics in sport can bring about persistent socialization effects. Substantial differences in the socio-demographics of sporting national pride between West and East Germany suggest that sport can be used as vehicle for deliberate identity politics. However, given the fact that outstanding sporting success did not serve to win the affection of the East Germans for the communist regime, the contribution of sport to identification with a particular political system should not be overestimated. References: Tomlinson, A. and Young, C. 2006. National Identity and Global Sport Events. Albany: State University of New York Press.

Oral Presentations

Biomechanics

THE KINEMATIC ANALYSIS OF THE GRAB, REARTRACK AND FRONT TRACK START IN SWIMMING.

Bergun Meric Bingul, B.[1], **Töre, Ö.**[1], **Bulgan, C.**[2], **Aydin, M.**[1]
[1] Kocaeli University (Kocaeli, Turkey), [2] Halic University (Istanbul, Turkey)

Introduction: Faster racing start performances can provide a swimmer with a significant advantage over competitors with slower starting performances (Juergens,1994).The aim of this study was to determine differences in kinematic parameters between the grab and track start (rear- front track) among competitive swimmers. Method: Ten elite male swimmers (mean age± SD 11.3±2.3 years, mean height 152.3±5.6 cm,mean weight 48.2±3.9 kg), from Yildizlar Swimming Club,Kocaeli,Turkey were recruited to participate in this study.Swimmers performed 3 trial with three different starts technique in indoor pool.Data were recorded digitally to computer hard drives by using two Basler A602f cameras at 100 Hz.and records were analyzed after the test using Simi Motion 8.5.7 program.This study involved four kinematic parameters:Flight length (FL),Flight time (FT),Entry distance (ED),Entry time (ET).It was compared the data with Kruskal Wallis test for using SPSS 11.5 program. Results: According to the results it was found statistically significant difference in the parameter FL ($p<0.05$),while the difference between other parameters (FT, ED, ET)is not statistically significant.It was obtain longer flight length in grab start rather than rear and front track starts. Discussion: Jorgić, Puletić,2010 were found in their study,the flight length (FL) of the grab start is approximately 0,23 m bigger than in the track start,but it had not statistically significant.The flight time (FT) of the grab start is approximately 0.10 seconds bigger than in the track start,but it had not statistically significant.Another research was investigated that grab start has further FD (0,09 m, $p=0,03$) in comparison with track start as statistically significant (Baykal,2013).Our study results,it was found statistically significant difference in the parameter FL ($p<0.05$). In the research of Blanksby,(2002) examined the grab,track and handle swimming racing starts by elite level swimmers.Reaction, movement,block and flight times,flight distance,and the centre of mass at the set position were measured.No significant differences between dive groups in time to 10 m were revealed pre- or post-training.In present study it was not found statistically significant difference in the parameters FT,ED,ET ($p>0,05$). References: Jorgić,B.,Puletić, M.,Stanković, R.,2010.The Kınematıc Analysıs of the Grab and Track Start ın Swımmıng. Physical Education and Sport Vol. 8,No 1. pp.31 – 36 Cihan, B.,2013.Biomechanic analysis of different start techniques in 12-14 age group swimming. Hacettepe University Institute of Health Science,Master Thesis in Sport Science and Technology. Ankara Juergens,C. 1994. A Kinetic and Kinematic Comparison of the Grab and Track Starts in Competitive Swimming.Oregon State University Master of Science in Human Performance. Blanksby, B., Nicholson, L., Elliott, B. (2002).Biomechanical analysis of the grab, track and handles starts: an intervention study. Sports Biomechanics,1 (1): 11–24

Economics

TOURSIT EXPENDITURE FOR SPORT ACTIVITIES: THE CASE OF MONTENEGRO.

Stanovcic, S.[1], **Pekovic, S.**[1], **Celebic, A.**[2], **Simovic, O.**[1]
[1] *University of Montenegro (Kotor, Montenegro)*

Introduction: The tourists' expenditure is considered as one of the most important variables and indicators in the economic analysis of a quality of tourist experience that creates destination's tourism industry. Apart from expenditures on core or basic services and products (e.g. accommodation, food, transport), great attention has to be paid to diversification of spending on other services and product that construct so called supporting product (e.g. Kotler, Bowen and Makens, 2006; Middleton and Clarke, 2001; Bowie and Buttle, 2006). Its role is to add value to the core product and to differentiate it from competition. In this sense, sport and recreational activities represent very important tool for differentiation of the integral product (MSDT, 2010). Accordingly, the purpose of this study is to examine what type of sport activities influence better sport tourists' spending in Montenegro. Methods: The data is extracted from the Montenegrin survey called Guest Survey 2010. The main objective of the survey is to obtain representative view regarding tourist travel behavior and satisfaction during their stay in Montenegro. The questionnaire contains 34 questions and it was translated in seven languages (Montenegrin, English, French, Italian, Albanian, German and Russian). The survey was conducted in 21 municipalities in Montenegro, from July to the end of September 2010. After deleting observations that do not provide all necessary information for this research, we work with a sample of more than 100 tourists. We employ Oridanry Least Square (OLS) to examine our main hypothesis. Results: Working on the sample of more than 100 tourists, our findings indicate that sport activities dominantly located in continental areas, such as mountaineering, mountinbiking, rafting and kayaking influence positively tourists' spending during their stay in Montenegro more than water beach sport activities. Discussion: The contribution of this research is that it provides several possible directions for both destination and sport managers to improve existing sport activities offer related to continental areas as well as to significantly improve beach sport activities in order to increase the value of experience and financial effect generated by sport activities. References: Bowie D, Buttle D (2006). Hospitality Marketing: An Intoduction, Butterworth-Heinemann, Oxford. Kotler P, Bowen JT, J. Makens C (2006). Marketing for hospitality and tourism, fourth edition, Pearson Prentice Hall, New Jersey. Middleton V, Clarke J (2001). Marketing in Travel and Tourism, Oxford: Elsevier Butterworth Heinemann. MSDT – Ministry of Sustainable Development and Tourism of Montenegro, (2010), Hiking&Biking: Handbook for development of hiking and biking in Montenegro.

Health and Fitness

THE RELATIONSHIP BETWEEN BODY COMPOSITION AND DIETARY HABITS IN THE UNIVERSITY FACULTY MEMBERS AND OTHER EMPLOYEES.

Arslan, F.[1], **Taşgin, Ö.**[2], **Guven, SD.**[2], **Özcan, A.**[2], **Özbaş ÖÖ.**[3]
[1] *Necmettin Erbakan University, (Konya, Turkey),* [2] *Nevşehir Hacı Bektaş Veli Universty (Nevşehir, Turkey),* [3] *Aksaray Universty (Aksaray, Turkey)*

Introduction: The aim of this study was to emphasize the importance of physical activity and dietary habits on business life and body composition in the university faculty members and other

employees. Rapidly changing technology and living conditions obstructed people's doing physical activities (Bray 1989) and many of the people working went on without the breakfast, they were often seen eating "fast food" style nutrition (Atilla 2007). Methods: The sampling of this research generated academic and managing personnel from University (68 women and 124 men personnel's). Body weight and composition was measured with Tanita instrument. BMI was calculated as weight/ boy2. Data were collected by performing a questionnaire including 33 items and analyzed by using SPSS 15.0 software. For statistical analysis, frequency and percentage (%) distributions and Chi-Square test were used. Results: For women, 38.9% of the university members , 30% of the instructor and 32,5% of the managing personnel and For men, 31.6% of the university members, 38.5% of the instructor and 27.2% (n=25) of the managing personnel had two meals in a day. Both women and men managing personnel had more junk food consumption than the others. In this study was found to be more fat milk/yogurt consumption that is correlated with body composition parameters (WC and HC, WHTR and WHR e.g) in women university members ($p<0.05$). Discussion: In this study was shown that participations generally had an unhealthy nutritional and the critical values at WC and HC, WHTR and WHR from body composition parameters. Browning et al. (2010) represented that for people under 40, a whtr of under 0.5 was critical; for people in the age group between 40 and 50 the critical value was between 0.5 and 0.6, and for people over 50 the critical values start at 0.6. Higher values of whtr indicate higher risk of obesity-related cardiovascular diseases; it is correlated with abdominal obesity(Lee et al.2008). Because of, there should be the development of healthy lifestyle behaviors (exercise, physical activity, dietary habits and health of responsibility e.g.) among university faculty members and other employees. References: Bray GA (1989) Classification and evaluation of the obesities. Med Clin North Am. 73/1:161-184. Atilla S (2007) Kadın Sağlığı ve Şişmanlık. Erişim Adresi: http://www.huksam.hacettepe.edu.tr/Turkçe/SayfaDosya/kadin_sagligi_vesismanlik.pdf.18.11.2014. Browning Lucy M, Shiun Dong Hsieh and Margaret Ashwell (2010) A systematic review of waist-to-height ratio as a screening tool for the prediction of cardiovascular disease and diabetes: 0•5 could be a suitable global boundary value. Nutrition research reviews 23 (02): 247–69. Lee CM, Huxley RR, Wildman RP, Woodward M (2008) Indices of abdominal obesity are better discriminators of cardiovascular risk factors than BMI: a meta-analysis. Journal of Clinical Epidemiology 61 (7): 646–653.

IS THERE A PROMOTION OF HEALTHY LIFESTYLES PRACTICES IN HIGH SCHOOL PHYSICAL EDUCATION?

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Introduction: Schools should provide many opportunities for young people to engage in physical activity and should play an important role in motivating young people to stay active. The recent review of the links between the physical environment, physical activity and obesity by (Gebel et al.2005) confirm the socio-ecological approach to health promotion, in which the environment can either inhibit or Support physical activity and healthy eating behaviors and influence an individual's ability for behavioral change. Stewart- Brown 2006) indicates whole of school, multifactorial interventions on physical activity and healthy eating that enhance the school environment are most effective in improving young peoples' health and well-being. School settings can provide students with an environment for positive learning and healthy living. Main goal of this study was to find out how healthy are adolescents attending high schools in Kosovo? Methods: The participants of this study were four physical education teachers (males=3;

females=1) from four high schools, with 5 to 42 years of physical education teaching experience. This research used a qualitative approach to identify concerns, causes and possible teacher-proposed interventions to address the school physical activity and nutrition issues. Interviews, observations and the focus group meeting were the methods used to collect data. Results: These findings can assist all Kosovo schools in identifying the importance of Physical education in high school, and students needs in order to implement their healthy lifestyles. Because, they are in developmental transition, adolescents and young adults are particularly sensitive to environmental effects. Addressing the positive development of young people facilitates their adoption of healthy behaviors and helps to ensure a healthy and productive future adult population. Discussion: This study supports literature that says schools are useful settings for supporting development of good lifestyle practices. (St Leger L, 2004). research has examined environmental determinants such as community sports, access to home fitness equipment (Trost SG et al. 1996, 1997], outdoor play space Sallis JF, (1997), time spent outdoors Sallis JF, Prochaska JJ, Taylor WC, (2000], family environments (Dowda M, et al.2001], and exercise opportunity [Bungum TJ, Vincent ML, 1997]. Reference: Gebel K, King L, Bauman A, Vita P, Gill T, Rigby A, et al. Creating Healthy Environments: A Review of Links between the Physical Environment, Physical Activity and Obesity. Sydney (AUST): New South Wales Health Department; 2005. Stewart-Brown S. What is the Evidence on School Health Promotion in Improving Health or Preventing Disease and, Specifically, What is the Effectiveness of the Health Promoting Schools Approach? Copenhagen (DNK): WHO Regional Office for Europe; 2006.

LEASURE TIME ACTIVITY AMONG STUDENTS FROM UNIVERSITY OF PRISHTINA, FACULTY OF PHYSICAL EDUCATION AND SPORT.

Morina, B.[1], **Vehapi, Sh.**[1], **Gjinovci, B.**[1], **Halilaj, B.**[1], **Gllareva, I.**[1], **Gjonbalaj, M.**[1], **Dukaj, L.**[1]
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Introduction: This paper presents the results of the research on the physical activity of students in the Faculty of Physical Education and Sport, University of Prishtina, Kosovo. The purpose of this cognitive study was to diagnose certain aspects of the lifestyle of students, with a particular focus on physical activity and, the difference in sex. The practical aim, however, was an indication of such actions, arising from past experience that would aim at improving lifestyle, and could lead to the elimination or prevention of certain causes of not making movement activity by the students in our country. Methods: The research was conducted by the use of diagnostic survey in the group of 120 people aged 18-37, among whom there were 56 girls and 64 boys. The research material was collected in 2014. Results: Undoubtedly socio-cultural factors and the tradition of social life, which impose certain ways of spending leisure time (as can be seen particularly in the case of the students from Faculty of Physical Education and Sport) as we can see in the results obtained, where we also found that there is no statistically significant differences between girls and boys. Discussion: The results of the research correspond to the results of the studies carried out among young people by (Skawiński et al, 2011), who pointed out that young people spend most of their leisure time in front of the computer or TV. Similar conclusions also drew (Oblecinska and Woynarowska, 2006), in large population studies. Obtained results indicate that the factors encouraging the surveyed to physical activity are: relaxation, good physical condition, the benefits for health, the desire to have fun and sports career. The way of spending weekends may reflect the lifestyle of modern families. References: Dumazedier J. (1956) The reality of free time and ideology . Modern Culture, 36:56. Glapa, A., Bronikowski, M., Górka, J., & Morina, B. (2013). Leisure time activities among young

people aged 13-16 from Kosovo, Bulgaria and Poland. (J. P. Raciborz, Ed.) Journal of Physical Education & Health , 2 (4), 33-42. Morina, B., Vehapi, S., & Koca, A. (2014). The impact of parental involvement in Physical Activity in the organization of leisure among children aged 13-16 years old,in Kosovo. Book of Abstracts,11th International Scientific Conference on transformation Processes in Sport , 54. Morina, B., Vehapi, S., Halilaj, B., & Gllareva, I. (2014). Which forms of Leisure time activities young people from Kosovo aged 13-16 do they parcitipate. In S. a. Prof. d-r Vujica Živković (Faculty of Physical Education (Ed.), Research in Physical Education, Sport, and Health (pp. 273-279). Ohrid: Ss. Cyril and Methodius University in Skopje, Faculty of Physical Education, Sport, and Health.

AN INTERVENTION MOVEMENT PROGRAM AIMED ON A PREVENTION OF FALLS OF PEOPLE AT THE PERIOD OF SENIORITY – CASE STUDY.

Skotáková, A.[1], **Svobodová, L.**[1], **Vaculíková, P.**[1]
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Introduction: Based on literature, an analysis of subjective fear of falling, statistical data dealing with injuries and empirical experiences it has been developed an intervention movement program focused on rhythmic gymnastics, dance and selected motor abilities connected with risk of fall at individuals in senium period and related quality of life of seniors. Methods: Health state, lifestyle and level of kinetic skills were examined before and after the interventional program. A tested person was 88 years old men whose health state corresponds to his age. The intervention program were employed for six months twice a week. Every lesson took sixty minutes. To verify the effect of the intervention program, we used ten motor tests and semi-structured depth-interview. Testing was performed before and after the intervention program. Results and discussion: Our study showed that the tested person having some health problems corresponding to his high age was able to utilize the intervention program to improve the level of certain motor skills narrowly connected with higher risk of falls incidence and everyday activities. References: Evans, C. (2003). Prevention of falls. In Primary health care. 13 (7), 8. Injuries in the European Union Statistics summary 2005 – 2007 (2009). Report. Retrieved 10. 2. 2011 from http: //ec.europa.eu/health/healthy_environments/docs/2009-idb-report_screen.pdf. Rikli, R. E., & Jones, C. J. (2001). Senior fitness test manual. California State University: Human kinetice, CA USA. Svobodová, L. (2013) Vliv intervenčního pohybového programu na vybrané motorické schopnosti z hlediska prevence pádů u osob v období sénia (doctoral disertation, Masaryk Univerzity, Brno, Czechia) Retrived from http://is.muni.cz/th/102394/fsps_d/?lang=cs.

Motor Learning

INFLUENCE OF PHYSICAL BODY EXERCISES IN PUPILS.

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Introduction: In the education system of Kosova, frequent changes that have occurred in last 14 years, have demonstrated that the education system has tried to adjust to economic, social and cultural changes, etc. As these changes have not been studied well, they have influenced and are still influencing

organization of physical education in schools as regards their quality and quantity. These changes have not provided desired results and are often regarded as experiments. Methods: When defining the time, this study has longitudinal empirical character and consists of two measures, the morphological and motoric indicators in the pupils of primary school and lower secondary school "Faik Konica". This study involved 26 pupils in the age group of 15 years. 6 anthropometric and 4 motoric variables have been applied (Kurelić et al, 1975). Anthropometric variables included: body height (ATV), length of foot (ADS), body mass (ATT), volume of upper arm in down position (AONL), volume of tight (AONK), volume of lower leg (AOPK). Motoric variables included: standing distance jump (MFESDM), 30 meters distance running (MTR30V), bench bending (MFLPRK) and push-ups (MSKLEK). For data analysis t-test for dependent sample has been used. Results: Basic statistical parameters of the obtained results before and after the application of additional class of physical education indicate that the results have normal distribution, have no visible asymmetry and have tendency toward higher values of distribution (epikurtic). T-test analysis for dependent variable demonstrates that the obtained differences within all variables in the groups are statistically significant. Discussion: Physical activities and body exercises during sport education classes of three times per week have visible influence in development of morphologic parameters and motoric skills of pupils. Differences obtained based on the t-test analysis demonstrate a strong statistical difference for all variables applied, anthropometric and motoric for the value of $p<0.05$. It is well known that body activity has positive influence on health of pupils and represents significant factor for improvement of health. Therefore it is necessary to use different possibilities that sport offers so that the biggest number of pupils can find interest and motivation for voluntary involvement in some type of physical activity (Rusch and Weineck 1998). References: Kurelić, N., Momirović, K., Stojanović, M., Šturm, J., Radojević, Đ., i Viskić-Štalec, N. (1975). Struktura i razvoj morfoloških i motoričkih dimenzija omladine. Beograd: Institut za naučna istraživanja Fakulteta za fizičko vaspitanje. Rusch, H., Weineck, J. (1998). Sportförderunterricht. Schondorf, Verlag Karl Hofmann.

ANALYSIS OF PERCEPTUAL PHENOMENON ON MOVEMENT OBSERVATION: INTERPRETATION OF MORPHOLOGICAL VIEWPOINT AS "DOPPELTER GESTALTKREIS".

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Introduction: The purpose of this study is to clarify Perceptual Phenomenon (the relevance of Consciousness and Perception) on Movement Observation. This study focuses especially on Perceptual Phenomenon from a Morphological Viewpoint (MOV). Furthermore, this study conceptualizes MOV's Perceptual Phenomenon as hermeneutic figure (''Doppelter Gestaltkreis''). Generally, Movement Observation is interpreted from two viewpoints. The first is the Morphological Viewpoint, which focuses on the generation of movement and therefore corresponds to the core ability of coaches (Meinel, 1981). The second is the Mechanical Viewpoint (MEV), which is based on physics. In some previous studies, MOV's Perceptual Phenomenon has been interpreted from "Gestaltkreis" (Weizsäcker, 1940), a hermeneutic figure which interprets perception of "Melody of Movement" (Buytendijk, 1958). However, Gestaltkreis does not show the relevance of MOV's Consciousness and Perception on Movement Observation. Because of this background this study clarifies MOV's Perceptual Phenomenon as ''Doppelter Gestaltkreis''. Methods: First, this study deductively analyzes the relevance of Consciousness and Perception on Movement Observation. Second, this study conceptualizes MOV's Perceptual Phenomenon (''Doppelter

Gestaltkreis'') from the relevance of MOV's Consciousness and Perception. Third, this study discusses MOV from MOV's Perceptual Phenomenon (''Doppelter Gestaltkreis''). As a result, this study clarifies that the MOV comparatively perceives sound from real and ideal Melody of Movement. Results: First, this study deductively clarifies the relevance of Metacognition (Fravell, 1976) and Gestaltkreis (Weizsäcker, 1940) which refers to Consciousness and Perception, and therefore clarifies the relevance of the MOV's consciousness and Gestaltkreis. Second, this study clarifies Doppelter Gestaltkreis, which has two circles, as MOV's Perceptual Phenomenon, the perception circle of Gestaltkreis and the MOV's Metacognitive circle. Third, this study clarifies the concept of "Perceptual channel" which comparatively perceive sound from real and ideal Melody of Movement of Doppelter Gestaltkreis. Furthermore, this study clarifies that MOV perceives "Prolepsis" (anticipation) and "MOV's Evaluation" from Perceptual Channel of Doppelter Gestaltkreis. References: Buytendijk, F.J.J. (1958). Zur allgemeinen Psychologie des Tanzes. Koehler Verlag. Fravell, H.J. (1976). Metacognitive Aspects of Problem Solving. Nature of inteligence, 12, 231-236. K, Meinel. (1981). Bewegungslehre (Translator: Kaneko, (1981) in Japan). Taishukan publishing company. Viktor von Weizsäcker. (1940). DER GESTALTKREIS –Theorie der Einheit von Wahrnehmen und Bewegen (Translator: Kimura & Hamanaka, (1975) in Japan). Misuzu publishing company.

FEMALE HANDBALL PLAYERS DISPLAYED LESS INTERLIMB ASYMMETRY COMPARED TO NON-ATHLETES.

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Introduction: There is controversy about how to define handedness. Some describe it has a preference for using one or the other hand for specific tasks, such as writing, while others suggest that the main characteristic of handedness is a difference in performance characteristics between the two limbs (Sainburg, 2002). Sensory information influences the motor performance of the arms differently during reaching (Przbyla et al., 2012). Moreover, some studies have shown that physical exercise and sports specific training can positively influence neurophysiological characteristics of the brain (Nakata, Yoshie, Miura, & Kudo, 2010). This can modify the sensorimotor performance of both arms during the reaching movements, which may result with the decreased interlimb difference. Thus, the purpose of this study was to investigate if female handball players have decreased interlimb difference compared to aged match non-athletes. Method: The data was collected with 5 right-handed female handball players and aged match non-athletes. Handball players had at least 7 years of handball experience (from 7 to 14 years of experience). All the participants reached to one of the three targets of 30 deg., 60 deg., and 90 deg targets either on left or right side of the body midline. Final position error and hand path deviation from linearity were used as kinematic variables. Three-way mixed model ANOVA was used to investigate if handball players have less interlimb difference at one of three different targets compared to non-athletes. Results: Handball players displayed better performance on final position error (FPE) with their both arms. Moreover, left arm of handball players had better hand path deviation from linearity compared to non-athletes. Discussion: The results displayed better motor performances and no interlimb difference in favor of handball players, which could be the possible result of the bilateral training in handball. Thus, sports like handball in which both arms should be used for dribbling, passing, and shooting can modify the human laterality. In conclusion, not only the sensorimotor information related to the task (Przybyla et al., 2012) but also bimanual training like handball can modify the sensorimotor performance

asymmetries and thus interlimb differences. References: Nakata, H., Yoshie, M., Miura, A., & Kudo, K. (2010). Characteristics of the athletes' brain: Evidence from neurophysiology and neuroimaging. Brain Research Reviews, 62, 2, 197-211. Przybyla, A., Coelho, C. J., Akpinar, S., Kirazci, S., & Sainburg, R. L. (2013). Sensorimotor performance asymmetries predict hand selection. Neuroscience, 228, 349-360. Sainburg, R. L. (2002). Evidence for a dynamic-dominance hypothesis of handedness. Exp Brain Res, 142(2), 241-258.

Nutrition

THE INCIDENCE OF POSTURAL DISORDERS WITH REGARD TO DEGREE OF NUTRITIONAL STATUS IN ADOLESCENTS.

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Introduction: The first aim of this research was to analyze postural disorders and nutritional status in adolescents, 11 - 14 years old. The second purpose was to compare the incidence of postural disorders with regard to category of nutritional status and gender dimorphism, because the number of adolescents with postural disorders and obesity is growing, which can results in serious health problem unless eliminated on time (Protic - Gava et al., 2009). Methods: The sample of subjects comprised of 305 adolescents, 11 - 14 years old, of both gender (158 girls and 147 boys), students of the primary school from Vojvodina. Postural status was assessed by Napoleon Volanski method. Body mass index (BMI) was calculated by standard procedure (Medved, 1987) and represents quite reliable indicator of the nutritional status. The subjects were divided into categories, based on their nutritional status. In establishment of differences in postural status, with regard to the age and the gender dimorphism, we used $\chi 2$ test. In order to establish differences in cumulative evaluation of postural status, we applied rank-sum Mann-Whitney Z-test. In establishment of differences in groups of subjects formed on the basis of degree of nutritional status, we applied Kruskall-Wollis test. Results: According to the obtained results, total evaluation of postures of children of both genders established no statistically significant differences, yet that higher rank was established in girls, which indicates to poorer bad posture in female subjects. Through analysis of distribution of nutritional status categories, formed on the basis of the BMI determined according to the gender, it was established that the difference is statistical significance in subject of 13 - 14 years old ($\chi 2$=69.004; p=0.000), and statistically significant positive correlation between these two indicators (Z= 0.787; p=0.000). Discussion: Adolescence is a very sensitive period due to rapid growth and development of children, so the people participating in their upbringing should be extra careful (Protic - Gava, Romanov, 2008). Health problems connected with obesity during the childhood may be twice as dangerous due to social and psychological problems which are long lasting and tend to worsen during the adulthood (Dean, Flett, 2002). Overweight is more common than malnutrition already at preschool age (Srdic, Obradovic, 2006) and this trend continues and later, in the school period. References: Dean, H., Flett, B. (2002). Diabetes, 51, A24-A25. Medved, R. (1987). Sport medicine. Zagreb: Yugoslav medical print/JUMENA]. Protic - Gava, B., Romanov, R. (2008). Fizicka kultura (Skopje), 36(2), 245-247. Protic - Gava, B., Krsmanovic, T., Jevtic, N., Kadovic, V., Romanov, R. (2009). Fizicka kultura (Skopje), 37(2), 134-137. Srdić, B. & Obradović, B. (2006). G. Bala (ed) Anthropological status and physical activity of children and youth (71-76). Novi Sad: Faculty of Sport and Physical Education.

Physical Education and Pedagogics

TECHNOLOGICAL PEDAGOGICAL CONTENT KNOWLEDGE OF PRE-SERVICE PHYSICAL EDUCATION AND CLASSROOM TEACHERS.

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Introduction: Rapid advancement of technology and increasing access to technology has caused growing interest in teacher education and teachers. Mainly, researchers identified different instructional, subject specific technologies that can affect teaching respectively. In this respect, pre-service teacher education play crucial role in effective implementation of technology-enhanced instruction (Cengiz, 2014; Semiz and Ince, 2012; So and Kim, 2009). Although the awareness of helping educators to effectively integrate technology into their teaching is increasing, appropriate technology usage of teachers and pre-service teachers is still vague (Chen and Looi, 2009; Semiz and Ince, 2012). Purpose of the research is to evaluate pre-service physical education and classroom teachers' Technological Pedagogical Content Knowledge (TPACK-deep) with gender, age, department and class level. Methods: The data was collected from pre-service physical education teacher education (n=105) and classroom teachers (n=104) department in Canakkale, Turkey. Participants voluntarily completed Technological Pedagogical Content Knowledge – deep questionnaire (Kabakci Yurdakul et al., 2012), which consist of 33 items with four subscales (design, exertion, ethics and proficiency). Results: The descriptive findings from this study of pre-service teachers' means (M) and standard deviations (SD) on the four subscales of TPACK-deep indicated classroom teachers had higher levels of scores. In addition, Multivariate Analysis of Variance (MANOVA) indicated that there is statistically significant differences on department (Pillai's trace=0.15, $F(4,146)=6.26$, $p<0.05$) and class level (Pillai's trace=0.13, $F(8,294)=2.66$, $p<0.05$) for the levels of TPACK-deep. However, there is no significant difference between the sex (Pillai's trace=0.04, $F(4,146)=1.50$, $p>0.05$) and age (Pillai's trace=0.13, $F(36,596)=0.54$, $p>0.05$) with TPACK-deep scores. Discussion: The findings of the current study showed that pre-service classroom teachers had higher TPACK scores than pre-service physical education teachers. Student responses significantly differed in TPACK scores with department and class level. Pre-service classroom teachers may had higher usage of technological devices and having positive effects on TPACK variables (Agyei & Voogt, 2012; Cengiz, 2014; Semiz & Ince, 2012). Another reason might be the courses related to technology in undergraduate curriculum. Courses that integrate technology in teaching are strongly recommended. References: Agyei DD, Voogt J (2012). Aust J Educ Technol, 28(4), 547-564. Cengiz C (2014). Asia-Pac J Teach Educ, DOI: 10.1080/1359866X.2014.932332. Chen F, Looi C, Chen W (2009). J Comput Assist Learn, 25(5), 470-488. Semiz K, Ince, ML (2012). Aust J Educ Technol, 28(7), 1248-1265. So H-J, Kim B (2009). Aust J Educ Technol, 25(1), 101-116. Kabakci Yurdakul, I, Odabasi HF, Kilicer K, Coklar AN, Birinci G, Kurt AA (2012). Comput Educ, 58(3), 964-977.

LEISURE TIME OF STUDENTS OF TEACHERS' TRAINING FACULTY IN SUBOTICA.

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Introduction: Physical activity contributes to physical, mental and social health and improves the quality of life of people of all ages. Not enough physical activity is the biggest health problem of one nation, and it is proved that it is the factor that contributes to the development of chronic diseases

and disorders (Blair, La Monte & Nichaman, 2004). Physical inactivity and sedentary lifestyle are public health problems in Serbia. The purpose of this study was to collect data from students of Teachers' Training Faculty on Hungarian (TTFH) in Subotica about behaving at their free time, focusing on physical activities and sedentary behavior. Methods: The TTFH carried out a survey to assess the leisure time habits of their students in academic year 2013/2014. This study included a total of 118 voluntary undergraduate students (male: 24, female: 94). The questionnaire included 31 items, distributed in 5 blocks: descriptive data (3 items), healthy habits (5 items), feeding habits (5 items), sedentary behavior (14 items) and unhealthy behaviors (4 items). The anthropometric measures body mass and body height were taken using standard procedures and instruments, and accordingly, BMI (height/weight2) values were calculated. Descriptive statistics and frequency distributions were taken into consideration by gender. Parametric data with t-test, non-parametric data with Mann-Whitney U test were calculated. Results: Surveyed male students reported greater participation in healthy habits than did female students, and they also spent more time with sedentary behavior, but the difference were not significant. Discussion: Students spent little time on physical activities in their free time and a lot of time with sedentary behaviour. It has to be changed, because by time they will become teachers and if they are bad examples to children we cannot expect from the society to be healthier. The role and importance of physical activities should be taught on the universities. References: Blair, S.,N., LaMonte, M.J., & Nichaman, M.,Z. (2004). American Journal of Clinical Nutrition, 79 (5), 913-920.

Physiology

TESTS FOR DETERMINING THE FITNESS LEVEL IN RHYTHMIC GYMNASTICS.

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Introduction: Rhythmic gymnastics is not the most thoroughly explored discipline by the scientists compared to football or the cyclic sports which are tested and analysed much more. Neglected by coaches and specialists is the physiological side of that sport which is furthermore wrongly considered to be not so demanding. For this reason the aim of this study is to implement tests that can determine the fitness level of the gymnasts. Methods: 12 high level rhythmic gymnasts were tested in preparatory period with 5 tests – two laboratory tests on treadmill (VO2max and 2 min submaximal test) and three field tests (2 min shuttle run test, modified gymnastics routine and rhythmic gymnastics routine) to determine the level of fitness – cardiovascular and specific endurance in rhythmic gymnastics. The indicators measured were heart rate and blood lactate levels as well the gas exchange in the laboratory tests. Descriptive statistics and paired t-test was used to compare the results between tests. Results: The HR values at the end of the load of each test were as follow: VO2max – 201,7 b/min (±6,7); submaximal laboratory test – 186,2 (±5,8) b/min; shuttle run test – 190,1 (±6,6) b/min; modified gymnastics routine – 190,1 (±5,4) b/min; rhythmic gymnastics routine – 194,1 (±4,2) b/min. Concentration of the blood lactate varies between 7,2 to 11,3 mmol/l. The tests involving running provoked higher La values compared to gymnastics routines. Discussion: VO2max was completed in order to calculate the individual 95% for the 2 min submaximal test. It has been reported in the past that in gymnastics the load during competitive routine is submaximal – in the anaerobic regime of work (Gateva, 2008; Guidetti, 2000; Jemni et al., 2011). With this as a pivoting point we expected to create adequate fitness tests responding to the specific load of the

sport. The founded differences between the tests based on the HR and blood lactate showed us that more adequate percentage of the maximal should be applied with the tests. The routine as a test demonstrated higher demands upon the gymnasts' body systems compared to the other three applied tests. The HR values of the shuttle run tests were the closest to the routine load. Submaximal laboratory test have to be increased 1-2% in order to cause the same reaction from the gymnasts' body as the routine. References: Gateva M (2008). Examination of the training loading in rhythmic gymnastics and perfecting the training methods. (Unpublished doctoral dissertation), National Sports Academy, Sofia. Guidetti L, Baldari C, Capranica L, Persichini C, Figura F (2000). Energy cost and energy sources of ball routine in rhythmic gymnasts. Int J Sports Med, 21(3), 205-209. Jemni M, Sands W, Salmela J, Holvoet P, Gateva M (2011). The science of gymnastics. London and New York: Routledge Taylor and Francis Group.

THE BASIC COMPONENTS OF SUCCESSFUL LEADERSHIP IN SPORT.

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Introduction: Leadership is the most important factor of the structure and dynamics of each organised group. In the broadest sense of the word it is studied as an interactive process which affects individuals and groups in terms of implementation of the set goals. Leadership affects orientation of a group, exchange of information, decision making, establishment of interpersonal relations, people's motivation, etc. One should make a difference between a leader and a manager who is primarily in charge of planning, organisation, budget, assistant personnel etc. Even though leaders sometimes have the same obligations, leadership involves the skill of vision embodiment and not only a specific style of behaviour. Methods: It is primarily used descriptive, analytical and synthetic methods by which we critically anlizirali phenomenon of leadership in the sports group and different approaches in his study. In connection with this leadership was observed as an important multidimensional conditioned interactive process in the sports group. Results: Summative results of different approaches to analysis of leadership in sport have shown that no single approach can be labelled as the best one however, understanding advantages of each one of them enables us to understand better the thing that makes leadership successful. The most important proven factors of efficient leadership are leader's quality, followers' quality, situational factor and leadership style. Discussion: The most important quality leaders have proven integrity, flexibility, responsibility, self-discipline and patience. They should be viewed in the context of democratic and autocratic style of leadership. Situational and environmental factors (type of sport, the number of teams, team interactivity ...) determine the importance of certain personality traits and leadership style choice. Finally, the quality of group members largely determines the success of a leader. The need for blending style leaders and participants highlighted the importance of the interaction processes for successful leadership. References: Chelladurai, P. (1990). Leadership in sports: A review. International Journal of Sport Psychology, 21 (328-354). Kirkpatrick, S.A., & Locke, E.A. (1991). Leadership: Do traitsmatter? The Executive, 5 (48-60). Lord, R.G., De Vader, C.L., Alliger, G.M. (1986). A meta-analysis of the relation between personality traits and leadership perceptions: An application of validity generalization procedures. Journal of applied Psychology, 71, (402-410). Martens, R., Landers, D., & Loy, J. (1987). Sport cohesiveness questionnaire. Washington: DC: AAHPERD. Stogdill, R.M. (1974). Handbook of leadership – A survey of theory and research. New York: Free Press.

HYPERBARIC OXYGEN AND ACTIVE RECOVERY RELATED TO LACTATE CLEARANCE AND STABILITY OF ANAEROBIC PERFORMANCE.

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Introduction: The purpose of this study was to compare active recovery and recovery using hyperbaric oxygen in pressurized oxygen chamber. Anaerobic work in this study was measured through Running-based Anaerobic Sprint Test (RAST), and the effect of recovery active and recovery using pressurized oxygen chamber was measured through power output and fatigue index. Lactate clearance was measured using lactate analyzer. Recovery period is important since competitive event are sometimes very close one from the other. Method: The design of this research was pretest posttest control group design, an experimental study. Sample in this study was 30 students who had interest in extramural badminton, randomly selected from a population of 45 students. Thirty students were randomly assigned to three groups consisted of 10 students, the first group doing recovery using 1.3 ATA pressurized oxygen chamber, the second group doing recovery in 1.8 ATA pressurized chamber, and the third group doing active recovery with light intensity. Dependent variables of this study were blood lactate concentration and anaerobic performance indicated by fatigue index. Lactate analyzer was used to measure blood lactate and RAST was used to measure fatigue index. Blood lactate concentration was measured before RAST, after RAST, and 30 minutes after recovery either using pressurized oxygen chamber or active recovery, and then they went to take anaerobic RAST again one more time. Data was analyzed through Manova with .05 significant levels. Result: Blood lactate level was lowest in those treated with Hyperbaric Oxygen 1.3 ATA and had significant difference with active recovery. Anaerobic performance of those treated with hyperbaric oxygen 1.3 ATA is the lowest (6.7) vs HBO 1.7 ATA (7.85) and active recovery (8.56) even though they are not significantly different. Discussion: Increasing oxygen supply to musculoskeletal system in the state of fatigue activates cellular activities, increases production of ATP and promotes metabolism of fatigue substances. HBO can therefore considered as a method of promoting recovery from fatigue, and HBO 1.3 proved to be more effective than HBO 1.8 ATA in lactate removal rate(Ishii et al, 2005). Treating dancer with 60 minute HBO 1.3 ATA also proved to eliminate fatigue of the achiles tendon (Reillo, Washington, 2010). References: Ishii Y1, Deie M, Adachi N, Yasunaga Y, Sharman P, Miyanaga Y, Ochi M. 2005. Hyperbaric oxygen as an adjuvant for athletes. Sports Med; 35(9):739-46. Reillo MR, Washington, ME. 2010. Performance enhancement and Sports Injury in Dance. http://wellcommons.com/groups/lawrence-athletic-club/2010/oct/22/hyperbaric-oxygen-therapy/.

Physiotherapy

OUTCOME OF PHYSICAL THERAPY IN LOW BACK PAIN.

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Introduction: Physical exercise can be helpful for patients with chronic low back pain to return to work and to normal activities. Application of regular exercise 3-4 a week is the best solution for reducing the pain of back. Low back pain pose significant problem in clinics and public health. It presents one of

the main problems with adults, since 70-80% of adults face this problem at least once in their life. The aims of this study is to define: is the obesity one of factors which prolong the healing time in rehabilitation of physical therapy? Materials and Methodology: This study has been conducted in Physiatry Service of the Institution of Occupational Medicine, in a one year timeframe. The total was 101 patients that were employed with Kosovo Energy Corporation (KEK). The study was long-term and retrospective, whereas the material was gathered particularly. The patients were treated with physical therapy in IMP, all of 101 patients have applied physical therapy. Results – from 101 sick individuals from the research, based on the body weight index, 69.3% are classified as non-obese and 30.7% obese. There are no major statistical differences found in comparison between the groups in relation to age, job position, pain localization, sick leave and radiography. With the T-Test we have found a difference with high statistical significance between the average number of applied physical therapy sessions in relation to examined groups (T-Test=2.78, P=0.0065, so, P<0.01). Conclusion: Obesity and age have no direct influence in the back pain, but affects in prolonging healing. Loss of weight helps in treating with physical therapy the sick suffering from ostemuscular problems, also psycho-social factors affect in prolonging the healing process. Key words: Low back, pain, physical therapy. Reference: Wong D, Transfeldt E, Macnab I, McCulloch J. Macnab's backache. Williams & Wilkins. Philadephia. USA. 2007. Mauris T, malmivaara A, Rosmin E, Bart K. Exercise therapy for low back pain : Riview within the framework of the cochrane collaboration back review group. Williams & Wilkins. Nov 2000; 25: 2784-2796. Kwon M, Shim S, Kim M, Gwak M, Hahm T, Kim G, Kim C, Choi Y, Park J, Cho H, Kim T. A Corelation betwen Low Back Pain And Associated Factors: A Study Involving 772 Patients who Had Undergone General Physical Examination. J Korean Med Sci. 2006; 21: 1086-91.

Psychology

COMPETITIVE STATE ANXIETY: IMPACT OF POSITIVE SELF-TALK TRAINING ON JUNIOR LEVEL FOOTBALL PLAYERS.

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Introduction: In order to achieve peak performance athletes need a "total package" including physical skills, psychological skills, fitness and injury prevention (Singh 2011) The purpose of the study was aimed to examine the effect of Positive Self-talk training on the Competitive anxiety and self-confidence of the junior football players. Methods: 36 junior level football players, aged 14.7 ± 2.8 years, were randomly assigned into experimental group and control group. Competitive State Anxiety Inventory-2 (CSAI-2) was used to assess cognitive and somatic anxiety and self-confidence. Positive Self-talk training was given to the experimental group for 9 weeks. Results: For the Pre - Post test scores of Experimental group the scores were Cognitive Anxiety (22.6-18.1), Somatic Anxiety (23.8 -17.6) and for Self Confidence (20.4-24.8) whereas for Control group the scores were Cognitive Anxiety (22.3-21.8),Somatic Anxiety (23.4-22.6) and Self- confidence (205-21.2). Discussion: Results of ANOVA revealed significant difference between the pre- test and post test scores of cognitive and somatic anxiety and self- confidence in the experimental group while no significant difference in the control group. References: Singh A, Gaurav V(2011) "A study of pre competitive and post competitive anxiety level of inter- collegiate volleyball players" International Journal of Sports science & Engineering Vol-5, No 4 pp 237-241.

THE EFFECTS OF REGULAR EXERCISE ON ANXIETY, DEPRESSION AND QUALITY OF LIFE IN ADULT DEPENDENTS IN ADDICTION TREATMENT.

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Introduction: The purpose of this study was to examine the effects of moderate intensity aerobic and strength exercises on anxiety, depression, and quality of life in alcohol and substance dependent adults during addiction treatment. Methods: A quasi-experimental design was utilized among participants (30 men and 4 women) self-selecting to participate either a control or a 4 week moderate-intensity aerobic and strength exercise intervention group. Dependent variables of the study included anxiety, depression, and quality of life. Participants completed the demographics and a health questionnaire, an inventory for depression, an inventory for anxiety and a survey for quality of life at baseline and at the end of the study. A treadmill test was used to measure the predicted VO2max to examine the changes in aerobic capacity and the four to six repetition submaximal (4–6 RM) strength test was used to measure the predicted one repetition (1-RM) maximal strength of the exercise group at baseline and at the end of the study. Resting heart rate and blood pressure were also monitored. Results: Exercisers reported significantly lower anxiety scores than controls at the end of the study. Depression level of exercisers was lower than control group but the difference was not significant. From the physical health component of quality of life; physical functioning and physical role and, from the mental health component of quality of life; social functioning and emotional role were higher among the exercisers than the controls. In addition, exercisers showed a significant increase in their cardiorespiratory fitness and strength by the end of exercise intervention. Discussion: There is limited evidence to suggest that participation in regular exercise will have a positive effect on reducing anxiety and depression and on increasing quality of life if administered as an adjunct in alcohol and substance addiction treatment. However, consistent with the previous evidences (Lawlor & Hopker, 2001; Mead et al., 2009), the results of this study shows that regular participation in an exercise program may be effective in reduction of anxiety among dependents. Exercise also was found supportive for the positive changes in dependent people' life such as decrease in depression and increase in quality of life. This study is the one of the first to demonstrate the feasibility of incorporating moderate-intensity aerobic and strength exercises during addiction treatment in Turkey and has has several limitations that must be considered. References: Lawlor DA, Hopker SW (2001). The effectiveness of exercise as an intervention in the management of depression: systematic review and meta-regression analysis of randomised controlled trials. Br Med J, 322, 763–767. Mead GE, Morley W, Campbell P, Greig CA, McMurdo M, Lawlor DA (2009). Exercise for depression. Ment Health Phys Act, 2, 95–96.

MOTIVATIONAL LEVEL AND PARTICIPATION BARRIERS IN SCHOOL PHYSICAL EDUCATION AMONG ADOLESCENTS.

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Introduction: The primary aim of the present study was to explore motivational profiles in current students of high schools. Secondary aims include exploring the relationship between level of participation and motivation vs barriers during PE classes, It has been suggested that school physical education (PE),

particularly, has been suggested to play an important role in motivating students towards a physically active lifestyle (Mckenzie, 2007). The development of motivation is a process which takes time (Deci and Ryan, 2000) Methods: The participants of the study were (n = 305) (males= 155; females=150) tenth , and eleventh grade students from the two high schools in the northern Kosovo. All data were collected during the month of September and October 2014/15 school year. Students carried out the motivational and participation self-reported questionnaires to gather quantitative data regarding students' perceptions of motivation and participation in PE. Results: Children and adolescents in the Republic of Kosovo schools cannot become more physically active and fit if they don't have a wide range of accessible, safe and affordable opportunities to be active. Teens, therefore, will not increase their levels of PA unless they are sufficiently motivated to do so... Discussion: The idea for the current study stemmed from the curiosity and the recognition that the psychological side of the participation and level of motivation into PE classes is under researched, especially in our country. Qualitative results of the study are in accordance with the research of Barker (2013), our results shows that females wanted to participate in Volleyball, Swimming and Dancing, and they also expressed that they do prefer a coed setting during PE classes due to the possibilities that they tend to broke the mentality of 'traditionally dominant gender' stereotype. On the other hand, males wanted to take part in more competitive physical sports including Football, Basketball and Karate. This supported the cultural assumption that males want a more competitive sport environment, while females want a cooperative environment (Couturier et al., 2005; Hill & Cleven, 2006). Hohepa et al. (2005) also reported similar results when it came to gender differences and safety. References: Barker, H.B (2013). Improving high school students' participation in physical education (Unpublished MA thesis), Sierra Nevada College, Deci EL and Ryan RM (2000) Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. American Psychologist 55: 68–78. McKenzie TL (2007) The preparation of physical educators: a public health perspective. Quest 59: 346–357.

MEDIA AND CHOKING IN SPORT.

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Introduction: Choking is recognized as a classic psychological conundrum for elite athletes and those who are touted as chokers in the media merely represent a minute portion of athletes that have choked in their career (Marchant, Maher, & Wang, 2014). Research on choking has demonstrated that athletes susceptibility to choke is affected by a range of potential moderators such as the public status (Hill, Hanton, Matthews, & Fleming, 2010). Recently, various forms of the media such as TV, newspapers, and the internet have had an impressionable impact on professional athletes via delving into their private life, undervaluing/overvaluing them, gossiping and so on (Haze, 2006). Although, various aspects of the unequivocal role of mass media in sports have been studied by researchers, a dearth of research exists with regards to the effect of the media on performance under pressure. Method: Fourteen professional athletes from various sports has been employed for the semi-structured interviews. Results: The results have indicated that the media are playing an undeniable role in their professional career. The support of the media has been resulted in outstanding performances while the high expectations produced by the media have had destructive effects on their performances even led to choking. Blocking and not paying attention to the unpleasant and irrelevant information published by the media has been mentioned as a mitigating solution. Moreover, the influence of the media could be modified by the encouraging or preventative

strategies that they apply to cope with pressure. Most of the participants strongly recommended that the information provided by the media should be viewed firstly by the authorities or their relatives to ascertain that the content is salutary and fruitful before gaining access by the athletes. Discussion: Choking may be accounted as a critical career risk for professional athletes that can be accompanied by embarrassment, humiliation and derision subjecting to the level of media scrutiny (Marchant et al, 2014). The findings of the present study support the role of public status and how the media could precipitate athletes into choking. The media are playing a versatile role and it is extremely crucial for athletes to recognize the pros and cons of this phenomenon. References: Haze (2006). The Influence of Media on Sport. Retrieved from http://www.studymode.com/essays/The-Influence-Of-Media-On-Sport-20527.html [19.11.2014]. Hill, D. M., Hanton, S., Matthews, N., & Fleming, S. (2010). Choking in sport: A review. International Review of Sport & Exercise Psychology, 3(1), 24-39. Marchant, D., Maher, R., & Wang, J. (2014). Perspectives on choking in sport. In A. G. Papaioannou, D. Hackfort (Eds.), Routledge companion to sport and exercise psychology: Global perspectives and fundamental concepts (pp. 446-459). New York, NY, US: Routledge/Taylor & Francis Group.

PSYCHOLOGICAL SKILLS DEVELOPMENT AND MAINTENANCE IN PROFESSIONAL SOCCER PLAYERS: AN EXPERIMENTAL DESIGN WITH FOLLOW UP MEASURES.

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Introduction: Psychological Skill training refers to the "systematic and consistent practice of mental skills for the purpose of enhancing performance, increasing enjoyment, or achieving greater self-satisfaction in sport and physical activity" (Weinberg and Gould, 2007). Moreover Psychological well-being (PWB) is a comprehensive concept that interests in how well people perceive aspects of their functioning, e.g. the extent to which they feel they are in control of their lives, feel that what they do is meaningful and worthwhile, and have good relationships with others. PST and PWB are two essential concepts not only for general mental health in daily life but also for athletic performance in sport settings. Therefore, the aim of this study was to investigate (1) relationship between performances related psychological skills (team cohesion, confidence, and anxiety) and PWB, and (2) examine the effects of twelve weeks of cognitive-behavioral conceptual framework based PST program on psychological skills of a professional soccer team. Method: Initially there were totally 48 athletes; 24 athletes for the experimental group and 24 athletes for the control group. Group Environment Questionnaire; Trait Sport-Confidence Inventory; Ryff's psychological well-being scale; State-Trait Anxiety Inventory were used to evaluate selected psychological skills. In order to analyze possible changes in the measures for team cohesion skill from pre-season to post-season and follow up tests, a mixed design multivariate analysis of variance (MANOVA) was utilized. In order to analyze possible changes in the measures for self-confidence and anxiety skills from pre-season to postseason and follow up tests, a mixed design analysis of variance (ANOVA) was utilized (Thomas & Nelson, 2001). Results: Results showed improved psychological skills and PWB after 12 weeks of PST. Follow up measurements indicated that improved psychological skills were preserved up to 6 months. Finally psychological skills and PWB were found to be interconnected parameters, with congruence components. Overall, the PST program improved athletes' team cohesion, self-confidence, anxiety and PWB levels. Discussion: The findings of the current study indicated that athletes in experimental group significantly increased perceptions of cohesion, self-confidence and PWB also significantly decreased perceptions of anxiety over the intervention time

period more than control group. References: Bacon, T. (1989) The planning and integration of mental training programs, Sports: Science Periodical on Research & Technology in Sport: Vol. 10 Issue 1. p. 1-8. Burton, D. (1989) Winning isn't everything: Examining the impact of performance goals on collegiate swimmers' cognitions and performance. The Sport Psychologist, 2, 105-132. Weinberg R.S. & Gould, D. (2007) Foundations of sport and exercise psychology. Champaign, IL: Human Kinetics.

Rehabilitation

THE EVALUATION OF BALANCE PERFORMANCE IN VISUALLY IMPAIRED PEOPLE.

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Introduction: This study aims to evaluate the balance performance measured in visually impaired athletes (VIA) and visually impaired sedentary people (VISP) by using Balance Error Scoring System (BESS). Methods: This study involves the averages of subject characteristics which follow; ; For VIA (n:6) group age was 26,00±7,95 years, height 175±0,04 cm, body weight 73,80±13,62 kg and body mass index (BMİ) "23.91±-4.48. For VISP (n:6) group age was 33,70±8,12 years, height 169±0,09 cm, body weight 75,50±14,63 kg and body mass index (BMİ) 26,27±4,79. For VIA and VISP groups, the double leg stance, single leg stance and tandem stance positions on stable ground and foam ground –the duration of 20 seconds for each experiment condition- were measured with a stopwatch. Each error made by the subjects in the period of 20 seconds was recorded as 1 error score. The balance performances were determined by use of BESS scoring system and differences were revealed. The scoring and reliability of this test were published by Riemann and Guskiewicz (2000). The sports hall ground was used for the stable ground measuring. For the foam ground, on the other hand, a 50X41X6 cm sized medium intense foam block was used. (Airex Balance pad, Alcan Airex AG, CH-5643 sins/Switzerland) The t-test (paired samples t-test) was used in detecting the differences between the parameters measured in the both groups (VIA, VISP). The results were evaluated at the significance level of 0.05. In the study, it was established that when the physical findings between the groups (VIA, VISP) were examined, height, body weight and BMI parameters were similar while the average age of VIA group was higher than that of VISP ($p<0.05$). Results: Consequently; the balance performance of the visually impaired group who do exercises (VIA) was better that that of the visually impaired group who do not do exercises (VISP), yet this difference was found to be not statistically significant. Discussion: DHPS (BESS) has been used in many researches studying the balance performance of visually impaired athletes and sedanter individuals (Docherty et al 2006, Fox et al 2008,Valovich et al 2003, Wilkins et al 2004). It has been reported in similar studies that no significant difference has been noticed between the balance performances of visually impaired individuals doing sports and those who don't (Murphy 1989, Haley 1991). References: Docherty CL, McLeod TCV, Shultz SJ, (2006). Clin J Sport Med, (16),203–208. Fox ZG, Mihalik JP, Blackburn JT, Battaglini CL, Guskiewicz KM, (2008). J Athl Train, 43,5, 456-463. Haley MS (1991). Arch.Phys. Med. Rehabil. 72:359-366. Riemann BL, Guskiewicz KM, (2000). Athl Train, (35), 19–25. Murphy MF (1989). Physiotherapy. 75 (9):505-508. Wilkins JC, Mcleod TCV, Perrin DH, Gansneder BM, (2004). J Athl Train, 39, 2, 156-161. Valovich TC, Perrin DH, Gansneder BM. (2003). J Athl Train. 38, 1, 51–56.

Sociology

MEDIA GLOBALIZATION OF SPORT AND THE NATIONAL IDENTITY OF SMALL COUNTRIES: CASE STUDY – BOSNIA AND HERZEGOVINA.

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Introduction: The purpose of this scientific work is to determine how the successes of our athletes affect the international media and tourism promotion of our country, since Montenegro independence 2006. The aim of this work is to consider theoretical assumptions and experts' opinions, in order to give recommendations for utilization of sport success into better promotion of Montenegro all over the world in the future. Methods: In this paper, 10 respectable sport's worker, tourism and media professionals, as well as diplomats, are interviewed, to find out their opinions about the topic of the work through structured opened interviews. They will, from their own point of view, answer to our questions about how our sport promotes media, tourism and diplomatic state of Montenegro. By interpreting the interview and through SWOT analysis we will consider strengths, weaknesses, opportunities and threats that cross way to our top sport in its efforts to, in addition to competition, present Montenegro in the best way. Results: The initial hypotheses that sport represents, besides natural beauty, cultural and historical monuments, heritage and gastronomy, a good way to promote Montenegro is confirmed, but with recommendations for its better use in promotions. Discussion: The views of the interviewed experts confirm that sport is more than just a game and competition, that is part of the national identity, and as such, a window to the world of our country. "The most positive promotion for the country is sports promotion (Selhanovic, 2010:159)." The success of our athletes, especially the handball and water polo teams, confirm the thesis that this branch is one of the best ways for positive quotations of a small country and for being mentioned in international diplomacy, tourism and media circles. Our footballers before Savicevic and Mijatovic and now Vucinic, Savic, Jovetic and Kascelan, are often more famous than our touristic locations. "Mass media create stars, celebrities, sports heroes and champions" (Kokovic, 2004:63). The views of recognized experts suggest that this segment of promotion of Montenegro showed be watched closely, and that it would be useful for marketing campaigns to include our famous athletes, so the Montenegro can be recognizable in the world, and thus become a destination that will attract more tourists. References: Kokovic D (2004). Sport i Mediji, Fakultet za uslužni biznis, Novi Sad. Selhanovic D (2010). Imidž Crne Gore, Izdanje autora, Podgorica.

SUCCESS OF OUR ATHLETES AS A WAY OF PROMOTING MONTENEGRO.

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Introduction: The main goal of this study is to inspect the different functions of sporting nationalism in promoting and celebrating national identities of small countries like Bosnia and Herzegovina. Existing nation-states "have frequently been shown to use sport for a variety of purposes, including enhancing prestige, securing legitimacy, compensating for other aspects of life within their boundaries, and pursuing international rivalries by peaceful means." (Hargreaves, 1992). On the other hand media globalization of sport has taken its toll on the small countries that are in danger of being eaten alive by the dominant

cultures of the western world. Two of the most powerful cultural forces are certainly sport and the media and they represent the best modes of conveying messages of appropriate values, customs and commercial products across the globe. Methods: In the case study of Bosnia and Herzegovina, we are trying to analyze the function that national sport has, as a tool for promoting civic national identity and cohesion. Through content analysis of fan pages and forums we will also try to find out if the local sport heroes still exist or are we identifying ourselves only with the country's sport representatives on a global scale. (Edin Džeko, Mirza Teletović, Jusuf Nurkić, Miralem Pjanić etc.). Results: The initial hypotheses is that sport media texts convey powerful messages that undeliberately shape the societies in a global world. Through sport and its presentation through mass media, we are fostering national cohesion (official civic nationalism) and hence, by using it we can overcome the underminings of "sub-nation-state national identities" (Bairner 2001) (ethnic nationalism for example), and cultural imperialism of western societies through sport and the media. Discussion: According to Robertson "It is not a question of either homogenization or heterogenization, but rather of the ways in which both of these two tendencies have become features of life across much of the late twentieth-century world." (1995:27) Through sport and the media small countries can as well influence the global world with its specific cultural products and values and in that way, take part in a global cultural exchange. References: Bairner, A. 2001. Sport, Nationalism and Globalization – European and North American Perspectives. New York: State University of New York Press. Hargreaves, J. 1992. "Olympism and Nationalism: Some Preliminary Consideration." International Review for the Sociology of Sport 27: pp. 119–137. Robertson, R. 1995. "Globalization: Time-Space and Homogeneity-Heterogeneity." In M. Featherstone, S. Lash, and R. Robertson (eds.), Global Modernities. London: Sage, pp. 25–44. Rowe, D. 2004. Sport, Culture, and the Media – The Untruly Trinity – 2nd edition. UK: Open University Press.

Sport Management

THE RELATIONSHIP BETWEEN THE SERVICE QUALITY, CUSTOMER SATISFACTION AND CUSTOMER LOYALTY IN BOXING SERVICES.

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Introduction: Although there are a considerable number of studies in the literature on service quality in sport services, only a few studies in the context of boxing centers could be found. The purpose of this study is to measure the perceived service quality levels and investigate the relationships between service quality, customer satisfaction and customer loyalty in a specific boxing center. The findings and results of this study could be helpful for and contribute to the studies by marketing practitioners and academicians, especially for those interested in boxing services. Methods: The sample consisted of 188 boxers (male: 124, female: 64) in London, England. A questionnaire form consisting of demographic questions, "Service Quality Assessment Scale" by Lam et al. (2005), customer satisfaction scale and customer loyalty scale was administered to participants. The cronbach alpha coefficient of the overall service quality assessment scale was found to be .90. Customer satisfaction and customer loyalty (psychological commitment, willingness to pay more and complaining behavior) were measured respectively by three items from Oliver's study (1980) and by behavioral intentions scale from Zeithaml et al. (1996). Descriptive statistics, student t test and one-way analysis of variance and regression analysis were used for the analyses of data. Results: Results of the study revealed that the service quality perceptions of women are higher than those of men.

There are negative relationships between age and perceived quality as well as customer satisfaction and psychological commitment. However, a positive relationship between age and complaining behavior was discerned. Another finding of this study is that the perceived quality affects the customer satisfaction, psychological commitment and complaining behavior. Discussion: Considering that boxing is commonly known as a type of sports associated with men, it was interestingly found that the female boxers scored higher than male boxers on perceived service quality. This finding may be important for boxing center managers and sport marketers in developing marketing strategies targeted at female boxers. Customer satisfaction and customer loyalty are influenced positively by perceived quality. Therefore, managers and sport marketers must carefully develop marketing programmes taking into account the elements of perceived quality which are staff, programme, physical facility and workout facility. Further studies on perceived quality, customer satisfaction and customer loyalty in boxing centers could be helpful to understand the relationships between boxing services and the customer responses. References: Lam ETC, Zhang JJ, Jensen, BE (2005) Measurement in Physical Education and Exercise Science, 9(2): 79-111. Oliver RL (1980). J of Marketing Research, 17 (4): 460-469. Zeithaml VA, Berry LL, Parasuraman A (1996). The J of Marketing, 60(2): 31-46. Bodet G (2008). J of Retailing and Consumer Services, 15: 156–162.

INSTITUTIONALIZED SYSTEMATIC REVIEW AS A TOOL FOR KNOWLEDGE TRANSFER IN SPORT MANAGEMENT.

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Introduction: Further development of the research and knowledge transfer in sport management, is limited by the lack of the full utilization of the past research results. The availability of the research outcomes in the usable form and the active interaction between the academia and sport practitioners could help to the great extent to enhance not only the knowledge base but also the performance of the sports organizations. Therefore the aim of the paper is to propose a conceptual model for the systematic exploration of the latest developments in sports management research and knowledge transfer to the sports organizations. Methods: The desk research and content analysis of various modes related to the systematic reviews was conducted. The comparison of the models used for the transfer of knowledge from science to business practice in particular in the health care sector was realized. Based on the information the conceptual model for the systematic review and knowledge transfer in sport management which could take the institutional form was designed, describing the portfolio of services and expertise, development plan, the policy towards interaction and communication with the user community, and the management strategy as well. Results: Based on the experience from health sector it is suggested to create the non-profit, membership infrastructure "Centre for the Systematic Review and Knowledge Transfer in Sport Management ". This institutionalized infrastructure will develop and provide evidence – based research information for sports management professions, sport decision – makers and sport research development. The network of collaborating entities (systematic review groups, expert researchers, sport managers and other members of the network) will provide the appropriate framework for analysing, producing and disseminating the best available research in sport management to various stakeholders. The impact will be assessed via the changes in the sport policy and practice and the advancement in sport management research. Discussion: The proposed institutionalized infrastructure will address the problem of the research synthesis in sport management as described by Weed (2005). The research innovations

which could be drawn from the proposed infrastructure will be linked to the development of knowledge transfer science, implementation science and translational research (Woolf, 2009) in the context of sport management. The proposed conceptual model is also important for further development of the scientific status of sport management (Nová, 2014). References: Nová, J. (2014) Management in Sport (theory, quality, case studies), Masaryk University, Brno. ISBN 978-80-210-6780-6, DOI 10.5817/CZ.MUNI. M210-6781-2014. Weed, M. (2005). Research Synthesis in Sport Management: Dealing with "Chaos in the Brickyard", European Sport Management Quarterly, 5:1, 77- 90. Woolf S. (2009). The Meaning of Translational Research and Why It Matters. JAMA, 2008; 299(2):211-213.

ROLE OF SPORTS MANAGEMENT IN PREPARATION FOR FOOTBALL REFEREES IN THE CZECH REPUBLIC.

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Introduction: Football is the most watched sport in the world. Long ago, it is obvious that the primary factor in the success of the teams is a good workout. It should be noted that football referees were in this direction for a long time neglected topic. Successfully referring football game is a guarantee of satisfaction of all stakeholders, players, officials, spectators, shareholders and especially football referees. Therefore, to today, when the football incredibly accelerated and is under constant surveillance cameras and the media, it is necessary to minimize errors football referees. To football games managed at the appropriate level, it is necessary to constantly work with judges, ie. prepare them both physically and mentally, to educate referees in perfect knowledge of the rules and game management. Methods: In this article we will use the description of basic education programs, which are used for the training of football referees in the Czech Republic. It will also explore the different groups according to the level of referees competitions in which manages football games and we characterize the various requirements that are imposed on these referees, their methods of training and testing their skills and abilities. Results: On the preparation resp. work with football referees are now significantly involved individual football associations and the Union of European Football Associations UEFA. UEFA conducts an educational program UEFA CORE (Centre of Refereeing Excellence) and also contributes to the financial means to pursue other educational programs within individual football associations. Discussion: In our article we are organizing the preparation of football referees, who are duly registered under the banner of the FARC - Football Association of the Czech Republic. Judges who participate in various other educational programs and seminars led by teachers and other practitioners. The main communication represents the structure of competition in the Czech Republic, a way of organizing football referee and course preparation at individual levels of performance, which is unique within Europe. Introducing individual education programs that the FARC used for education and training of judges. We also describe the content of curricula football referees. An integral part of the article is also showing the claims, which are each arbitration subject to performance levels and methods of testing. References: UEFA_Education_programnme.http: //www.rozhodciks. cz / docs / conference / UEFA_Education_programnme.ppt (Accessed December l3, 2013). LOPEZ, M., & Falco, F. (2006). Booklet for Referees. FIFA. UEFA Referee Convention: Convention on Referee Education and Organization. UEFA.com [online]. 2012 [cit. 01.04.2014]. Available from: <http://www. uefa.org/MultimediaFiles/Download/Tech/uefaorg/General/01/89/25/77 / 1892577_DOWNLOAD.pdf>

Sport Statistics and Analyses

APPLICATION OF TAXONOMY ANALYSIS IN THE SELECTION OF PUPILS IN SPORTS.

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Introduction: Primary aim of physical and health education and of this education and upbringing activity, among other things, is to secure favorable conditions for physical education as modern civilization value and a need, in order to advance quality and effectiveness of life, and for advancement of health level especially in the adolescent phase of life, and to create opportunities for involvement of pupils in various sports. Methods: This research has the goal to evaluate importance of taxonomy analysis in the selection of pupils in sports. This means involvement of a process of measurement of morphological and motoric indicators of 26 pupils involved in sport activities in the age group of 15 years in the elementary and lower level secondary school "Faik Konica" from Prishtina and 30 pupils of age group 15 years in the elementary and lower level school „Avdulla Tahiri" from Malishevë. 6 anthropometric variables have been applied and 4 motoric variables (Kurelić et al., 1975). Anthropometric variables applied are: body height (ATV), length of foot (ADS), body mass (ATT), volume of upper arm in down position (AONL), volume of upper leg (AONK), volume of lower leg (AOPK). Motoric variables applied were: distance jump from standing position (MFESDM), running from 30 meter distance (MTR30V), bench bending (MFLPRK), and push-ups (MSKLEK). Results: Taxonomy analysis applied demonstrates that these groups of pupils has been divided in two groups, first group composed of 22 pupils and second group of 34 pupils. Results obtained in the table using Anova discriminative analysis have verified statistical significance of the difference between these groups. Discussion: Taxonomy analysis is used in order to group, namely classify sample of students on the basis of anthropometric and motoric parameters. Goal of this analysis was to create a homogenous sub sample on the basis of given sample, one that has as more as possible of a joint morphological and motoric parameters. Obtained results demonstrate that this research has resulted in two sub-groups of homogenous nature, the second group of 34 pupils' shows to be a group with better anthropometric and motoric parameters for selection for football. Similar results when it comes to selection have been obtained in other researches (Goletić, et al. 2012). The other group of 22 pupils has lower anthropometric and motoric parameters. References: Kurelić, N., Momirović, K., Stojanović, M., Šturm, J., Radojević, Đ., i Viskić-Štalec, N. (1975). Struktura i razvoj morfoloških i motoričkih dimenzija omladine. Beograd: Institut za naučna istraživanja Fakulteta za fizičko vaspitanje. Goletić, E., Lačić,O., Redžić, H., Bilalić, j. i Mehanović, S. (2012). Taksonomska analiza morfoloskih i motorickih dimenzija kao kriterij homogenizacije studenata u nastavi borilackih sportova Sportski Logos st.5-18.

DIFFERENCES AMONG PUPILS IN URBAN AND RURAL ENVIRONMENTS IN THE MORPHOLOGIC AND MOTORIC DEVELOPMENTS.

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Introduction: One of the most important preconditions for effective influence of physical body exercises among pupils during regular classes of physical education in schools is increased volume and

quality of work and study. In order to increase volume and quality of work and study, it is necessary to carry out reform of education at elementary and lower level secondary education in Kosova in order to advance professional personnel and increase number of hours for sport and health education classes. Methods: This research is of a transversal nature, meaning that there has been a measurement of morphological and motoric indicators in the sample of 26 pupils of the age group of 15 years of the elementary and lower level school "Faik Konica" from Prishtina as an urbane center and sample of 30 pupils of elementary and lower level school „Avdulla Tahiri" from Malisheva. 6 anthropometric and 4 motoric variables have been used (Kurelić et al., 1975). Anthropometric variables included: body height (ATV), length of foot (ADS), body mass (ATT), volume of upper arm in down position (AONL), volume of upper leg (AONK), volume of lower leg (AOPK). Motoric variables included: standing position distance jump (MFESDM), 30 meters distance running (MTR30V), bench bending (MFLPRK), and push-ups (MSKLEK). T-test analysis has been used for independent variables. Results: Obtained results from the statistical analysis demonstrate that anthropometric characteristics and motoric skills of two independent groups of pupils have normal distribution and no visible asymmetry and have tendency toward higher values (epikurtic). T-test analysis demonstrates that pupils from rural areas have lower muscular mass and lower motoric results. Discussion: Conditions for execution of physical education classes and lack of physical activities in the rural environment have strong influence on developments of morphological and motoric characteristics of pupils. Significant statistical differences obtained in these groups demonstrate that pupils in the elementary and lower level secondary education school „Avdulla Tahiri" from Malisheva have lower muscular mass and motoric abilities at the level $p<0.05$, due to economic and social conditions. Results indicate that promotion of healthy life style among adolescents has even greater importance due to insight gained by Paavola and sur. (2004.), that underlines positive correlation between regular sports and recreational activities and correct nutrition habits. References: Kurelić, N., Momirović, K., Stojanović, M., Šturm, J., Radojević, Đ., i Viskić-Štalec, N. (1975). Struktura i razvoj morfoloških i motoričkih dimenzija omladine. Beograd: Institut za naučna istraživanja Fakulteta za fizičko vaspitanje. Paavola, M., Vartiainen, E. i Haukkala, A. (2004.). Smoking, alcohol use, and physical activity: a 13-year longitudinal study ranging from adolescence into adulthood. Journal of Adolescent Health, 35, 238-244.

DIFFERENCES IN TO STATISTICAL INDICATORS FINALIST AUSTRALIAN OPEN 2014 IN MENS SINGLE COMPETITION.

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Introduction: An interdisciplinary approach to solving the problem of dealing with top tennis is becoming increasingly a requirement for further development and planning of the sport, because without cooperation with other sciences, comparing results between groups and individuals, there is no possibility of achieving top results (Roetert, 2003). The aim of the research is to determine the difference between a tennis player Wawrinka and Nadal finalist of Australian Open in 2014 in the singlel competition. Methods: A sample of entities represented the seven matches and their statistics for the two tennis players, Wawrinka and Nadal with the last Australian Open is played open in tennis men's single competition. As a sample of observed parameters given of the 12 statistical indicators. Statistically significant difference between the two tennis players was analyzed by t-test. Results: Based on the analyzed parameters can be concluded that statistically significant differences in parameter Number of achieved aces, where

Wawrinka was on average better for a little over nine aces per game (9.27 aces), in parameter Number of winners in the match, he was better for an average of 22.5 winners, while Nadal average was better in the parameter Percent of the loaded first service for 11.67% compared to Wawrinka. Discussion: Results of the research are somewhat consistent with the results of research carried out where it was determined that the statistical differences between the winners and losers are reflected in the following variables: the number of total points won, the number of unforced errors, the number of won winners, and there was no statistically significant difference in the variable number of double faults (Klassen et al, 2001). References: Verlinden, M., Van Ruyskensvelde, B., Van Gorp, B., Dedecker, S., Goossens, R., Clarijs, J.P. (2003). Effect of gender and tennis court surface properties upon strategy in elite singles. Science and recket sports III. Third World Congress of Science and Racket Sports and Eighth International Table Tennis Federation Sports Science Congress (pp.: 163-168), London. Klaassen, F., Magnus, J. (2001). Forecasting the winner of a tennis match. European Journal of Operational Research, 148(2), 257-267. Magnus, J., Klaassen, F. (1999). On the Advantage of Serving First in a Tennis Set: Four Years at Wimbledon. Journal of the Royal Statistical Society, 48(2), 247-256. Roetert, P. (2003). Tennis. Zagreb: Gopal.

TYPE OF PHYSICAL STRUCTURE OF PROGRAMME CONTENTS OF GAME AND SPORT.

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Introduction: The paper presents the study of spatial content for the game and sport in Montenegro with comparative indicators to address these in the area of Europe. Through a typology categories included the following activities: Children's Game, and sport in schools extracurricular activities extracurricular youth and adults, top sports and activities and exercises in medical therapeutic purposes. Method: in this example (covered area of the coastal region of Montenegro) analyze will typology of the physical structure of the program starting points. The method used is based on the methods of observation, research and analysis which are based on Remplajnovim divisions on life stage. (Children from three to fourteen years, the youth of fifteen to eighteen years, age nineteen to forty-five and over forty years). Results: Based on research conducted analysis on the proposed sample of the coastal region of Montenegro, which are manifold and complex because the area include social, environmental medical, urban, architectural and other research obtained results that are based on the classification and the influence of age categories by main periods of human life, the activities, the typology of physical structures and sharing of facilities for games and sports. The comparative method in relation to European standards obtained the possibility of downgrading the quality of the sample analyzed typology of buildings. Discussion: Continuous development of various forms of activities and features games and sports arise impacts on increasing the material base for carrying out physical activities the question arises with regard to European standards how all this can go to meet the individual regions of Montenegro. Here is an example of research of coastal regions that actually meets the need with regard to their economic and social status. References: Sport-und freizeitanlagen p1/76, Bundesinstitut fur sportwissenschaft. Mitrović M. Sportski objekti; Arhitektonski fakultet , Beograd 1981. Geraint J., Rod S. and Ben V.;STADIA: A Design and Development Guide, Elevier 2007. London. G.S.Popović, Urban parameters for planning the network of physical education facilities in Montenegro, Sport Montbr.40-42/XII, Podgorica 2014. MONSTAT, Women and men in Montenegro, Djeca u Crnoj Gori, Podgorica 2012.Statistical office of Montenegro.

EPIDEMIOLOGY OF INJURIES IN CHILDREN AND ADOLESCENTS IN SLOVENIAN COASTAL AND KARST REGION IN 2011.

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Introduction: Injuries of children and adolescents present a constantly growing health and economic issue of the developed countries, including Slovenia. The mortality rate of children and adolescents due to fall-related injuries in Slovenia exceeds the mean value of the developed countries of the European Union, thereby representing an issue that requires special attention and discussion. Methods: Within the study we have analysed the health examinations of children and adolescents, aged 0 to 16 years, conducted in Izola general Hospital (SBI) in 2011. Among the 2587 examinations during the course of a year, 1158 cases related to unintentional injuries have been included in our detailed analysis. From personal health records and electronic databases the following variables have been taken: gender, age, external cause of injury, type of injury and organ injured. Results: The results show that 60.36 % of boys and 29.64 % of girls were examined in 2011. Most injuries caused by external factors occurred as a result of falls, mostly from standing height (29 %), followed by hitting injuries (25 %), clumsiness (12 %) and falls from height (6 %). According to the type of injury, the main reason for a visit or a referral to SBI was a contusion (33 %). Other causes of injuries were sprains (20 %), fractures (16 %) and open wounds (15 %). Statistically, boys and girls do not differ according to the type (P=0.473) and the external cause of injury (P=0.430). Most common injuries were those to the fingers (18 %), wrists (13 %), ankles (12 %), face (11 %), head (11 %) and knees (7 %). Discussion: Given the findings of our study, it would be recommendable for the future studies to go into even greater details regarding the background of the issue, and by supplementing the existent prevention strategies suggest further adequate measures for reducing the number of injury-related hospitalisations (mostly fall-related) of children and adolescents. It would also be recommendable to suggest an injury prediction model that would utilise certain physical characteristics and motor skills to predict the possibility of certain injuries. References: IVZ (2011). Z zdravjem povezano vedenje v šolskem obdobju: HBSC Slovenija 2010; Ljubljana: IVZ RS. IVZ (2010). Zdravje v Sloveniji. Global Recommendations on Physical Activity for Health. World Health Organization, 2010. Ljubljana, Inštitut za varovanje zdravja RS., WHO. Strategija Republike Slovenije za zdravje otrok in mladostnikov v povezavi z okoljem 2012–2020. (2011). Vlada Republike Slovenije. Obtainted 19. 4.2012 from web site: http://www2.gov.si/upv/vladnagradiva-08.nsf/18a6b9887c33a0bdc12570e50034eb54/2e721a1de43ca1a5c1257957002b651d/$FILE/Strategija_291111.pdf.

Sports Medicine

BLOOD DOPING AND RISKS.

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Introduction: Doping is the way in which athletes misuse of chemicals and other types of medical interventions (eg, blood replacement), try to get ahead in the results of other athletes or their performance at the expense of their own health. The aim of this work is the analysis of blood doping and the display of negative consequences that this way of increasing capabilities brings. Method: The methodological work is done descriptively. Results: Even in 1972 at the Stockholm Institute for gymnastics and sport, first Dr.

Bjorn Ekblom started having blood doping. Taken from the blood, athletes through centifuge separating red blood cells from blood plasma, which is after a month of storage in the fridge, every athlete back into the bloodstream. Tests aerobic capacity thereafter showed that the concerned athletes can run longer on average for 25% of the treadmill than before. Discussion: Blood doping carries with it serious risks, excessive amount of red cells "thickens the blood," increased hematocrit, which reduces the heart's ability to pump blood to the periphery. All this makes it difficult for blood to flow through blood vessels, and there is a great danger that comes to a halt in the circulation, which can cause cardiac arrest, stroke, pulmonary edema, and other complications that can be fatal. References: Sitkovski A. (2006) Eritropoetin: Krv, mozak i ostalo. Sportska knjiga, Beograd. Kejn S. (2006) Sportska medicina za farmaceute. Farmaceutski rečnik, London. Blajkman M. (2002) Incidenti i značaj bakterijske infekcije na krv. Međunarodni žurnal sportske medicine, Bazel. Ekblom B, Bergland B. (1991) Effect of erythropoetin administration on maximal aerobic power. Scand j. Med.Sci.Sports, 1:88-93 Đurđević N, Jorga V. (2003) Doping u sportu. Beograd.

CAUSES OF INJURIES AT THREE LEVELS IN COMPETITIVE FOOTBALL.

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Introduction: Football is a most hazardous team sports and injury is a frequent event in football (Sinku 2012). It is an enjoyable and social sport than can be played from childhood to old age, either at a recreational level or as competitive sports. Football playing largely involves starting, running, slopping, twisting, jumping, kicking, and turning movements that place the players to greater risk of injury. Methods: The present study deals with comparison of causes of injuries among three groups of competitive footballers. Accordingly three groups of footballers were targeted. International, National and State groups footballers aged between 14 to 30 years. The data was collected with the help of questionnaires prepared by Cromwell, F.J. Walsh Gromley for Elite Gaelic footballers (2000) and it was modified by the investigator and utilized. In this study total 300 hundred players were targeted; of which 100 footballers of each group. Total 318 injuries out of 300 hundred footballers were found out over the one year period; 125 injuries out of 84 footballers were found in international group footballers. 108 injuries out of 82 footballers were found in national group and 85 injuries out of 78 footballers were found in State group. Results: The mean (SDs) age of International group to State group footballers were 21.25 (7.08), 23.33 (7.78) and 19.91 (6.29) in years respectively. Their weight were 58.35 (18.45), 58.23 (19.01), and 53.99 (17.33) kg. respectively, their height were 167.33 (55.33), 166.09 (55.10) and 164.87 (54.66) cm. respectively, their training were 4.61 (1.47), 4.31 (1.43), and 4.10 (1.33) days in a week respectively, their training durations were 2.74 (.58), 2.34 (.78), and 1.99 (.66) hours respectively, their warm-up were 28.53 (9.33), 36.05 (11.05) and 22.8 (7.8) minutes respectively, and competition was 8.67 (2.81), 8.68 (2.78), and 6.58 (2.11) in one year respectively. The results revealed that only significant difference of occurrence of injuries was found ($F=3.65$, $P<.05$) in foul play. International group footballers were found to have got more occurrences of injuries as compared to the state group footballers. Discussion: The study suggests that there was no fair play at high level competition. However, no significant difference of occurrence of injuries were observed among three groups of competitive footballers with respect to causes like collision, running, contact with ball, stumble, tackle and kicking the ball. This study sported the study of pagare 2009, sinku 2008 found that high level football players was found to have got more injuries due to foul play as compare than low achievement football players. The result of the research provides a useful insight in the injuries due to causes of football players and its ill effects of football performance.

Training and Testing

EVALUATION OF THE ANAEROBIC STRENGTH IN ATHLETES WITH ARM AND LEG WINGATE TESTS.

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Introduction: The research aim is determination and evaluation of (capacity of arm anaerobic power, leg anaerobic power and aerobic) on people doing sports actively on different branches. Methods: There were attended totally 60 experimental people doing sports actively in elite level on different brunches for the research. These brunches are: wrestling (G group, n: 10), soccer (F group, n: 10), cycling (Bİ group, n: 10), boxing (BO group, n: 10), taekwondo (TA group, n: 10), and tennis. (TE group, n: 10). The Research was realized in School of Physical Education And Sports' Performance Laboratory at Selçuk University. Two different types of Monarch Wingate Ergonometry for arm and leg were used for anaerobic measurements. There was performed Shuttle Run for Aerobic measurements. Results: As a result; it affects the research results which is searched for the level of aerobic and anaerobic capacity is an important indication on group's performance, sportive experience, skill and the differences between success levels. Therefore, it is taken over the brunch's the capacities of aerobic or anaerobic which is on dominant energy system. Discussion: When the results of the study is analyzed, arm wingate test results are found to have higher anaerobic capacity in the branches in which hands are used dominantly compared to the branches in which legs are used dominantly, and the leg wingate anaerobic strength levels are found to be higher than arm wingate leves in the branches in which legs are used dominantly. Furthermore, the results are supported by similar studies (Jelena et al 2009, Oosthuyse at al 2013, Chtourou et al 2012, Legaz-Arrese et al 2011, Kounalakis et al 2009). Maximal oxygen usage capacity creates different needs according to the branches. Aerobic capacity differs in accordance with the features of the branch and the dominancy of the energy system used (Karatosun 2010). References: Jelana Z, Otto F, Nikola G (2009). J. of Strength and Con Res.;23 (3) : 751-754. Oosthuyse T, Viedge A, Mcveigh J, Avidon I (2013). J. of Strength and Con Res.;27 (2) : 485-489 Chtourou H, Hammouda O, Souissi H, Chamari K, Chaouachi A, Souissi N (2012). Asian j.of Spor Med.;3 (3) : 139-144. Legaz AA, Munguia- ID, Luis E, Torres DC (2011). N Strenght and Con Assoc Unauthorized Reproduction of This Article is Prohibited.;3 (25) : 819-824. Kounalakis SN, Koskolou MD, Geladas ND.(2009) Res in Spor Med.;17: 181-2009. Karatosun H.(2010) Isparta. Altıntuğ Matbaası.3: 137.

IN FEMALE BOXERS, THE EFFECT OF APPLICATION OF RESISTANCE BAND FOR 6 WEEKS ON THE MAXIMUM FORCE AND ANAEROBIC POWER.

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Introduction: Study was carried out to examine the effect of application of resistance band in the female boxers on the levels of the anaerobic power and Maximal Bench Press (MBP). Methods: The study was carried out on 12 female subjects, in ages between 19 -23, who are actively engaged in the boxing branch. The subjects were divided into two groups, each consisting of 6 people, as Constant

Resistance (CR) and Wavy Resistance (WR). The average age of CR group was 21.33 ± 0.81 years, the average height 169.67±2.06 cm, and the average body weight 65.28±8.95 kg The average age of WR group was 21.16 ± 0.75 years, the average height 173.50±3.27 cm, and the average body weight 65.56±3.19 kg. In the study, the exercise of resistance band was made by all subjects four days a week for 6 weeks between the hours 9.00-10.00, boxing training for competition period between the hours 18:00 – 20:00 in evenings. In CR group, the bands in the same color and resistance were used by the method of the black band constant, resistance, in WR group, the bands in different color (red, blue, black) and resistance by the wavy method before training, the body weights, and the levels of anaerobic power and MBP levels of both groups were determined The significance between differences was determined at the level of P<0,05. Results: As a result, it is seen that the exercises of resistance band did not show a significant effect at the MBP level, but it provided a significant increase ($P < 0.05$) in both groups (CR, WR) in terms of anaerobic power; and that this increase is more significant ($P < 0.05$) in CR group compared to WR group. As a matter of fact, it can be said that the constant resistance method of CR group is more effective than the wavy resistance method of WR group. Hence, conducting the studies of resistance band that will be conducted specific to branch, using the method of constant resistance, can be more effective. Discussion: It has been noticed in the study that a six-week application of resistance band has provided a remarkable increase in the strength level of female boxers, and the increase has been higher in fixed resistance group. Significant increases have been reported in similar studies employing resistance bands (Bellar et al., 2011, Colado and Triplett 2008, Ghigiarelli et al., 2009, Page and Ellenbecker 2011). References: Bellar DM, Muller MD, Barkley JE, Kim CH, Ida K, Ryan EJ, Buss MU, Glickman EL (2011). J. of Stren and Con. Res. 25, 2. Colado JC, Trıplett NT. J (2008) of Stren and Con. Res, 22: 1441–1448. Ghigiarelli J, Nagle EF, Gross FL, Robertson RJ, Irrgang JJ, Myslinski T (2009). J. of Stren and Con. Res. 23: 756-764. Page P, Ellenbecker T (2005). Human Kinetics; 2 edition (November 11), USA.

EFFECT OF HYPOXIC TRAINING AND PILATES TRAINING ON SELECTED BIO MOTOR AND SKILL RELATED VARIABLES OF UNIVERSITY LEVEL SOCCER PLAYERS.

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Introduction: Football or soccer is the most popular sporting event in the world. It is the king of sports. There is not a single country in the world where soccer is not played in some form or other, and it is popular particularly among the youth of the world. “Soccer is the game of educated feet (Mishra,S.C. 2005). Hypoxic (low-oxygen) workout makes the oxygen delivery system more efficient, increasing the strength and endurance up to 40 percent (Guyton, 1990). Pilates training is a physical fitness regimen of repeated exercise and is a holistic approach to well-being and a lifelong process of refinement (Isacowitz, 2006). Method: Participants: Thirty six (N=36) male students who were members of their concerned university soccer team are selected as the subjects. Procedure and Task: They were divided randomly into three groups. Group-1 (hypoxic training), Group-2 (Pilates training) and Group-3 acted as control group. The duration of training was 12 weeks (1 hour per day, four days /week). Hypoxic training and Pilates training are selected as the independent variables where bio-motor variables and soccer skill variables are selected as the dependent variables. Mor-Christian general ability soccer test is used to take soccer skills of subjects. Dependent‘t’ test and ANOVA were used with F-ratio and Scheffe’s post hoc test as needed. Results: The ‘t-test’ scores of group-1, group-2 and group-3 were

for speed (9.26,4.69,0.06) explosive power(3.89,4.27, 0.06), dribbling (5.43,6.41,0.03), passing (7.47, 4.44, 0.20)and shooting (11.09, 12.18, 0.52). Discussion and Conclusions: In all the selected dependent variables, the t-values of both experimental groups were bigger than the table value where the same for control group was lesser than the table value. Hence, the result is significant for the selected variables of study. References: Guyton Arthur C(1990) : Hypoxic Training – A History: Text Book of Medical Physiology, Philadelphia: W.B. Saunders Company. Isacowitz Rael (2006) "Pilates" Champaign, II, USA, Human Kinetics. Mishra, Chandra Sharad.(2005): Handbook of Games. Sports Publication, New Delhi.

THE PROCESS OF CHANGE - PREDICTION OF SPORT ACHIEVEMENTS HISTORICAL TENDENCY.

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Introduction: Sports clearly are an important part of cultures and societies around the world. As we look around us, we see that the Olympic Games, Football's World Cup, , the Tour de France, The athletics World Championships, The Tennis Championships at Wimbledon, and National Basketball Association (NBA) are now worldwide events capturing the interest of billions of people. Questions important to this work include the following: What are the early stages of sports and athletics performance? Development of organized and competitive sport activities, ambiguity of thoughts in regard to sport achievements prediction, and Which are environmental constraints on sport performance? These questions have been raised and have been issues of interest to many researchers in the field of Kinesiology, Sports Psychology and Sociology of sport. Discussion: The organized competitive sports so popular in many parts of the world today are very different from the folk games played before the industrial revolution. Most important, of course are world records. One or more of these traits have characterized physical games during previous historical periods, but not until the 19th century did all seven appear together in what might be called modern sports (Dunning, 1999). Heredity- Environment interactions. How environmental and genetic constrains correlate or interact to shape performance variations in sport and exercise is a question of increasing interest in sport medicine, sports pedagogy, and sports psychology (Baker & Davis, 2006; Brutsaert & Parra, 2006; Pitsiladis, et al., 2006; Bjelica & Petkovic, 2011). Environmental constraints on sports performance. Quantity and Quality of Training. When sport science scientists say that sports are contested activities, they mean that, through history, people have disagreed about what sports could and should be. Current data on genetic and environment constrains on motor skill acquisition are unclear due to a number of methodological weaknesses and conflicting findings, and there is a need for more work to identify genetic and environment mechanisms underlying performance variations, if we want to be more accurate sport achievement predictors. References: Bjelica, D., & Petkovic, J. (2011). The motoric abilities and the morphological characteristics In the prediction of the sports results in karate. Sport SPA, 8(1), 59–63. Pitsiladis, Y., Bale, J., Sharp, C., et al., (2006).editors. East African running: towards a cross-disciplinary perspective. London: Routledge, Taylor & Francis. Wahlsten, D. (1990). Insensitivity of the analysis of variance to heredity- environment interactions. Behav Brain Sci; 13: 109-62.

BONE MINERAL DENSITY PHYSICALLY ACTIVE WOMEN ASSESSED BY ULTRASOUND DESINTOMETRY.

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Introduction: Osteoporosis is a disease characterized by low bone mass and density. Physical activity has a positive effect on bone tissue, and it is recommended to prevent bone loss which comes with age. Methods: In purpose of determining bone mineral density in women who are physically active we examined 35 women divided into two groups – subjects who are premenopausal (n=20, 43.52 ± 7.56 years), and subjects who are postmenopausal (n=15, 55.89 ± 5.48). The subjects exercised Pilates method twice a week for one hour. Bone mineral density measurements were done by ultrasound densitometer „Sahara“ through the calcaneus. We get the data of the estimated bone density and T-score for right and left foot separate. Results: According to results premenopausal women have normal bone density, and postmenopausal values represent osteopenia, according to the WHO. There is no subjects who established osteoporosis. Discussion: Previous investigations have confirmed that physical activity is important for the preservation of the bone quality. Increasing steps, using simple everyday tasks, can prevent decrease in BMD in postmenopausal women (Muir et al., 2013, Ashe et al, 2008). There's difference in the density of the calcaneus between physically active and those who are not, measured by ultrasound densitometry (Vainionpää et al, 2005). We use quantitative ultrasound densitometry to describe BMI of women who exercise Pilates and support the finding that physical activity is one of the ways that may prevent the BMD loss. These research was done as a part of long-term project entitled „Impact of physical activity of the working population“ which is co-financed by Provincial Secretariat for Science and Technological Development. References: Ashe MC, Liu-Ambrose TYL, Cooper DML, Khan KM, McKay HA (2008). Osteoporos Int, 19:1725-1732. Muir JM, Ye C, Bhandari M, Adachi JD, Thabane L (2013). BMC Musculoskeletal, 14, 253. Vainionpää, A, Korpelainen R, leppäluoto, Jämsä T. (2005). Osteoporos Int, 16: 191–197.

THE RELATIONSHIP BETWEEN TECHNICAL TRANING METHODS AND COMPETITION PERFORMANCE IN RHYTHMIC GYMNASTICS.

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Introduction: The aim of this study was to determine the relationship between the different loads of technical trainings methods and competition performance of the competitive rhythmic gymnasts aged 9-11 (10.46 ± 0.59 years) during competition session. Methods: Twenty-four participants were selected from competitive rhythmic gymnasts who were similar in respect to their exercise level and training history from elementary category. The participants were divided into training group (TG: n=12) and control group (CG: n=12). Both groups continued rhythmic gymnastics training in four days (180 minutes/day) a week through 13.5-week, total 54 sessions. The training contents of both groups were same but the training loads were different. All gymnasts' height, weight, nineteen motoric tests [range of motions (ankle, hip, shoulder, trunk), vertical jump, agility (side to side jumps from bench, skipping with the hoop), 20 m speed, visual and auditory reaction times] and 16 compulsory movement elements, eight for without apparatus (WA) and eight for rope apparatus were evaluated before and after 13.5-week. The gymnasts are

evaluated in body and apparatus technical elements by the three international level rhythmic gymnastics judges. WA and rope competition scores were evaluated as performance variables. Results: Multiple regression analyses indicated that a significant ($p< 0.05$) correlation observed among motoric features, repetitions of compulsory movements, repetitions of routines, and the final score of WA and rope routines but they were related mostly with routine score of WA. It has been determined that the repetition number in composition effected composition score besides technical level of compulsory elements ($p< 0.05$). Motoric features, apparatus and body technical levels in both groups developed during three months but these differences in TG were higher than the CG ($p< 0.05$). The competition total score of TG (2.54 points) were significantly ($p< 0.05$) higher than the CG (0.92 points). Discussion: In conclusion, new regression models were developed to estimate WA and rope routines scores using some motoric features, repetitions numbers of compulsory movements and repetitions numbers of routines. The training program which was presented are offered in order to be used as a model for a competition session because it provides as an important increase in the performance development especially in the elementary categories in which compulsory elements take part. References: Jemni M (ed.) (2011) The Science of Gymnastics. Routledge. Jastrjembskaia N, Titov Y. (1998) Rhythmic Gymnastics. Champaign (IL): Human Kinetics.

THE EFFECT OF SINGLE LEG HOP PROGRESSION AND DOUBLE LEGS HOP PROGRESSION EXERCISE TO INCREASE SPEED AND EXPLOSIVE POWER OF LEG MUSCLES.

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Introduction: The main purpose of this study was to determine the effect of single leg hop progression and double legs hop progression exercise to increase speed and explosive power of leg muscles. Plyometric is one of the training methods that can increase explosive power. There are many models of plyometric training including single leg hop progression and double leg hop progression. Methods: This research was experimental using match subject design techniques. The subjects of this study were 39 students who joined basketball school club. There were 3 groups in this study: Group 1 were 13 students who given single leg hop progression exercise, Group 2 were 13 students who given double legs hop progression exercise, Group 3 were 13 students who given conventional exercise. The data was collected during pre test and post test by testing 30m speed running and vertical jump . The data was analyzed using Analysis of Varians (Anova). Results: It was found that there were significantly increase on speed and explosive power of leg muscles of Group 1 and Group 2. It can be stated that single leg hop progression exercise was more effective than double leg hop progression exercise. Discussion: The recent findings supported the hypothesis that single leg hop progression and double legs hop progression exercise can increase speed and explosive power of leg muscles. These finding were supported by some previous studies (Singh, et al, 2011; Shallaby, H.K., 2010). The single leg hop progression is more effective than double legs hop progression. This finding was consistent with some previous evidences (McCurdy, et al, 2005; Makaruk et al, 2011). References: Makaruk H, Winchester JB, Sadowski J, Czaplicki A, Sacewicz T (2011) J Strength and Cond, 25 : 3311-3318. McCurdy KW, Langford GA, Doscher MW, Wiley LP (2005). J Strength and Cond, 19 (1): 9-15. Shallaby, HK. (2010). World J Sport Sciences, 3 (4): 316-324. Singh, B. (2011). Brazilian J Biomotricity, 5 (4): 271-278.

EFFECTS OF PLYOMETRIC TRAINING ON THE MOTOR ABILITIES OF TENNIS PLAYERS.

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Introduction: Plyometrics is a training method that uses an overload (Chu, 1983), and the main purpose of plyometric training is the development of greater reactive force (Allerheiligen & Rogers, 1995). Sports physiologists agree that plyometrics includes specific exercises that cause significant stretching of muscles located below the eccentric contraction, and followed by a strong concentric contraction, which is used for the development of a strong movement in a short period of time (LaChance, 1995). The aim of the research is to identify and analyze the transformative effects of plyometric exercise program on the manifest dimension of strength, agility and speed running experimental group of players. Methods: The sample consisted of 50 players were aged 17.5 years (± 6 months), who were divided into two groups. One group consisted of 25 tennis players TK "Gemaks" from Belgrade who represented the experimental group, while the second group included 25 tennis players TK "AS" from Belgrade who represented the control group. For evaluation of motor abilities used 4 tests. In order to determine differences between groups of respondents in the initial and final measurement was applied univariate analysis of variance. In order to determine the effect of training programs between the two tests was applied univariate analysis of covariance. Results: This research has proven that plyometric training, which was applied to a group of tennis players from Belgrade for a period of three months, youth ages contributed to improving their motor abilities, primarily explosive strength and agility. Discussion: Practice plyometric program combined with regular training for the development and improvement of techniques tennis game showed excellent results in order to improve the explosive leg strength, agility tennis players eksperimenatlne groups, and proved to be positive in working with junior tennis players ages. Research have shown that the development of explosive energy efficient stimulus muscle strain in the so-called. "Primetime" regime of strain that was applied through plyometric training tennis players experimental groups (Bacic et al, 2006). References: Allerheiligen, B. & Rogers, R. (1995). Plyometrics Program Design. Strength Conditional Journal, 17 (4): 26–31. Bacic, Ivanisevic and Tudor (2006). Application of plyometric training in the conditional training tennis players. In Findak, V. (Eds.), Proceedings of "The quality of work in the areas of education, sports and recreation" (402-404). Rovinj: Croatian Kinesiology Association. Chu, D. (1983). Plyometrics: The Link Between Strength and Speed. Strength Conditionaln Journal, 5 (2): 20–21. LaChance, P. (1995). Plyometric Exercise. Strength Conditional Journal, 17, (4): 16–23.

THE INFLUENCE OF SOME ANTHROPOMETRIC CHARACTERISTICS AND MOTOR ABILITIES ON AGILITY IN YOUNG FEMALE VOLLEYBALL PLAYERS.

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Introduction: The success in volleyball certainly depends on the morphological characteristics of the formed volleyball players, of which the basic body height and weight, which can be valorized in view of the current age of volleyball players (Marelić et al, 2008). As in all sports activities, as well as volleyball, no technical element can not be performed without adequate motor abilities and fully manifested without rational techniques of performing motion. The aim of this research is to determine whether there is a statistically significant correlation between certain anthropometric characteristics and motor abilities in

relation to the agility of an isolated motor abilities that are the subject of this research. Methods: In a sample of 16 selected girls aged 14 to 16 years (cadet age) participating in the camp Becej 2006, were measured two anthropometric measures for evaluation of morphological characteristics, three tests for evaluation of motor abilities (both as predictor) and two tests for assessing agility (as criterion). The influence of some anthropometric characteristics and motor abilities on agility in young female volleyball players lities was performed by regression analysis. Results: It can be concluded that the system applied predictor variables showed no statistically significant association with variable Japan test, while the variable Jelka test a statistically significant correlation. Discussion: Based on the overall analysis of the obtained results it was discovered that the explosive power (long jump from the place) and the speed of individual movements (hand tapping) have a high level of correlation with agility were detected in female volleyball players, which is based on previous research (Vukovic, 1989) was and expected. Similar results were also other researchers (Webb and Lander, 1983; Negrete and Brophy, 2000). References: Marelić, N., Djurkovic, T. and Rešetar, T. (2008). Differences in fitness abilities and morphological characteristics of female volleyball players of different status in the team. Croatian Sports Medicine Journal, 23 (1), 30-34. Negrete, R., and Brophy, J. (2000). The relationship between isokinetic open and closed kinetic chain lower extremity strength and functional performance. Journal of Sports Rehabilitation, 9, 46-61. Vukovic, M. (1989). The structure of psychosomatic dimension volleyball players and their differences in relation to the level of competitive activity. Unpublished doctoral dissertation, Novi Sad: Faculty of Physical of culture. Webb, P. i Lander, J. (1983). An economical fitness testing battery for high school and college rugby teams. Sports Coach, 7(3), 44-46.

DIFFERENCES IN DIAGNOSTIC PROCEDURE OF FMS WITH CHILDREN AND SENIOR REPRESENTATIVE TKD ATHLETES.

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Introduction: Functional movement screening (FMS) diagnostics is used as "field" diagnostics for predicting injury. The aim of this project is to determine whether there are differences in diagnostic procedure of a FMS test (deep squat test) with children and senior representatives of TKD. The secondary aim is to determine differences among segments of one of the FMS tests (deep squat) and to compare it among groups of children and adult athletes of the same sport - Tae Kwon do (TKD). Methods: The sample consists of 30 children (19 f and 11 m athlete children) in one group, and senior representatives TKD athletes (7 m and 7 f athletes) in the second group. The children have been in training approximately a year, while the representatives have been in TKD training for 5 years or more. ANOVA analysis has been used to determine differences among groups, and the same method of determination of differences among test segments (used to evaluate directly) between groups. Results: Results showed no statistically significant difference in the variable of the squat (overhead squat test) between groups of children and adult athletes in TKD sport, and between four segments within the same variable (deep squat test) have shown statistically no significant differences among the tested groups. Discussion: The obtained results which have not shown a statistically significant difference among groups of different ages under different treatments of the same sport tell us about the influence the TKD sport has on the athlete's body. Children athletes do not differ from top athletes in this diagnostic test which gives us a prediction of injury and the possibility of a sport career extension. According to Cook and associates (2014) based on the functional movement screening we can predict an athlete's injury as it gives us countervailable movements while

performing functional movements. The result values, according to segments, in children compared to adult athletes of TKD do not make any statistical difference between groups, suggesting the usefulness of practicing this sport with the purpose of maintaining functional movement. References: Cook, G., Burton, L., Hoogenboom, B. J., & Voight, M. (2014). FUNCTIONAL MOVEMENT SCREENING: THE USE OF FUNDAMENTAL MOVEMENTS AS AN ASSESSMENT OF FUNCTION‐PART 1. International journal of sports physical therapy, 9(3), 396. Cook, G., Burton, L., Kiesel, K., Rose, G., & Bryant, M. F. (2010). Movement: Functional Movement Systems: Screening. Assessment, Corrective Strategies. On target Publications. This work has been supported by the Croatian Science Foundation under the project number [6524].

ASSESMENT OF A NEW METHOD HIGHLIGHTING COGNITIVE ATTRIBUTES WITH TABLE TENNIS ATHLETES.

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Introduction: Table tennis is among sports that are difficult to learn and perform. The athlete has to perceive the ball within a small space, in various rotations, aiming at different points on the table in various speeds, and perform the correct action. Furthermore, the athletes have to develop a game plan to scrutinize their opponent rapidly, mend their fences and attack their opponents' weaknesses. Thus, assessing and improving the athletes' attention, perception, fast learning and adaptation skills are of significant importance in training top-tier athletes. This study evaluates fast learning, visual perception and adaptation skills of national athletes using Selective Action Array, developed recently for the study. Methods: Out of 2014 Balkan Youth Table Tennis Championship athletes, 11 male and 11 females participated in the study. For the Selective Action Array, a table tennis robot was utilized. Robot was set up to send a total of 26 balls in 3 different colors (6 whites, 10 yellows, 10 pinks) to different areas of the table, in random colors and at the rate of 90 balls per minute. The participants were asked to ignore the white balls, to touch the yellow balls and to grab the pink balls using their dominant hands. Pursuant to explaining the task to the participants, two consecutive trials were executed and recorded using a camera. Every action performed/not performed by the participants was transformed into points in the scoring system. Results: First trial total points in the Selective Action Array were 124±15 for males and 108±13 for females, whereas on the second trial the total points were 136±15 and 119±8, respectively. The higher scores obtained in the second trial were significant. Success rates for males were higher than females in both trials based on the percentage of correct actions executed in relation with the ball. The most significant difference between males and females was observed in white ball success rates. The highest increase in the rate of success in the second trial as compared to the first was observed in yellow balls for females and in pink balls for males. Table tennis players usually react to every ball on their side of the table; hence our request to ignore the white balls in our selective action array became a handicap for all. Discussion: The study aimed to evaluate the adaptation skills, learning speed, focus span and visual perceptions of athletes quantitatively via our experimental Selective Action Array. This method, which could also be applied to other sports branches, could introduce a different point of view to evaluate cognitive attributes, which are as important as condition and motor skills in sports.

INITIAL AND FINAL VALUES AND RESULTS IN CROSS - COUNTRY RUNNING OBTAINED BY DESCRIPTIVE ANALYSIS.

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Introduction: In this work, examinees are adult males, 22 – 24 years of age, students of Faculty of Sport and Physical Education based in Leposavić. The survey was conducted on a sample of 141 examinees divided into three experimental groups - EG1 (N=38), EG2 (N=40) and EG3 (N=43). Groups were uniform regarding the criterion of treated variables. Methods: According to general methodological approach, this research paper has longitudinal character and it is defined as an experiment with parallel groups where all groups are experimental. Results: Complete statistical mass, that is unprocessed data, was grouped into five characteristic collections of data: [1] The first collection is composed of results of anthropometric measurements which had no direct significance for the research, but were taken into account when maximum oxygen consumption was defined. [2] The second and the third collections of data are systematized according to whether data were obtained by final (before the experimental treatment) or initial (immediately after the experimental treatment) measurement of functional indicators. Four statistical series within the second and the third collection of data were identified: three series referring to heart rhythm (frequency in state of rest and state of work, as well as their differentiation) and one group referring to maximum oxygen consumption estimated by direct method according to Von Dobeln. [3] The fourth and the fifth collections of data contain results of criterion variable realised by initial and final measurements of cross country race on 5000 meters. Discussion: The obtained results coincide with the results of surveys conducted on similar samples up to now. Namely, body height had empirical arrangement which was coming closer to normal distribution and that once again proved to be the most representative morphological dimension with mass characteristic. Empirical arrangement of the results obtained by measuring body mass deviates significantly from normal, considering that the results showed so-called positive asymmetry, that is, they were positioned quite towards weaker values. It can be explained by particularities of a sample which was selected in advance as a group of subjects with aptitude for doing sports and in that way with exceptional longitudinal dimensionalities in relation to body volume and body mass. References: Keler, B. 1980: Teorija atletike, (Theory of Athletics), Zavod za fizičku kulturuVojvodine, Novi Sad. Petrović, D; Marinković; A. 1978: Telesno vaspitanje studenata (Physical Education of Students), ICS, Beograd. Stefanović Đ. 1988: Tehnika i metodika atletike (Technique and Teaching Methods of Athletics), Fakultetfizičkekulture. Beograd. Stefanović R. Atletika 2012, (Athletics) Fakultet za sport i fizičko vaspitanje, Leposavić.

COMPARATIVE ANALYSIS OF RESULTS OF INITIAL AND FINAL MEASUREMENTS IN CROSS - COUNTRY RUNNING.

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Introduction: Three training programmes were projected to be used in the experiment. The first experimental programme of the first group (EG1) was created on the principles of continuous running. It referred to running in nature where all training sections are run at relatively constant speed (arithmetic

mean of speed change was not above the value of +/- 3%) . The second experimental programme was created on the principles of discontinued running, with running in the sports hall on a specific cross-country running assault course comprising benches, mats, sponges and a spring board. The third experimental programme was created on principles of equal use of continuous and discontinuous running. Methods: According to methodological approach, this work is a research survey and has longitudinal character and it is defined as an experiment with parallel groups where all three groups are experimental. It was projected that three training programmes were used in the experiment that is methods of work in the scope of 24 training stimulanses. On the basis of defined subjects, aim and tasks of the research, as well as on the basis of relevant literature, one general (HG) and four subsidiary hypotheses were set (H1-4). Results: By comparing arithmetic means of body height and body mass, three separate subsamples of students did not have statistically significant difference. On this basis it can be concluded that the two chosen anthropometric parameters did not have influence as a block factor on the subsequent results, first of all in Von Dobeln's test of maximum oxygen consumption. In other words, it can be confirmed that subsamples were homogenous in their morphological status. Discussion: From the aspect of theory of athletics, results of the survey showed that all three previously mentioned training programmes have influence on improvement of aerobic capacities in cross country running on 5000 meters, manifested through better result. However, it can be noticed that continuous method of work has minimum advantage over other methods. Practical value of this paper is reflected in direct carrying out of programmed teaching of cross country running on terrain with the aim to use efficient training methods for students of faculties of physical education in our country. It practically means that students can have good quality preparation for cross country running by using any of these training methods depending on conditions of work. It is supposed that students prepared in this way would bear the effort significantly easier, achieve better result and recover faster. References: Dick, F. 1980: Trening vrhunskih atletičara (Training of Top Athletes), Partizan, Beograd. Petrović, D; Marinković; A. 1978: Telesno vaspitanje studenata (Physical Education of Students), ICS, Beograd. Stefanović Đ, Stefanović R 2002;Teorija i metodika atletike, (Theory and Teaching Methods of Athletics) Beograd; Samostalno izdanje autora.

Poster Presentations

Adapted Physical Activity

USING ELEMENTS OF PEER TUTORING TO SUPPORT INTERACTION OF PUPILS IN INTEGRATED PHYSICAL EDUCATION.

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Introduction: Students' attitudes and behaviors towards their peers with disabilities are important to their mutual co-existence and development. Implementation of elements of the educational strategy is a phenomenon of general physical education in the Czech Republic. It is known abroad as peer tutoring. The aim was to describe the specifics of the selected elements of peer tutoring in the context of an integrated physical education from the first to fourth grade of primary schools. Method: Totally 105 students (59 boys and 46 girls) from four different elementary schools were collected on videotapes and analyzed using the Computerized Evaluation Protocol of Interactions in Physical Education (CEPI-PE). This model is designed for observation and recording the interactions of behavior in the integrated physical education in three main categories: (1) educational, (2) physical and (3) social. The average age of target group was 8.5 (±1.5) years. Four students of the whole group had moderate and mild physical disabilities (cerebral palsy). All pupils attended elementary school and were included in general education settings. All classes were 45 min in length and held twice per week. The article is based on research approaches of observation – a chronological writing course of teaching units with the aim to measure the social interactions. Results: With detailed analysis, we reviewed that the advice of qualified peer during integrated physical education increase the interaction behavior between pupils with special educational needs and other peers without disabilities. Discussion: It is important to focus on external elements that contribute to a better understanding of factors involved in increased level of participation through peer tutoring and peer cultures. Furthermore, such studies can extend analysis of various factors that contribute to the integration process. Acknowledgments: This report was written as part of the project "Support for the creation of excellent teams and intersectoral mobility at Palacky University in Olomouc II." Reg.no. CZ.1.07/2.3.00/30.0041. References: Murata, N. M., Hodge, S. R., & Little, J. R. (2000). Students' attitudes, experiences and perspectives on their peers with disabilities. Clinical Kinesiology, 54 (3), 59-66. Campbell, J., & Gilmore, L. (2003). Changing student teachers' attitudes towards disability and inclusion. Journal of Intellectual & Developmental Disability, 28 (4), 369-379. Klavina, A. (2007). The Effect of Peer Tutoring on Interaction Behaviors in Inclusive Physical Education. Dissertation work. Latvian Academy of Sport Education, Department of Sport Medicine and Physical Therapy, Riga. Butler, R. S., & Hodge, S.R. (2004). Social Inclusion of Students with Disabilities in Middle School Physical Education Classes. Research in Middle Level Education Online, 27(1). 256 - 267.

ADAPTED SWIMMING TRAINING FOCUSED ON IMPROVEMENT OF PSYCHOPHYSICAL STATUS OD ELDERLY PEOPLE.

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Introduction: In developed countries chronological age from 65 is often mentioned as age limit when elderly age begins, and which is featured by significant changes in organic functions as well as social relations. Thanks to qualitative medical care and contemporary ways of treatment, an average lifetime has been prolonged. Therefore, according to some data in developed countries of Western Europe, each fourth inhabitant is older than 65. However, there psychophysical abilities are very weak, and health is bad, which directly influences reduction in life quality. Methods: Adapted physical activities in water adjusted to abilities and health state of elderly people give a series of advantages in comparison to exercises that can be done outside water. For that reason, in those conditions effect of gravity is reduced, so PTO-skeletal system suffers a lot less burden than at practicing on dry. Taking into account that postural system with elderly people is often damaged, great advantage at exercising in water enables horizontal position that a person takes. That beneficially influences first of all the spinal cord, which is in horizontal position disburdened from gravity influence which beneficially affects spinal disease. Results and discussion: Results of numerous researches indicate that swimming harmonically burdens organism so that almost all musculature of upper and lower extremities, belly and pelvis area. Swimming accelerates blood circulation, heart gets more blood which directly affects increase in minute volume. Eventually it all brings to fortification of heart muscle and more permanent increase of its functional abilities. Possibility of precise dosing of burden in swimming enables excellent way of therapy with elderly people and those with damaged heart. Besides, activated musculature enables fast relaxation of organism and restore of all vital cardio respiratory functions to the level of standard work ability of a man. References: Corbin B. C., Linsday R., Welk J. G., Corbin. R. W.(2002.).Concepts of fitness and wellness, Mc Graw Hill, New York, USA, 234-238. Sidman D. (2001.). Izvor dugovječnosti, Mozaik knjiga, Zagreb,45-56. Strunz U. (2002.). Forever young, HENA com, Zagreb,24-34.

THERAPEUTIC RIDING FOR HANDICAPPED PEOPLE.

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Introduction: Hippotherapy is the more physical implementation of therapeutic riding (All, Loving, & Crane, 1999). The program implements a therapist (physiotherapist, occupational or speech therapist) with additional training in the field of hippotherapy. Other techniques can be integrated (ie Bobath, sensory integration, proprioceptive neuromuscular facilitation, kinesiology by Vojta) in order to create balance and a sense of symmetry, to stimulate reactions to normal movement facilitated by the user being on horseback. In hippotherapy the main aim is not to learn to ride, but to adapt the body to the movement of the horse. This can be the foundation of learning riding skills through a gradual transition to a more advanced program. Primarily, the aims of hippotherapy are physical: improving function, posture, balance and mobility. Therapies are conducted individually, lasting 20-30 min. Thus, the purpose of this study was to give basic information about therapeutic riding for handicapped people. Method: The information listed here was gathered from internet and specialist in therapeutic riding and then analyzed by the researcher.

Result: The result of the internet search and suggestions from the specialist showed that therapeutic models applied in hippotherapy, transferring the motion of a walking horse, equipment used, team members and job division in hippotherapy are very crucial factors in therapeutic riding for handicapped people. Discussion: As a result of this study, I suggest to the specialist working in the area of therapeutic riding for handicapped people that they need to consider the elements stated above. For transferring the motion of a walking horse; pelvic thrusts and frequency of steps per minute are two main factors. For equipment used; ramp and mounting-dismounting horseblock, safety helmets, false saddle and soft fleece covers for the saddle, girth, saddle, stirrups, and special equipments in hippotherapy are important factors. For team members and job division in hippotherapy; the therapeutic horse, the patient/user, the hippotherapy, and horse leaders, family/guardians of the patient are important. Thus, even though therapeutic riding for handicapped people is very effective and beneficial, there are many factors that the specialists should take into account. Most of the information used in this study was shaped in a European Project called "Taught me how to walk". Reference: All, A. C., Loving, G. L., & Crane, L. L. (1999). Animals, horseback riding, and implications for rehabilitation therapy. Journal of Rehabilitation, July/August/ September, 49-57.

Biomechanics

THE EFFECT OF LONG-DISTANCE RUN ON LOWER EXTREMITY FUNCTIONAL PERFORMANCE.

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Introduction: Knee injuries represent more than 50% of all injuries in agility sports (Hootman, Dick, & Agel, 2007) and are also the most common in endurance sports such as running (Van Gent et al., 2007). The purpose of this study was to analyse the effect of long-distance run, and the accompanied systemic fatigue, on selected parameters of lower extremity movement functions. Methods: Twenty-six healthy amateur runners participated in the study (41.6 ± 10.9 years). The participants were tested before and after the individuals common race distance endurance run (8 km to 42 km) using the following test battery: (i) bilateral drop jump, (ii) unilateral landing, (iii) unilateral repetitive hopping, (iv) forward lunge, and (v) maximal voluntary contraction of knee flexion/extension and ankle plantar/dorsal flexion. Force plate (9260AA6, Kistler AG, Switzerland) and isometric dynamometers (S2P Ltd, Slovenia) were used. Pariwise t-test ($p<0.05$) was applied. Results: For drop jump only height change significantly ($p = 0.000$). During landing task there was no statistically significant difference for stability index in medial-lateral direction ($p = 0.129$) while other stability indexes were significant ($0.007 < p < 0.045$). Relative impact force as parameter of the forward lunge task was significant ($p = 0.021$) while total force impulse showed a slight tendency toward significance ($p = 0.079$). Repetitive hopping revealed the significant difference only for parameters calculated from vertical force ($0.013 < p < 0.050$) while contact time was not statistically significant ($p = 0.664$). Among maximal voluntary contraction tasks, statistically significant pre and post long-distance run changes were observed only for knee extension task ($0.003 < p < 0.012$). There was no statistically significant difference for knee flexion, ankle dorsiflexion and ankle plantar flexion ($0.064 < p < 0.948$). Discussion: Decreased single-legged landing stability indexes confirmed our hypothesis that endurance run affects dynamic functional stability of lower extremities which can lead to increased injury risk. Among the tested muscle groups, only knee extensors decreased in their maximal strength and explosive strength

performance. Comparable changes were mirrored also in jumps performance. However, the changes in functional stability was probably a result of fatigue and decreased performance of stabilization muscles of the lower extremities which we did not tested for strength capacity. References: Hootman, J. M., Dick, R., Agel, J. (2007), J Athl Train, 42(2), 311–319. Van Gent, R. N., Siem, D., van Middelkoop, M., van Os, A. G., Bierma-Zeinstra, S. M. A., Koes, B. W. (2007), Br J Sports Med, 41(8), 469–480.

Coaching

BODY HEIGHT AND ITS ESTIMATION UTILIZING ARM SPAN MEASUREMENTS IN FEMALE ADOLESCENTS FROM CENTRAL REGION IN MONTENEGRO.

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Introduction: Anthropologists recognized the tallness of nations in the Dinaric Alps long time ago (Popovic et al, 2013). As the modern Montenegrins fall partly into the Dinaric racial classification (Bjelica et al., 2012), the purpose of this study was to examine the body height in Montenegrin female adolescents from central region as well as the relationship between arm span as an alternative to estimating the body height, which would vary from region to region in Montenegro. Method: Our investigation analyses 593 female adolescents from the central region in Montenegro. The anthropometric measurements were taken according to the protocol of the International Society for the Advancement of Kinanthropometry (ISAK). Means and standard deviations regarding the anthropometric measurements were obtained. A comparison of means of body heights and arm spans within this gender group were carried out using a t-test. The relationships between body height and arm span were determined using simple correlation coefficients and their 95% confidence interval. Then a linear regression analysis was performed to examine the extent to which the arm span can reliably predict body height. Results: The results displayed that female Central-Montenegrins are 169.24±11.61cm tall and have an arm span of 168.03±10.34cm. Discussion: Compared to other studies, the results of this study have shown that this gender made Central-Macedonians the tall population, taller than general female population in Montenegro (Bjelica et al., 2012). On the other hand, expectably, the arm span reliably predicts body height in this gender. However, the estimation equations which have been obtained in Central-Montenegrins are, different alike in general population, since arm span was shorter than the body heights (1.21±1.27 centimetres), much more than in general population (Bjelica et al., 2012). This confirms the necessity for developing separate height models for each region in Montenegro. References: Popović S, Bjelica D, Molnar S, Jakšić D, Akpinar S (2013). International Journal of Morphology, 31(1), 271-279. Bjelica D, Popović S, Kezunović M, Petković J, Jurak G, Grasgruber P (2012). Anthropological Notebooks, 18(2), 69–83.

BODY HEIGHT AND ITS ESTIMATION UTILIZING ARM SPAN MEASUREMENTS IN MALE ADOLESCENTS FROM CENTRAL REGION IN MONTENEGRO.

Vujović, D.[1], **Muratović, A.**[1], **Tanase, G.D.**[1], **Bubanja, M.**[2], **Milašinović, R.**[2]
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Introduction: Anthropologists recognized the tallness of nations in the Dinaric Alps long time ago (Popovic et al, 2013). As the modern Montenegrins fall partly into the Dinaric racial classification (Bjelica

et al., 2012), the purpose of this study was to examine the body height in Montenegrin male adolescents from central region as well as the relationship between arm span as an alternative to estimating the body height, which would vary from region to region in Montenegro. Method: Our investigation analyses 548 male adolescents from the central region in Montenegro. The anthropometric measurements were taken according to the protocol of the International Society for the Advancement of Kinanthropometry (ISAK). Means and standard deviations regarding the anthropometric measurements were obtained. A comparison of means of body heights and arm spans within this gender group were carried out using a t-test. The relationships between body height and arm span were determined using simple correlation coefficients and their 95% confidence interval. Then a linear regression analysis was performed to examine the extent to which the arm span can reliably predict body height. Results: The results displayed that male Central-Montenegrins are 183.66±6.93 cm tall and have an arm span of 184.99±8.30cm. Discussion: Compared to other studies, the results of this study have shown that this gender made Central-Macedonians the tall population, taller than general male population in Montenegro (Bjelica et al., 2012). On the other hand, expectably, the arm span reliably predicts body height in this gender. However, the estimation equations which have been obtained in Central-Montenegrins are, different alike in general population, since arm span was closer to body heights (1.33±1.37 centimetres), more than in general population (Bjelica et al., 2012). This confirms the necessity for developing separate height models for each region in Montenegro. References: Popović S, Bjelica D, Molnar S, Jakšić D, Akpinar S (2013). International Journal of Morphology, 31(1), 271-279. Bjelica D, Popović S, Kezunović M, Petković J, Jurak G, Grasgruber P (2012). Anthropological Notebooks, 18(2), 69–83.

THE RELATIONSHIP AMONG TRANSACTIONAL AND TRANSFORMATIONAL LEADERSHIP, EXERCISE SATISFACTION, AND COACHING EFFECTIVENESS OF DANCE SPORTS COACH.

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Introduction: The purpose of the study is to examine the relationship among transactional and transformational leadership, exercise satisfaction, and coaching effectiveness of dance sports coach. Method: To accomplish the purpose of the study, participants of sport centers and dance sports institutes located at Seoul are subjected to questionnaire based on convenience sampling. 300 participants fill out the questionnaires by using self-administration method and 248 are used for final data analysis excluding the questionnaires of poor, insufficient, dishonest, biased, and duplicated answers. By utilizing SPSS 17.0, frequency analysis, exploratory factor analysis, reliability analysis, and multiple regression analysis are implemented and the results based on the purpose of study and method are as follows. Discussion and Conclusion: First, transactional leadership of dance sports coach influences on exercise satisfaction. Second, transformational leadership of dance sports coach influences on exercise satisfaction. Third, exercise satisfaction of dance sports coach influences on coaching effectiveness.

Health and Fitness

ACUTE EFFECTS OF STATIC STRETCHING ON SOME BIOMOTORIC FEATURES.

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Introduction: The purpose of this study was to examine the acute effects of static stretching on some biomotor features of sedentary youth who were aged 12-14 years. Methods: A total of 34 boys were randomly divided into control (n: 19) and exercise group (n: 15) who performed static stretching. Anthropometric tests, knee flexion range of motion test, seat and reach flexibility test, squat (SJ) and counter movement jump (CMJ) tests, 30 meter sprint test, knee flexor and extensor isokinetic strength tests were performed before and after static stretching exercises. All subjects and their parents received a verbal description of the experiment and completed a written, informed consent form. Subjects in both groups participated in an orientation session about static exercise practicing and laboratory tests prior to testing procedures. The static stretching exercise was performed three times, 30 sec practice and 15 sec rest (Zimmer and et. al., 2007) for each leg only on five muscle groups (Murphy, 2008): plantar flexors, hip extensors, hamstrings, hip flexors, and quadriceps femoris. Results: According to research results there is no significant difference between control and stretching groups according to age, height, body mass index, body fat percent, fat mass, fat free mass. There is no significant difference for control group according to all selected biomotor feature test results. There is a significant difference on knee range of motion, sit and reach test and sprint test results but there is no significant difference on SJ and CMJ and 60-240 degree/sec. isokinetic strength results. As a summary of results, it was also determined that static stretching exercise have a positive acute effects on flexibility performance, knee range of motion but have negative acute effect on sprint performance in 12-14 years old boy. Discussion: In numerous studies have shown that static stretching before athletic performance may actually have a positive effect on flexibility, a negative effect on jumping performance (Behm and Kibele, 2007; Cornwell et.al. 2002) but some studies have shown no effect on jumping performance (Murphy, et.al. 2010), on power (Dalrymple et al., 2010). References: Behm D, Kibele, A (2007). Euro J Appl. Physiol, 101, 587-594.Cornwell A, Nelson A, Sidaway B (2002). Euro J Appl Phy, 86, 428-434. Darlymple KJ, Davis SE, Dwyer GB, Moir GL (2010). J Strength Cond Res, 24, 149 ‐ 155. Murphy JC (2008). Effect of Acute and Static Stretching on Maximal Muscular Power in a Sample of College Age Recreational Athletes, Doctorate Thesis, University of Pittsburgh, USA. Murphy JC, Nagle E, Robertson RJ, Mccrory JL (2010). Int. J. of Exercise Science, 3(4), 214-224. Zimmer A, Burandt A, Kent C (2007). J of Under Kines Research, 3(1), 52-61.

THE RELATIONSHIP BETWEEN FORCE AND CARDIORESPIRATORY FITNESS IN BODYBUILDER ATHLETES.

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Introduction: Cardiorespiratory endurance has long been recognised as one of the fundamental components of physical fitness. (1,2)The goal of this study was to investigate the correlation between cardio respiratory fitness and force in bodybuilders. Methods: 27 participants took part in the study (22 years SD 3.9). The participants were regularly bodybuilder that took part in national championship in

Albania. Drop jump test were used measuring force using a force plate and ergometer with increase load to evaluate cardiorespiratory fitness. Results: Descriptive statistics show an average of 42.1 N/kg (Sd 10.8) and 33.4 ml/kg/min (Sd 4.9). Results from Pearson correlation analysis showed that there were significance correlation between variables (r= 0.6 p= 0.007). Discussion: In conclusion the results of this study show the importance of improving cardiorespiratory fitness during training and its significance correlation with force in bodybuilders. References: Astrand P-O, Rodahl K. Textbook of work physiology. New York: McGraw-Hill Book Company, 1986. Maughan RJ. Marathon running. In: Reilly T, Snell P, Williams C, et al., editors. Physiology of sports. London: Spon, 1969: 121-52.

Motor Learning

RELATIONS BETWEEN MORPHOLOGICAL CHARACTERISTICS AND ACCURACY OF KICKING A BALL BY YOUNG FOOTBALL PLAYERS.

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Introduction: Kicking a ball with foot or head are the basic elements of football, which can raise the efficiency of the game in terms of speed of action in terms of scoring goals. This is also the reason why the shot needs to be performed in a timely manner, usefully, and also quickly. The most commonly used kick in football is a inner-side instep kick, which is also the most accurate and the most used among the players (Cabri, De Prof, Dufour, & Clarys, 1998). Success in performing precise actions largely depends on the precision of locating targets in space, and therefore the role of our receptors is crucial for a successful precision (Szekeres, Santrač, Radosav, Toplak, Miljanić, 1994). The research problem was establishing the predictive impacts of morphological characteristics on the elevation accuracy of hitting the ball in young players. The subjects of the study were morphological characteristics and accuracy of the players. Aim of the paper was to determine the relation between morphological characteristics and precision of players aged 13-14 years from the Municipality of Loznica. Method: 50 players of the FK "Kabel" from Novi Sad, aged 13-14 years, were subjected to testing. Measurement of morphological characteristics was conducted. Specific (elevation) accuracy of hitting the ball towards the vertical and horizontal objective was also tested. By using the statistical analysis firstly the basic descriptive statistics of variables were determine. In order to determine the size of the impact of anthropometric characteristics on motor skills – precision, linear regression analysis was used. Results: Regression analysis showed that there was no statistically significant effect of the predictor system of morphological variables on the criterion variables tested: Precision of kicking the ball towards a horizontal target and Precision of kicking the ball towards a vertical target. The results pointed to the fact that some other characteristics and capabilities have greater influence on the manifestation of elevation precision of kicking the ball towards the horizontal and vertical target, in young players. Discussion: Research results indicated that there was no statistically significant effect of the predictor system composed of anthropometric characteristics on assessment of longitudinallity of skeleton and body volume regarding the test criteria. References: Cabri, J., De Prof, E., Dufour, W. & Clarys, J.P. (1998.). The relationship between muscular strength and kick performance. In: Reilly T, Lees A, Davids K, Murphy W, eds. Science and football. London, (str. 168-93), United Kingdom: E. and F. N. Spon. Sekereš, S., Santrač, S., Radosav, R., Toplak, I., Miljanić, M. (1994). Jugoslovenska škola fudbala. Novi Sad: Zavod za fizičku kulturu i vaspitanje.

QUANTITATIVE AND QUALITATIVE DIFFERENCES OF MORPHOLOGICAL CHARACTERISTICS AND EXPLOSIVE STRENGTH OF LEGS IN UNDER-16 FEMALE AND MALE VOLLEYBALL PLAYERS.

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Introduction: In order to achieve an advantage over the opponent, all the game elements, for which it is possible, are tended to be performed by jumping (Ziv & Lidor, 2010). This is supported by the fact that research of vertical jumping ability of volleyball players of different levels, found that players at a higher level of competition also achieve better results on tests of the assessment of vertical jumping ability (Forthomme, Croisier, Ciccarone, Crielaard, & Cloes, 2005). The research subject was aimed at detecting the difference between male and female volleyball players in morphological characteristics and explosive strength of legs, as well as determining the size of the impact of morphological characteristics of the explosive power of the lower limbs between groups formed on the basis of gender dimorphism. Method: The sample in this study was derived from a population of volleyball players of OK "RFU" from Futog, N=27 and female volleyball players of ŽOK "Futog" from Futog, N=38. For the purposes of this research morphological characteristics were measured. By using MANOVA and ANOVA differences were determined between the two sub-samples of respondents formed on the basis of gender dimorphism regarding the analyzed morphological and motor variables. In order to determine effects of the system of predictor variables on the criteria variables we used Linear Regression Analysis. Results: Statistically significant differences were observed for the variables Body height, Legs length and Lower-leg circumference, as well as for all three motor variables: Spike jump, Standing triple jump and Standing vertical jump in favor of volleyball players. Linear Regression Analysis revealed the impact of the predictor system of morphological characteristics on the criterion Spike jump in both subsamples. It was found that Body height gives the highest contribution to achieving better results regarding the height reached during spike jump in both groups. Common variability for both groups ranged from 46% in male volleyball players to 59% in female volleyball players. Discussion: Based on the values of obtained results it can be concluded that at this age and in this groups of athletes there were differences in terms of explosive power of the lower limbs, and that male volleyball players have stronger leg muscles and higher lower leg circumference (larger cross-section and probably also larger mass of muscles) that provide greater force during the play, and are also under the higher influence of androgen hormones. References: Forthomme, B., Croisier, J.L., Ciccarone, G., Crielaard, J.M., & Cloes, M. (2005). Factors correlated with volleyball spike velocity. American Journal of Sports Medicine, 33, 1513-1519. Ziv, G., & Lidor, R. (2010). Vertical jump in female and male volleyball players – A review of observational and experimental studies. Scandinavian Journal of Medicine and Science in Sport, 20, 556-567.

Nutrition

KNOWLEDGE OF ATHLETES ON A REDUCE SPORTS NUTRITION.

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Introduction: Decades of research support the theory that when there is sports competitions the question of what to eat and drink in orders to enhance sport performance. Optimal diet can reduce

fatigue, allows athletes those longer trains and competes and is recovering faster than training (Lin and Lee, 2005). Nutritional status has a direct impact on the level of physical effect. In other words, the physical condition of preparation and much depends on the nutritional status of persons engaged sport (Beals and Manore, 1998). Methods: The sample was composed of 60 professional athletes from Montenegro (football, basketball and judo). Knowledge of reduce sports nutrition was tested by means of a standardized questionnaire. The questionnaire was designed to determine the knowledge manager on sports nutrition, the ingredients that are necessary in order to provide a sufficient amount of energy to training and competition, the dietary supplements, meal prior to the competition as well as dehydration and rehydration during training and competition. Results: According to the results as a whole, it can be concluded that the professional athletes knowledge of sports nutrition at a satisfactory level. Out of 1200 responses was achieved 787 correct answers, or 65.5%. However, when looking at individual responses then satisfaction with the relative high percentage loss since the observed large gaps on very important issues related to sports nutrition. Discussion: By analyzing and comparing research results (Matkovic, Prince & Cigrovski, 2006) that in a sample of 56 coaches basketball and skiing, received 77.8% of correct answers and and surveys (Vasiljevic, Bojanic, Petkovic & Muratovic, 2014) of 30 licensed coaches from Montenegro (football, handball, basketball, volleyball, athletics and tennis) on a sample received 78.,1% of correct answers. Insight into the results of our study, it is clear that the results are expressed athletes with lower percentage of correct answers in relation to sports coaches what was expected.. If we take into account the fact that athletes are often used as a dietary supplement exactly as recommended by coaches, it would be expected that people advise taking these supplements know about any problems. References: Beals, K. A., & Manore, M. M. (1998). Nutritional status of female athletes with subclinical eating disorders. J Am Diet Assoc, 98, 419–425. Matkovic B, Knjaz D, Cigrovski V (2006). Knowledge manager on sports nutrition, Croatian Sports Medicine Journal, 21, 3-7. Lin, W., & Lee, Y. W. (2005). Nutrition knowledge, attitudes, and dietary restriction behavior of the Taiwanese elderly. Asia Pac J Clin Nutr, 14(3), 221–229. Vasiljevic, I., Bojanic, D. Petkovic, J., & Muratovic, A. (2014). Knowledge about sports nutrition coach. Sport Mont, 40,41,42 / XII, 126-131.

Philosophy and Ethics

IMPORTANCE OF INTERNATIONAL RECOGNITION OF MONTENEGRO AT BERLIN CONGRESS FOR SPORTS DEVELOPMENT IN MONTENEGRO.

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Introduction: The Berlin Congress has been one of the greatest events in the European history since the nineteen century and its decisions founded one of the most important dates in the history of Montenegro, which definitely solve the question of its international status. By decisions made at the Berlin Congress, Montenegro became the internationally recognized country in the world on the 13th July 1878. In that time period, for achieving international recognition of Montenegrin statehood, it comes to intensifying of diplomatic activity with European countries, which has extremely contributed to modernization of our country and sports development in it. Focus of Montenegro towards east and west was suitable for breakthrough of sports movement in here. Many activities got a real form and preconditions for more intensive development. Methods: We used historical method in this paper, as an aggregate of research procedures on events happened in the past. The most important sources of the data were the newspapers:

Cetinjski vjesnik, then Ustavnost, Onogošt as well as some occasional publications. In the National Museum in Cetinje it is possible to find some data on teaching plans and programs for Montenegrin schools which at that time had a teaching program for subject called Gymnastics and military practicing, which was an independent subject in elementary and secondary schools. Results and discussion: The capital of Montenegro, Cetinje, had an accelerated development in that time period thanks to intensive diplomatic activities with European countries. Many sports clubs and associations were founded. We must emphasize that the first golf club in Montenegro was founded in Cetinje in 1906. This important event has completed a rich sports history of Montenegro, whose space had been already taken by a wave of modern sports, such as ice skating, tennis, football, swordplay, skating, etc. References: Jovanović N (1994). Sport u Crnoj Gori do 1914.godine.Izdavački centar Cetinje,97-104. Međunarodno priznanje Crne Gore. Zbornik radova sa naučnog skupa, Nikšić 11-12 maj 1998.god. Podgorica 1999, 129-138. Zakon o narodnijem školama u kraljevini Crnoj Gori.(1911). Fototipsko izdanje. ITP "Unireks" Nikšić. Ministarstvo prosvjete i nauke Crne Gore – Podgorica, 11-12.

Physical Education and Pedagogics

SOME STUDENTS'ATTITUDES TOWARDS PHYSICAL EDUCATION.

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Introduction: The subject of physical education (kinesiology) at primary schools in Kosovo is present in school programs with three classes weekly. In order to form a realistic idea of what students feel about their teacher in Physical Education as well as of the implementation of the educational program, we conducted a questionnaire survey. Methods: The survey examines 210 respondents (118 school boys and 92 school girls) at the age of 14. It was conducted mainly to establish and compare the attitudes of boys and girls on the base of their answers to the following six questions: 1.Is the teacher in Physical Education always dressed in sports equipment in class? 2.Is the teacher always present and active in class performances? 3.Does the teacher form realistic marks to your performance? 4.Does the school possess the necessary facilities and equipment for the realization of the class program? 5.Do you regularly wear sports equipment in your Physical Education classes? 6.Are you happy with the way your PhE classes are conducted? Results & Discussion: According to the answers to each question the groups of boys and girls are considered individually through methods of frequency and percentage of results. The differences between boys' and girls' attitudes are tested by non-parametric chi-square test, at the level of 0,05(5%). According to the final results, the conclusion is that school boys and girls have similar attitudes (do not differ) in their answers to questions 5 and 6. To some extent, the results obtained from the survey show similarity with the research conducted by Memedi, Nika and Hajredini (2011). References: Memedi L, Nika F, Hajredini A (2010). In proceeding: Научни трудове Том 49, серия 8.2. Физическо възпитание и спорт (стр. 89-92). Русе: Русенски университет „Ангел Кънчев". Miller TI, Miller KM (2000). Ankete za građane: Kako anketirati građane, kako se služiti anketama i što one znače. Washington: ICMA. Rea LM, Parker RA (1997). Kreiranje i stvaranje anketnog iztraživanja: kompletan vodič. San Francisco: Jossey-Bass. Vekselberg V (2004). Priručnik za anketiranje građana. Zagreb: The Urban Institute.

PRE-SERVICE TEACHERS' SELF-EFFICACY BELIEFS.

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Introduction: Pre-service teacher education programs play an important role in the development of beginning teacher' self-efficacy and identity. Research suggests that this development is influenced by the 'apprenticeship of learning'. With this respect, the purposes of this article were aimed to investigate pre-service teachers' self-efficacy beliefs for teaching profession in terms of demographic factors. Methods: The sample comprised 127 pre-service teachers attending Faculty of Education and Faculty of Sport Sciences, Anadolu University in spring term, 2014. Participating pre-service teachers' self-efficacy beliefs was measured by "Teacher Self-Efficacy Scale (TSES)", developed by Tschannen-Moran and Hoy (2001) and adapted in Turkish culture by Çapa, Çakıroğlu and Sarıkaya (2005). In the data analysis, "arithmethic mean, standart deviation, t-test and ANOVA" were used. Results: Efficacy for instructional strategies, classroom management and student engagement didn't differentiate according to gender and departments however, differentiated according to academic achievements. Discussion: As a result of this study, there is no statistically difference between mean scores of efficacy for instructional strategies, classroom management and student engagement of female and male students. The result of this study is supported with literature (Tschannen-Moran and Hoy, 2001; Çimen, 2007; Üstüner, Demirtaş, Cömert and Özer, 2009). There is a significant difference between their academic achievements for instructional strategies efficacy, classroom management efficacy and student engagement efficacy. These findings obtained from this study are consistent with the result of Yenilmez and Kakmacı (2008). There is no significant difference between departments for instructional strategies efficacy, classroom management efficacy and student engagement efficacy. References: Yenilmez, K and Kakmacı, Ö (2008). The Level of Self-Efficacy Beliefs at Students at Elementary Mathematics Education Department. Eskişehir Osmangazi Üniversitesi Sosyal Bilimler Dergisi, 9 (2), 1-21. Çapa, Y., Çakıroğlu, J. and Sarıkaya, H. (2005). Öğretmenlik özyeterlik ölçeği Türkçe uyarlamasının geçerlik ve güvenirlik çalışması. Eğitim ve Bilim. 30(137), 74–81. Tschannen-Moran, M., ve Woolfolk-Hoy, A. (2001). Teacher efficacy: Capturing an elusive construct. Teaching and Teacher Education, 17, 783–805. Çimen, S. (2007). İlköğretim öğretmenlerinin tükenmişlik yaşantıları ve yeterlik algıları. Yayınlanmamış Yüksek Lisans Tezi, Kocaeli Üniversitesi-Kocaeli. Üstüner, M., Demirtaş, H., Cömert, M. and Özer, N. (2009). Secondary School Teachers' Self-Efficacy Beliefs. Mehmet Akif Ersoy Üniversitesi Eğitim Fakültesi Dergisi, 9 (17), 1-16.

Sport Management

ATTITUDES OF SERBIAN CONSUMERS TOWARD ADVERTISING THROUGH SPORT AMONG THE QUESTION HOW OFTEN THEY PARTICIPATE IN SPORTS ACTIVITIES.

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Introduction: Advertising is an attractive promotional tool for marketers who can use it to strengthen communication with consumers and persuade them to purchasing certain product or service (Bjelica et al., 2014; Muratović et al., 2014). Hence, there is nececity to analyse their general attitudes among

various questions, while this research was aimed at gaining relevant knowledge about the attitudes of Serbian consumers toward advertising through sport among the question how often they participate in sports activities. Methods: The sample included 127 respondents, divided into six subsample groups: consumers who do not participate in sport activities at all, then consumers who participate in sport activities less than ones a month, next 1–4 a month, 5–10 a month, 11–20 a month, as well as consumers participate in sport activities more than 20 times a months. The sample of variables contained the system of three general attitudes which were modeled by seven-point Likert scale. The results of the measuring were analyzed by multivariate analysis (MANOVA) and univariate analysis (ANOVA) and Post Hoc test. Results: Based on the statistical analyses it was found that significant differences didn't occur at multivariate level, as well as between all three variables at a significance level of p=.05. Hence, it is interesting to highlight that it was found there are no significant differences showed up between the consumers who participate in various sports activities. Discussion: These results are so important for the marketers, mostly due to the reason they can merge all the potential consumers who participate in various sports activities into one homogenious group. This wasn't the case in previous investigations (Popović et al., 2011) and this observation presents relevant information. References: Muratović A, Bjelica D, Popović S (2014). Facta Universitatis, Series Physical Education and Sport, 12(2), 95-104. Bjelica D, Popović S, Jakšić D, Hadžić R, Akpinar S (2014). In Proceedings book of the 7th International Scientific Conference on Kinesiology "Fundamental and Applied Kinesiology – Steps Forward" (477). Opatija: University of Zegreb, Faculty of Kinesiology. Popović S, Molnar S, Radovanović D (2011). Sport Mont, 28,29,30/IX, 148-155.

ATTITUDES OF SERBIAN CONSUMERS TOWARD ADVERTISING THROUGH SPORT AMONG THE QUESTION HOW OFTEN CONSUMERS PURCHASE SPORTING GOODS.

Popović, S.[1], **Matić, R.**[2], **Milašinović, R.**[2], **Hadžić, R.**[1], **Milošević, Z.**[2], **Bjelica, D.**[1]
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Introduction: Unlike other advertising mediums such as TV commercials or online advertising, people involuntarily receive sport advertisements; they prefer to watch the game for the sporting action than the regular advertisements (Pyun, 2006; Pyun & James, 2009). However, it is important to analyse their general attitudes among various questions, mostly due to the reason it varies from demographic group to demographic group (Popović et al., 2011). Hence, this research was aimed at gaining relevant knowledge about the attitudes of Serbian consumers toward advertising through sport among the question how often consumers purchase sporting goods. Methods: The sample included 127 respondents, divided into six subsample groups: onsumers who do not purchase sport goods at all, then consumers who purchase sport goods less than ones a month, next 1–3 a month, 4–6 a month, 7–9 a month, as well as consumers who purchase sport goods more than 10 times a months. The sample of variables contained the system of three general attitudes which were modeled by seven-point Likert scale. The results of the measuring were analyzed by multivariate analysis (MANOVA) and univariate analysis (ANOVA) and Post Hoc test. Results: Based on the results it was concluded that significant differences occur at multivariate level, as well as between two of three variables at univariate level (p=.05). It is interesting to highlight that most of potential consumers (n=99) have recognized themselves in two categories: as consumers who purchase sport goods less than ones a months and one to three times a months, while there were no diffrences among the groups. Discussion: If we take a look into previous investigations, it is interesting there are some opposite results (Popović, 2011), and the recommnedations for further research are directed to spead out the sample a little

bit more, mostly due to the reason the consumers who had a more negative attitudes were in the group that didn't purchase the sport goods at all (Popović, 2011). References: Pyun DY (2006). The proposed model of attitude toward advertising through sport (Unpublished doctoral dissertation), Florida State University, Tallahassee. Pyun DY, James JD (2009). Int J Sport Comm, 2, 1-20. Popović S, Molnar S, Radovanović D (2011). Sport Mont, 28,29,30/IX, 148-155. Popović S (2011). Sport Mont, 28,29,30/IX, 140-147.

ATTITUDES OF SERBIAN CONSUMERS TOWARD ADVERTISING THROUGH SPORT AMONG THE FREQUENCY OF WATCHING SPORTS EVENTS.

Popović, S.[1], **Matić, R.**[2], **Milašinović, R.**[2], **Vujović, D.**[1], **Milošević, Z.**[2], **Bjelica, D.**[1]
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Introduction: It is proposed that potential cosumers form attitudes based on advertising through sport can influence decisions to purchase a particular advertiser's product (Pyun, 2006). From this reason, it is important to analyse their general attitudes toward advertising through sport among various questions, and this investigation was aimed at gaining relevant knowledge about the attitudes of Serbian consumers toward advertising through sport among. Methods: The sample included 127 respondents, divided into six subsample groups: cconsumers, who do not watch sports events at all, then consumers who watch sports events 1-30 minutes, next 31-60 minutes, 61-90 minutes, 91-120 minutes, as well as consumers who watch sports events more than 120 minutes during the typical day. The sample of variables contained the system of three general attitudes which were modeled by seven-point Likert scale. The results of the measuring were analyzed by multivariate analysis (MANOVA) and univariate analysis (ANOVA) and Post Hoc test. Results: Based on the statistical analyses it was found that significant differences didn't occur at multivariate level, as well as between all three variables at a significance level of p=.05. Hence, it is interesting to highlight that it was found there are no significant differences showed up between the attitudes of consumers toward advertising through sport among the frequency of watching sports events. Discussion: These results are so important for the marketers, mostly due to the reason they can merge all the potential consumers regarding the frequency they watch the sports events. On the other hand, this wasn't the case in previous investigations (Bjelica and Popović, 2011) and this observation presents relevant information. References: Pyun DY (2006). The proposed model of attitude toward advertising through sport (Unpublished doctoral dissertation), Florida State University, Tallahassee. Bjelica D, Popović S (2011). Sportske nauke i zdravlje, 1(2), 114-119.

EVOLUTION OF ADVERTISING WITH A SPECIFIC RETROSPECTION AT SPORT ADVERTISING.

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Introduction: The objective of this study represent the evolution of advertising, while the main goal will be directional to evoluation of general advertising with a specific retrospection at sport advertising. The main tasks of this study are, the first explaining the interesting evoluation of the advertising in general as well as drawing attention to the specific nature of the sport advertising as a separate field of advertising in general. Method: During the making of this study, the author used descriptive method with consulting of

competent literature. The previous author' experience in this field was also so useful. Moreover, the author used the analytic method and parallel method that is the most productive if you make some inferences about some appearance. Results: Sport advertising did not develop separately, but it represents an integral part of the overall advertising that has much deeper roots in the history of mankind. This study made general retrospection of common characteristics and differences that might be relevant for many researchers in this area. Discussion: Sport advertising is developing rapidly around the world, the dominant example of this development is most evident in the "advertising industry" in the United States (Popović, 2011). However, the sport advertising is not at the expectable level in Montenegro, mostly due to the reason the "advertising industry" in the country is not developed yet. Hence, some further knowledge collected in this study might improve the contemporary situation and help the current and potential advertisers to invest in sport industry. References: Popović S (2011). Reklamiranje u sportu kao efektivno sredstvo savremene poslovne komunikacije (Unpublished doctoral dissertation), University of Novi Sad, Novi Sad.

THE RELATIONSHIP AMONG COMMUNITY SPIRIT, COMMUNITY IDENTIFICATION, AND COMMUNITY LOYALTY OF ONLINE SPORTS COMMUNITY USER.

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Introduction: This study has a main purpose that closely examines the relationship among community spirit, community identification, and community loyalty of online sports community user. Method: In order to achieve it, the sample from sports category user of internet portal site was accumulated by using convenience sampling. The samples were 573 people, and we excluded unsuitable sheet like that were decided as untruthful one and an omission, and unclear. So the final samples were 411 people and it is the conclusions as follow. Results and Discussion: First, the community spirit has influence on the community identification. Second, the community spirit has influence on the community loyalty. Third, the community identification has influence on the community loyalty. Fourth, community spirit, identification, and community loyalty are related to each other of online sports community user.

Sport Statistics and Analyses

THE DIFFERENCE IN ANTHROPOMETRIC CHARACTERISTICS, MOTOR AND TECHNICAL SKILLS AMONG SUCCESSFUL SOCCER PLAYERS TO THOSE LESS SUCCESSFUL.

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Introduction: The primary goal of this research has been the assertion of differences in anthropometric parameters, motor and technical demonstration between players and successful and less successful ones. Secondary purpose of this paper has been the assertion of anthropometric status, motor and technical skills of U-17 young players of Pristina which all the investigated spaces. Methods: The research was

applied to a sample of 60 players U-17 (6 clubs Pristina region that have become regular racing season 2013/14) divided into two groups: The first group comprised 20 players U-17 both teams first and second group 40 U-17 player of the four other teams. To all the soccer players were conducted anthropometric measurements, motor and technical demonstration. The sample contains 12 anthropometric variables, (AWEIGHT, AHEIGHT, AUAC, ACHEC, APBELLY, APTHIGH, ATHIGHBONE, AUASFT, ABSFT, AASFT, ATHSFT, ATHBSFT) four motor variables; (M-JUMP, MR10m, MR30m, MR5x10m) and five technique variables (T-JUGGL, T-DRSLLA, T-PASI, T-KROS, T-SHOOT). Processing of results is refined SPPS statistical program with appropriate statistical methods:X-mid arithmetic, Ds - standard deviation, maximum score Max, Min-minimum score, und T-Test method. Results: To prove spaces investigates differences between players of both groups used the T-Test methods. Results obtained through the method of T-Test show us that statistically significant differences in favor of the first group (successful players) to the second group (less successful players) had agility ("shuttle running sprint Test" M-R5x10m) and precision shooting (T-SHOOT). Discussion: Other researchers have also put special emphasis on agility as outspoken skills in the success of players (Figuerido und coauthor. 2009) and the precision of striking the ball with the foot as a coordinative skills very important in the game of football (Bjelica, D. 2008). Therefore we can suggest that agility and precision ball kick taken a special place in the training process with young soccer players because they are a special significance in the difference of the level of successful players from those less successful. References: Bjelica, D. (2008). Influence of coordination and psychological factor on the kick precision in football. Faculty of Phylosophy – Physical Culture College, Nikšić, Montenegro. Acta Kinesiologica. (81-84). Gero B & Gunnar G (2008) Fussball, Kondition Teknik Taktik uid Coachin Munchen, (84-88).Figueiredo, A. J., Gonçalves, C. E., Coelho E Silva, M. J., & Malina, R. M. (2009). Youth soccer players, 11-14 years: Maturity, size, function, skill and goal orientation. Annals of Human Biology, 36(1), 60-73. Verheijen, R (1997).: Fussballkondition, Amsterdam, (183-189). Joksimović, A. (2008). the influence of the morphological characteristics on the precision of football players; Journal of the Anthropologycal Society of Serbia, Novi Sad, vol. 43, str 265-270

DIFFERENCES IN TECHNICAL MOVEMENT PRECISION WITH BALL TO NEW AGES SOCCER PLAYERS.

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Introduction: The primary goal of this research is to compare the accuracy of the collision of the ball to players of both age groups U-17 and U-19. The second purpose is the evaluation of the accuary of technical movements with the ball at young soccer players (U17 and U19) of Kosovo.In the research of measuring accuracy among young soccer players is not proved irrelevant difference between U17 and U19 players on tests of motor and precise movements with the ball (Petra & Co 2012). Methods: The research was conducted on a sample of 100 young soccer players from 10 clubs of Kosova that have become regular racing season 2013/14, divided into two groups: the first group comprised of 50 young players U17 and second group comprised of 50 young soccer players U-19. Each club is represented with 10 better players. To assess the precision of the technical movement with the ball all the players they have subjected technical demonstration testing in four tests: T-JUGGL, T-PASI, T-KROS, T-SHOOT. To see the difference between the ssoccer players of age 17 and 19 it`s used the T-test method.But the

evaluation it`s done based on a grading system which is used since 2002 in faculty of sports sciences, Uni – Leipcig. Results: Through T-test method are proven statistically significant differences in favor of players U-19 to U-17 are shown in the collision test at the gateway (T-SHOOT) and the test ball juggling (T-JUGGL) . Results obtained through the scoring of each player in each variable demonstration showed that the overall assessment of the technical with the ball to U17 players at the "satisfactory" while at U19 level players "good". Discussion: The results obtained show us that more experienced players U-19 have a better precision in demonstrating the technical movements with the ball, compared to U-17 players. Assuming that the training process is very important to voice learning, mastering demonstration , acquisition, and precise technical movements with the ball, because the precision peak levels is very significant. References: Bjelica, D. (2008). Influence of coordination and psychological factor on the kick precision in football. Faculty of Phylosophy – Physical Culture College, Nikšić, Montenegro. Acta Kinesiologica. (81-84). Petra & Co (2012). Measuring Accuracy Among Young Soccer Players. 4th International Scientific Conference "Contemporary Kinesiology", 195-202. Split, Croatia. Gero B & Gunnar G (2008) Fussball, Kondition Teknik Taktik uid Coachin Munchen, (84-88). Bjelica, D. Georgiev, G. Popovič S. (2011), Comparison of instep kicking by preferred leg among various states and intensities in young football players Acta Kinesiologica. (79-82.). Sporiš. G., Vučević, V & Jukić, I (2007). How to evalueate full instep kick in soccer? Jurnar of Sports Science and Mecine, Suppl 10, 27-28.

COMPARISON OF MORPHOLOGICAL CHARACTERISTICS AND SPECIFIC MOTOR OF JUNIOR SOCCER PLAYERS IN TWO PERIODS.

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Introduction: The purpose of this paper is to compare the number of morphological characteristics and specific motor between players Junior (U-19) in two time periods in 2004 and 2014. The purpose of the paper was also to prove if we have positive developments in the researched areas in favor of Junior soccer players U19 2014 from the U19 junior soccer players a decade ago. Methods: The research was conducted on a sample of 100 young soccer players (U-19 League first Kosovo) divided into two groups: The first group comprised of 50 players U-19 to the five best clubs in 2003/04 season and the second group of 50 players U-19 also five best clubs 2013/14 season. In the two generations of players were conducted measurements of morphological characteristics and specific motor. The sample contains 6 anthropometric variables, (AWEIGHT, AHEIGHT, ACHEC, APBELLY, APTHIGH, ATHIGHBONE) eight specific motor variables; (M-JUMP, MR10m, MR30m, MR5x10m, MR300m, T-JUGGL, T-DRSLLA, T-PASI). To validate the differences between U-19 players two generations is used the method T-Test. Results: The results obtained have shown statistically significant differences in favor of players U19 2013/14 generation to generation U-19 2003/04 in two storage areas; anthropometric (in variables ACHEC-chest circumference, APBELLY-waist)and specific motor (in variables MR10m-"reaction speed", M-R30m-"basic speed", M-R300m "shuttle running Tempo- Test", M-DRSLLA-slalom dribble the ball, M-PASI-precision technique of dynamic passing the ball. Discussion: Numerous researches (Verheijen, R 1997; Hoff,J 2005, le Gall, F et al., 2010.) have shown that modern football is characterized by a dynamic higher than in the past decades as a result of the advancement of training processes has resulted in morphological changes and specific motor performances in favor of the current players from those decades earlier.

These changes are in favor of players U-19 2014 generation to generation in 2004 hypothetically can justify as a result of vocational education framework coaches and completion of program content with additional exercises fitness to young soccer players. References: Verheijen, R (1997).: Fussballkondition, Amsterdam, (183-189), Kollath, E., Merheim, G., Kleinöder, H., Braunleder, A. (2009). Jumping and sprinting. Making the connection between two fundamental soccer skills. Success in soccer, 12 (2), 24-29. Hoff, J. Training and testing physical capacities for elite soccer players. J Sports Sci 23, 573-82, (2005). Gero B & Gunnar G (2008) Fussball, Kondition Teknik Taktik uid Coachin Munchen, (84-88). le Gall, F., Carling, C., Williams, M., & Reilly, T. (2010). Anthropometric and fitness characteristics. Journal of Science and Medicine in Sport, 13(1), 90-95.

ANTHROPOMETRIC STATUS AND GENDER DIFFERENCES AT 12 YEARS OF AGE.

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Introduction: The aim of this study was to verify the current anthropometric status of students aged 12 ± 6 months, both sexes, and to compare the level of development of measured parameters, with the aim to see the possible changes of anthropometric development, and to compare them with the trend of growth and development data from the (WHO). Methods: 62 students (42 male, 20 female), of primary school. From anthropometrical tests were made: body height (BH); body weight (BW); biacromial breadth (WB); elbow breadth (EB); adipose tissue at: suprailiac skinfold (SIS); subscapular skinfold (SSS); tricep skinfold (TRS); and abdominal circumference (AC). It was expected to gain significant correlations between circular parameters, subcutaneous adipose tissue and body mass. Also is achieved significant value between BH, BW and width parameters. Used methods for the analysis of data are: basic statistical parametres, correlation and comparative method. Results: From basic statistical parameters, at male gender it was observed that there is a heterogeneous distribution of results, especially in BW where the distribution between the minimum and maximum score is 28 to 70 kg, with an average of 43.14 ± 9.78 SD, while the female gender noticed a homogenous group, where the SD is significantly lower than for males in all variables. Our female BH at 12 years = 151.97 cm and WHO = 151.2 to 156.00 cm, and males at BH = 151.80 cm, WHO = 149.1 to 155.40 cm which means that the differences are minor. Discussion: Almost at all variables, female gender is more developed at this age. This can be observed at variables BH, BW and adipose tissue, while the variables of AC and width parameters noted that the male gender is more differentiated. This fact is proved by the authors: Group, W. M. (2006), WHO, (2007), and Baghianimoghadam, et al. (2012), which have made comparison with the data of World Health Organization (WHO). From correlations of males noted that are obtained high correlation to the level of significance 0.01, between variables of BH, BW and body widths, as well as BW with all other variables that have achieved high correlation. Such a situation is not the same in the female gender, where higher correlation are reached between BH with the BW and EB, while BW has realized high correlation at variables of adipose tissue and EB, but characteristic of this age of the female gender is that the BW variable has not realized high correlation with any of the other variables. Reference: Baghianimoghadam, B., Akhavan Karbasi, S., Golestan, M., & Lotfi Kamran, M. H. (December2012). Determination of growth pattern of 7-12 years old children in YAZD city and comparison of it with WHO standards. Journal of the Pakistan Medical Association; Dec2013, Vol. 62 Issue 12, p1289, 1289-1293. Group, W. M. (2006). WHO Child Growth Standards based on length/height, weight and age. Acta Pædiatrica, 76-85. WHO. (2007). WHO Child Growth Standards. World Health Organization.

THE STATUS OF STUDENTS OF THE FACULTY OF PHYSICAL EDUCATION AND SPORTS IN COMPARISON WITH STANDARD PARAMETERS OF THE ILLINOIS AGILITY TEST.

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Introduction: The aim of the study is to verify the current status of the students of the Faculty of Physical Education and Sport (FEFS) at the University of Prishtina based on the "Illinois agility test" (IAT) and the comparison in results of students with standard international norms in the IAT test. All of the tested candidates have completed their second year of regular classes. During those classes, the students were tested on the nature of the testing method, gaining a mutual familiarity to it. Methods: This study consisted of 92 students from the Faculty of Physical Education and Sport (FEFS). Measurements were made during regular university hours at the gym during the time period of June 2014. The test was thoroughly developed through the "Illinois agility test". Expected results included the presentation of a homogenous group, based on their selection in the entrance exam. What was expected was that the results obtained, in comparison with the standard results of the Illinois Agility Test, shows an average score compared to international norms. The methods used for data analysis in this research study are: basic statistical parameters and comparative methods, through the SPSS package. Results: Observations within the basic statistical parameters included a homogeneous distribution of results, where the distribution between the minimum and the maximum output was from 15.15 to 20.16 averaging at 16.54 and a standard deviation of 0.92. The distribution of parameters notes that the value the skewness of parameters is 1.43, which indicates a fairly homogenous group.In comparison with international norms, the IAT noted that the students of the Faculty of Physical Education and Sports have a satisfactory level and fall in the column average results with 16.54 seconds which is considered a standard rate in IAT- table 16.2 - 18.1 seconds. Discussion: The findings show that the results obtained is an expected result due to the fact that we have a sample of students selected at the Faculty of Physical Education and Sports. The findings also note that in comparison with international norms, sportsman's are earning an average result of 16:54 seconds.International norms indicate that these results come from these group average results:www.brianmac.co.uk/illinois.htm. Compared with other groups of students, our sample showed similar results. For example, the group of students tested out (Kutlu, M., Yapýcý, H., Yoncalık, O., Celik, S. 2012), where the outcome of their students was 16.54 ± 0.41 of DS. Reference: http://www.brianmac.co.uk/illinois.htm. (n.d.). Retrieved from http://www.brianmac.co.uk/illinois.htm. Mehmet Kutlu, Hakan Yapýcý, Oğuzhan Yoncalık, Serkan Çelik. (2012). Comparison of a New Test For Agility and Skill in Soccer With Other Agility Tests. Journal of Human Kinetics, volume 33/2012, 143-150. Sheppard JM, Young WB. Agility literature review: classifications, training and testing. J Sports Sci. 2006;24(9): 919–32.

STRUCTURE OF ISOLATED PRECISION FACTORS OF THE MALE STUDENT ON VOLLEYBALL.

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Introduction: Volleyball coaches use skill tests to assess the skill level of their players and to predict the players' future success (Lidor R, 2007). The aim of the study was to verify the current accuracy status of the students of the Faculty of Physical Education and Sport at the University of Prishtina. Methods:

In this study have participated 70 respondents, students of FEFS (35 in first year and 35 in fourth year). Standard tests were conducted to measure the precision in volleyball with separate emphasis on: overhand pass (SOP), underhand pass (SUP), as well as underhand serve (SUT) in the six positions and float (tactic) serve (SFS) in three positions. It is expected to achieve average results of the maximum scores in all tested variables. It is also expected that the group of students who have heard the fourth year was expected to give better results in the tests applied. Used methods for the analysis of data are: basic statistical parameters, correlation method and T-test. Results: From basic statistical parameters was noted that the results in the fourth year are homogeneous and better in quality. While at the variables note that there are differences in the good of the fourth year, also noted that the standard deviation is smaller at the same group, which shows the homogeneous group, e.g. SOP at first group with 21.65 average ± 6.48 SD, second group with the average 23.68 ± 5.76 SD. Almost similar happens with other results. Even with the results obtained by T-test we have noted changes that are on the level of statistical significant changes. Discussion: The obtained results show that the students group of fourth year has shown better results in all variables. Also noted that the group of the fourth year is shown as a homogenous group because in all four variables are the difference between the minimum and the maximum output is smaller also value of the standard deviation. So the best result I extracted from variables, shows the advantages of professional and continuing work in college, that proves the role of exercise strengthening the locomotive information (skills), because after obliged module to volleyball students of fourth year have also the opportunity to reinforce this sport even through elective module Volleyball. Through analysis of the T-test was observed differences between groups but this difference amounts are to the threshold of statistical significance, which have presented no statistical significant difference. References: Karalić, t. Et al.: Structure of isolated precision factors of the male volleyball players. Sport logia 2012, 8(1), 69–77. Strahonja, A., Janković, V., & Šnajder, V. (1982). Analiza pouzdanosti i faktorske valjanosti situaciono-motoričkih testova u odbojci, Kineziologija, 14(5), 161−175. Lidor R, A. M. (2007). Accuracy in a volleyball service test in rested and physical exertion conditions in elite and near-elite adolescent players. Journal of strength and conditioning research.

DIFFERENCES IN ANTHROPOMETRIC SPACE AND MOTOR DIMENSIONS BETWEEN THE TWO CLUBS IN THE CATEGORY OF CADETS.

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Introduction: The primary goal of this research is to certify differences of anthropometric and motor skills characteristics of female cadets of KHF.“Prishtina“ and Khf Vëllaznimi also to be verified the parameters that affect in development and their training for handball game. Besides this should be verified what impact had the implementation of program and teaching process of motor activities in the development of anthropometric characteristics, motor skills or the successful placement of Kosovo super league competitions in handball. Methods: Based on all these data we will try through this scientific research paper to verify and as base we took two clubs of Handball Super League in Kosovo in the category of cadets: two groups is consisted from 25 henbdball players Khf “Prishtina” and Khf “Vëllaznimi” females of age 15 (± 6 months). Methods of processing the results from 4 - anthropometric variables and Group of 4 - measuring instruments of motor variables. Based on the purpose of the paper we will implement some of the processing - T-test Analysis from which will be provided information for realization of this study. Results: In order to verify the differences between the two group, the first group FHC Prishtina team of cadets and second group, FHC Vëllaznimi from Gjakova both teams members

of Handball Super League in Kosovo, where for each variable is T- Test. Based on the results presented we have the observed the changes for each variable separately and can conclude that there was a valid statistical difference in anthropometric space in three variables wherethe most successful players of Prishtina. Discussion: Based on the importance of this paper to present the differences that exist between these two clubs in anthropometric and motor space, we have achieved that through the analysis of T-test we have verify these differences that are more significant in favour of Khf Prishtina which is in the top of the table and that during the week organizes 5 trainings and one official game during the weekend. In the end of this paper we can say that the value of this work may be in the fuction of information for the development of anthropometric and motor characteristics of handball players in the category of cadets which with the work and a good program of training process by coaches of this category results will not be absent in Kosovo Handball Super League championship. References: Çitaku,F. (1985), Doctoral dissertation, Zagreb. Çitaku,F,.(1981)..Elan, Prishtinë. Nixha,M.(1985), Doctoral dissertation,Beograd. Klojqnik.A (1977), Doctoral dissertation,Zagreb. Rushiti,H. (1999, Paper Masters,Prishtinë.

CANONIC RELATIONS OF ANTHROPOMETRIC AND MOTOR SPACE BETWEEN STUDENTS AS FOOTBALL PLAYERS AND NON-FOOTBALL PLAYERS.

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Introduction: For this research was taken the sample of 150 entities of 13 – years of age from them 71 students and active football players and 71 students that aren't active football players. Through this research we will try to prove the work that students do in schools during the physical education classes, will change with the students as football players who had the opportunity that except physical education classes to work as well during the week 3 to 4 trainings in the football school. Methods: The main purpose of this paper is verification of canonic relations, anthropometric space, and basic motor tests and situational motorics to the students as football players and non-football players and also we will verify the implementation and impact of anthropometric space parameters in basic motor tests and situational motorics. In this research we have treated the canonical analyses, were applied 10- anthropometric variables which are considered to cover enough space for this research work, 3- basic movement tests and 4 - situational movement tests, this method have used in their work (Hasangjekaj,B, Kikaj Xh.1999). Discussion: Based on the main purpose of this paper is the verification of anthropometric and motor relations of situational movements between students as football players and non-football players of 13 years of age. In order to verify relations between anthropometric and motor space, we conducted also canonical analysis, in this case we have obtained two matrixes of correlations, to the right and to the left side, where are shown the correlations in anthropometric and motor space. Whereas from the structure of first canonical relations from the factors of anthropometric and motor variables, it is shown that test of leading the ball in corridor is dependent by anthropometric variables, knee diameter and body height, whereas in second canonical factor, the test of explosive force is dependent by more than anthropometric variables as: ALARTE, AGJASHE, APEBEL, APEKER, ADIGJU, AGJAKE, APEGJO. Such research studies are good predictors and should be considered especially during the selection of children and youth for football school, for orientation and their selection in sport. References: Aliu,M .(1991),“, Doctoral dissertation, Sarajevo. Çitaku,F. (1985). Doctoral dissertation, Zagreb. Gabrijeliç,M. (1972), Kineziologija, Zagreb. Gjinolli,E.(1997), Doctoral dissertation,Prishtinë. Hasangjekaj,B,Kikaj Xh.(1999. Acta kineziologika,Prishtinë.

BASIC AND SPECIFIC MOTOR SKILLS DIAGNOSIS OF BASKETBALL ACADEMIES.

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Introduction: In general the problematic of diagnosing basic and specific motor movement information of the basketball game in found in the works of a considerable number of world authors. The total number of participants is defined to an amount of 100 of young basketball players, members of two different basketball academies. Methods: In this experiment, the subjects will conduct tests in 5 basic motor skills variables such as: [1] Steady Jump in length, [2] steady jump in height, [3] 20 meters run from a steady start, [4] Medicine Ball Throw and [5] Agility Test. While from specific motor movement skills are included: [1] 20 Meters run with ball, [2] Basketball shooting for 30 seconds round-trip, [3] Anaerobic durability with and without ball (kamikaze). [4] Intensive Basketball shots-Change of direction and [5] Basketball shots from five positions. Subject to the number of subjects that will be treated in this study, their age and the amount of variables tested, the main objectives of this study, will be limited to achieving the goals. Results: On the basis of test results, it can be concluded that there are no significant differences in the basic motor parameters between the two groups G1 and G2, mostly due to systematic practice effects rather than academy belonging itself.In the other hand, differences between the two groups in the specific basketball motor skills can be clearly identified, in typical basketball movement situations. In addition, comparing the test results of the individuals tested for the purpose if this diagnosis, a much more advanced level of motor skills compared to the normal population of the same group age that don't engage in basketball activities can be identified. Discussion: This experimental study carried out in the youth in the age group of 13(-+ 6 months) years old that continuously in a systematic manner attend basketball academies in two different basketball schools, with sustainable arguments can show the importance of systematic valuation in order to solve many arising problems such as: planning, programming, developing and controlling the effects of training work. Specifically, it is of utmost importance to continuously monitor the development of motor skills in the youth. References: Trninic S, Dizdar D. System of the performance evaluation criteria weighted per positions in the basketball game. CollAntropol 2000 Jun; 24 (1): 217-34. Lamonte MJ, McKinney JT, Quinn SM, et al. Comparison of.physical and physiological variables for female college basketball players. J Strength Cond Res 1999; 13 (3): 264-70. Trninic S, Dizdar D, Fressl ZJ. Analysis of differences between guards forwards and centres based on some anthropometric characteristics and indicators of playing performance in basketball. Kinesiology 1999; 31 (1): 29-36.

Sports Medicine

ALTITUDE EFFECTS ON BLOOD HEMATOLOGIC PARAMETERS.

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Introduction: Training in high altitude has become a decisive element in preparing professional athletes for big competitions (Heimer, 2003). High altitude training effects in athletes depends on many factors of which the most encouraging and wanted effects of this training is to partially reduce the air oxygen pressure. This, together with other factors such as change in ambient temperature and higher air humidity provides

a real challenge for the athletes (Chapman, R., Stray-Gundersen, J., Levine, B.,, 1998). Methods: In this study, 64 students of sports sciences faculty at University of Prishtina of age group 19-25 (average 21) were included. All the students preliminarily were medically tested to check TA, arterial pulse and respiratory frequency. In this experiment, 12 women and 52 men of the above mentioned age group were treated. Firstly, blood examples were taken before leaving to Brezovica (altitude: 2000m) and the blood was tested for erythrocytes, hematocrit and hemoglobin, all these were tested at an average altitude of 560 meters. Results: The experiment results have verified the change in those blood parameters even after a 10 day stay contrary to previous results that have only confirmed a change in those parameters after a 20 day stay in the above mentioned altitudes above sea level. Discussion: According to many researchers, a minimum of three weeks stay at an altitude of over 2000 meters is required in order to identify changes in those blood parameters (increase in hemoglobin, erythrocyte and hematocrit levels). According to other authors work we have noticed that during a three weeks stay at an altitude above 2000 meters has resulted in an increase of 12.4% in those parameters. During my research I have identified that at the end of a 10 day stay at an altitude above 2000 meters above sea level the change in levels of erythrocytes has increased by 8.23% which is clearly a bigger change compared to other studies and the reason behind this is mainly because the subjects have carried sport activities during this stay. References: Chapman, R., Stray-Gundersen, J., Levine, B.,. (1998). Individual variatrion in respons to altitude training. J. Appl. Physiol. , 85, 1448-1456. Heimer, S. (2003). Fizioloski temelji kondicijske pripreme sportasa u visinskim uvjetima. Zagreb: Medjunarodni znastveno-strucni skup KONDISIJSKA PRIPREMA SPORTASA. Marisic, T. (2003). Trening pod uvjetima hipoksije – visinski trening . Zagreb: Medjunarodni znastveno-strucni skup KONDISIJSKA PRIPREMA SPORTASA.

BODY POSTURE IN FEMALE VOLLEYBALL PLAYERS OF DIFFERENT AGE GROUPS.

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Introduction: Improper postures due to the weakened structure of postural muscles, detected during the period of growth and development, especially those discovered at an early age, can be corrected with additional programs of physical exercise. Early, i.e. timely diagnosis is the most important element of successful treatment (Paušić, 2007) of physical deformities. Method: In a sample of 60 female volleyball players of ŽOK "CEV" from Sombor, which were divided into three subsamples based on age (8-10 years, 11-13 years and 14-16 years) the evaluation of postural status was performed using a modified method of Napoleon Wolanski according to Radosavljević (2001). Condition of individual body segments was expressed in percentage and numerically. For further statistical analysis of the data a nonparametric chi-square test was used, namely Cross-tabulation. Results: The results of the chi-square test indicated a statistically significant differences between the groups tested regarding the variable Deviation of the spine in the frontal plane ($p=0.03$) in favor of young female volleyball players. Regarding other studied variables of postural status no statistically significant differences were observed. Discussion: Female volleyball players from the first tested group are exposed to the training of basic technical elements (playing the ball with fingers and digging), and can be assumed that at their age, factors of proper physical posture were not primarily influenced by certain kinesiological operators (exercises). Girls at this age are faced with the basic elements of volleyball that are proven to help in the development of proper body posture (Grigoris, Malousaris, Nikolaos, Bergeles, Barzouka & George, 2006), but during training girls do not perform properly some elements which results in frequent repetition of errors which can lead to irregular body posture (perhaps only in a certain number of female volleyball players as was the case in this paper). In addition, during the performance of certain technical

elements (forearm play, digging) where kyphotic body posture is emphasized, it can lead to a negative impact on the correct posture in such children. This study included children of different age with changes in shoulder-spatula region, but the percentage of those children was very small and negligible. References: Aagarda, H. & Jorgensen, U. (1996). Injuries in elite volleyball. Journal Medicine Science Sports, 6, 228-232. Grigoris, G., Malousaris, T., Nikolaos, K., Bergeles, K., Barzouka, G. & George, P. (2006). Somatotype, size and body composition of competitive female volleyball players. Journal of science and Medicine in Sport, 11, 337-344. Paušić, J. (2007). Konstrukcija i vrednovanje mjernih postupaka za procjenu tjelesnog držanja u dječaka od 10 do 13 godina. Doktorska disertacija, Zagreb: Kineziološki fakultet Sveučilišta u Zagrebu. Radisavljević, M. (2001). Korektivna gimnastika sa osnovama kineziterapije. Beograd: Viša škola za sportske trenere.

Training and Testing

DIFFERENCES BETWEEN THE MOTOR AND SPECIFIC MOTOR SKILLS OF MONTENEGRIN HANDBALL PLAYERS CONTINENTAL REGIONS AGED 14 AND 15 YEARS.

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Introduction: The main objective of this study was to determine the differences in the general motor and specific-motor skills of young handball players. Handball is one of the most popular sports in Montenegro. Methods: The sample makes a total of 32 handball players divided into two groups. The first group consists of 16 handball players from RK "Sutjeska" from Niksic, aged 14 ± 6 months, while the second group consists of 16 handball players from RK "Berane" from Berane age 15 ± 6 months. Players compete in the Montenegrin cadet league. Motoric space is treated with 10 variables that hypothetically cover the space of: segmented speed, flexibility, explosive leg power, explosive power of arm and shoulder and coordination. The space of specific motoric abilities is tested with 3 variables that hypotetically cover the space of: the ability of manipulating the ball, speed in ball control in movement and speed of movement without ball. Data obtained from the tests is calculated on basic statistic approaches. Comparative statistics is used in the manifest space: t-test arithmetic between small independent samples, analysis of variance (ANOVA), multivariate analysis of variance (MANOVA). Results: Results obtained by the conducted analyzes indicate the existence of statistically significant difference between the fourteen year old and fifteen-year-handball players continental regions. A statistically significant difference was found in 6 variables (hand tapping, long jump, high jump with seats, side steps, ability in throwing and catching balls rejected from the wall and move the triangle basic defensive attitude) out of 13 applied. Discussion: In previous studies the differences were analyzed between the handball players of different ages (Vuleta, Milanovic & Nikolic, 2012), as well as the differences between the different ranks of competition (Vuleta, Milanovic & Jukic, 1999), where the results show that there are statistically significant differences in the area of motor and specific -motoric abilities. In this paper, statistically significant difference was found in six tests in favor of the fourteen year old handball, what can we explain that in the training process may prevail and other factors such as motivation, which is a very important domain of psychological preparation of athletes. References: Czerwinski, J. (1995). European Handball, 2, 16-19. Delija, K., Šimenc, Z., & Vuleta, D. (1995). Kinesiology, 27(1), 57–61. Vuleta, D., Milanović i Jukić I. (1999). „Kineziologija za 21 stoljeće", 310–312. Vuleta, D., Milanović, D., i Nikolić, A. (2012). Sport Mont, 34,35,36/X, 34-37.

SPORTS PERFORMANCE EVALUATION IN VERTICAL JUMPING OF FOOTBALL PLAYERS AGED 16-19 YEARS OLD IN ALBANIA.

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Introduction: This study was conducted in order to define the abilities of the performance of the vertical jumping at the young age football players by comparing it with the pupils of the high school. Our goal is to observe the performance of the subjects and utilization of elastic energy of the lower extremities by comparing them between groups. Rational and scientific planning of a sportive training can be programmed by the coaches if we know the workload but also the effectiveness of training sessions. Methods: The preselected players are from 3 teams of the capital of Albania, Tirana, «Partizani», «Dinamo», and «Term». As well as 10 pupils from the high schools who exercise the football sport only at school. (N=40) Subjects were evaluated in these parameters; Age, Body Height (BH cm), Body Weight (BW kg) Body Mass (BMI% kg/m2) as well as they performed in two different tests of vertical jumping; Squat-jumps (SJ), Countermovement jump (CMJ) (Ergo jump-Bosco System, 1980). With the application of formula (CMJ-SJ X 100/CMJ according to (Bosco, 1992 it has been observed the elastic energy of the lower extremities of these subjects as well as the standard deviation. Results: A set of valuable changes among groups was observed due to the values obtained. In BH ± 8 cm, BW ±11 KG, BMI ±1.36%. The holistic performance of the sport football players shows clearly that they are more developed than the pupils in all the parameters examined for this study. The correlation between the tests used is positive and strong r = 0.9389 but the variables are weak, close to 0. The "Partizani" team has best presented itself compared to other groups in the values obtained from the tests. But there are changes among groups of football players just as they are between individuals. We have taken into consideration the significant statistics (P<0.5) between practitioners and non-practitioners of football. Discussion: The obtained values from the tests suggest us that practicing the football game favors the improvement of the neuromuscular features of the lower extremities, and the increase of these improvements is parallel to the years of sports practice. Moreover the significant statistics have rendered us a parallel view to the growth of the individuals. The rational scientific planning of the sports training could be programmed if we know the workload as well as the effectiveness of the completion of the training sessions. References: "Valutazione della forzacon Itest de Bosco" (SSS, ROMA 1992), Carmelo Bosco Ph.D. "La forza muscolare" Aspetti Fisiologici ed Applicazioni Pratiche (Rome 2006) Capitolo IV, La Forza Esplosiva fq. 103-110, Capitolo VIII, Applicazioni Pratiche GILLES COMETTI, DOMINIQUE COMETTI, "La Pliometria (origini, teorie, allenamento) 2a edizione italiana (Tivoli 2009) Capitolo V, I TEST. Test di Bosco fq. 60-78 - Il libro dei Test, Le prove di valutazione fisica per tutti gli sport Mario Marell-Monica Risaliti, fq. 80-85

RELATION BETWEEN MOTORIC ABILITIES AND SPECIFIC MOTORIC ABILITIES WITH FOOTBALL PLAYERS FROM 14 TO 16 YEARS OLD.

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Introduction: Football is one of the most famous games that man has invented. It is a complex of collective organization and individual ingenuity. No doubt, top results in sport require a serious base of

scientific researches and skills. Certainly, modern top results that have been achieved can be analyzed scientifically. It is exactly the scientific approach that is to establish the characteristics of basic importance to provide success in football. It is in favor of top football game to regularly conduct researches, which, as elements of special interest, would cover the basic motoric and specific motoric abilities with football players. Methods: The subject of the research is the motoric and specific motoric abilities with young football players aged from 14 to 16. The goal of the research is to establish how the explosive power influences the dribbling skills. The sample of respondents in the research consists of 39 school children at the age of 14 to 16, who play at FC ”Gjilani” and have attended the club for at least two years. They underwent three tests for assessing the explosive power: 1. Standing long jump; 2. 20-meter running and 3. Sargent test. Along with it, two tests for assessing the specific motorics: 1. Dribbling 20 metres with start from the place and 2. Dribbling 20 metres - fly start. Results: The data obtained from the applied five tests is worked out with basic statistic parameters. The relation between motoric and specific motoric abilities is determined through linear regressive analyzes in manifest space. Discussion: The results suggest that there is a positive and significant relation between the applied motoric and specific motoric abilities. This confirms the close relation between the explosive power and specific motorics of football players expressed through dribbling. Similar results are obtained in the researches of the following authors: Christou et all., 2006, Kraemer et al., 1998, and Young et al., 2001. References: Christou M, Smilios I, Sotiropoulos K, Volaklis K, Pilianidis T, Tokmakidis SP. (2006). The Journal of Strength & Conditioning Research, 20(4): 783-791. Kraemer WJ, Fry AJ. (1998). Physiological Assessment of Human Fitness. Champaign, IL: Human Kinetics: Human Kinetics, 121-122. Young WB, Mcdowell MH, Scarlett BJ. (2001). The Journal of Strength & Conditioning Research, 15(3): 315-319.

RELATION BETWEEN LATENT SPECIFIC MOTOR ABILITIES AND SITUATION MOTOR SKILLS WITH VOLLEYBALL PLAYERS AGED FROM 16 TO 17.

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Introduction: The game of volleyball with its dynamic character is present in the world of the sport with permanent development and growing popularity and fans. Volleyball is part of a pollystructural complex sports activities. It is performed on a ground of a relatively small size (18 x 9 meters) and is a kind of game that requires of players a high level of advanced motoric abilities (speed, strength, endurance, a fast rate of visual reaction, explosivity), as well as specific motoric skills (precision etc.). Methods: Scientific conclusion as well as the growing number of conducted researches in the very game, have a real contribution to its modern development and level of popularity. Situation-motoric skills make a significant dimension in the structure of volleyball game. The subject of the research is specific-motoric abilities and situation-motoric skills of 52 volleyball players aged from 16 to 17. The basic goal of the research is to establish the effect of specific-motoric abilities on situation-motoric skills of volleyball players in latent space. In order to assess the specific-motoric abilities 9 tests are used, and to assess the situation-motoric skills 3 precision tests are used. Results & Discussion: The results obtained from the 12 applied tests are worked out through the basic statistic parameters. Through component factor analysis 3 latent specific-motoric dimensions are isolated as well as one situation-motoric dimension. By regressive analysis there is established a low but statistically significant relation between the criterion and predictor latent dimensions. That confirms the dependence and relation between the specific-motoric abilities and

situation-motoric skills. Researches in the field of similar questions have been conducted by the following authors: Jurko et al., 2013 and Nešić, et al., 2011. References: Jurko D, Nešić G, Stojanović T (2013). Facta Universitatis Series: Physical Education and Sport, 11(1), 57–64. Kenny B, Gregory S (2006). Volleyball – steps to success. Champaign, IL: Human Kinetics. Nešić G, Simić M, Ilić V, Stojanović T (2011). Br J Sports Med, 45, 541. Sidarov N (2007). Testovi za procenu fi zičkih performansi. Novi sad: Pokrajinski zavod za sport.

EFFECTS OF AEROBIC TRAINING ON BIOMECHANICAL AND LACTATE RESPONSES IN SPRINT SWIMMING PERFORMANCE IN ADOLESCENT SWIMMERS.

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Introduction: The aim of this study was to determine the effects of aerobic training on lactate response (La) and biomechanical parameters during sprint swimming test (SST) and evaluate their relations with the progress of swimming time. Methods: Twenty-eight swimmers who gained 450-500 FINA points from 100m Freestyle performance (15 males and 13 females aged 12-16 years; height 1.76 ± 0.09 m; body mass 63.3 ± 10.9 kg) performed an all-out 100-m sprint swimming test twice in a 25-m pool: in trial 1, after summer break, and trial 2, after 12 weeks of aerobic training. Swimmers performed aerobic and technical training for 120min/3,5 km 6 days per week. In addition, they applied dry training consisting of strength, coordination and flexibility work outs of 60 minutes 3 times per week. Basic anthropometrical measurements included body height, body mass and body fat percent and physiological and biomechanical parameters in SST repeated after 12-week training period. Video analysis determined the stroke count, stroke rate, stroke length, split time, swimming speed during 100m-sprint swimming test. Heart rates and blood samples for La were taken from the fingertip pre exercise and at the fifth minute of recovery. Results: In response to the 12-wk training period, swimming time and stroke count decreased and stroke length, stroke rate and La levels increased significantly ($P<.05$ for all). No significant changes was seen in antropometry. Swimming time was correlated with both biomechanical parameters and La response. La was also correlated with stroke rate and swimming speed. Discussion: While increase in peak La may be attributed to the development of metabolic processes, decrease in stroke count and stroke rate and increase in stroke length may be based on to progress in biomechanical abilities. In the evaluation of sprint performance, all related metabolic and biomechanical parameters should be considered.

THE RELATIONSHIP BETWEEN FUNCTIONAL MOVEMENT SCREEN AND SWIMMING PERFORMANCE.

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Introduction: The Functional Movement Screen (FMS) is commonly used to assess movement capacity and determine injury risk. Evidence suggests that athletes who score 14 points or less on the FMS are at increased risk for injury. Recent studies suggested that besides injury risk determination, due to evaluating mobility and flexibility, FMS could be also related with physical performance in different sports. The aim of the present study was to determine the relationship between swimming performance

and FMS. Methods: Ninety three swimmers (43 females, 50 males; 11,48 ± 0,50 years aged, 1,56 ± 0,11 m. height, 46,2 ± 9,83 kg body weight) were participated to the study. Deep squat, hurdle step, inline lunge, shoulder mobility, active straight leg raise, trunk stability push-up, rotary stability measurements were determined in FMS testing and total scores were calculated in accordance with the literature. 200 m Individual Medley swimming performances of the swimmers were measured in a 25 m swimming pool. Results: Total scores for FMS were 17,71 ± 1,6 for females and 16,13 ± 2,3 for males and all swimmers had scores higher than 14 points indicated that all were out of injury risk. The difference of total scores between gender was statistically significant ($P<0.05$). There was no correlation between FMS total score and 200 IM swimming Performance. Discussion: The results of the present study indicated that there was no relation between FMS scores and swimming performance. FMS is not suitable to evaluate the swimming performance alone. However, FMS remains valuable in detecting joint mobility, asymmetry, flexibility and injury risk. Such examinations should be repeated in the training season. References: Anderson BE1, Neumann M, Huxel Bliven KC, Functional Movement Screen™ Differences Between Male and Female Secondary School Athletes. J Strength Cond Res. 2014. Wright MD1, Portas MD, Evans VJ, Weston M. The effectiveness of four weeks of fundamental movement training on Functional Movement Screen™ and physiological performance in physically active children. J Strength Cond Res. 2014. Chorba, RS, Chorba, DJ, Bouillon, LE, Overmyer, CA, and Landis, JA. Use of a functional movement screening tool to determine injury risk in female collegiate athletes. N. Am J Sports Phys. Ther; 2: 47-54; 2010.

A NEW METHOD HIGHLIGHTING COGNITIVE ATTRIBUTES IN ATHLETE SELECTIONS.

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Introduction: Talents are extraordinary but not completely developed characteristics in a field. These attributes cover a relatively wide range in sports. Tests perused in selection of athletes are generally motoric sports tests and measure predominantly conditional attributes. It is known that in sports, performance is related to cognitive skills as well as physical features and motor skills. This study explored a new method that could be utilized in the selection and tracking the level of improvement of athletes, and evaluate their attention, perception and learning levels, on athlete and other female students. Methods: 9 female table tennis athletes that trained for 16 hours per week for the last 5 years and 9 female students that never played in any sports, aged between 10 and 14 years, were participated in our study. For the Selective Action Array, developed for this study, a table tennis robot was utilized. Robot was set up to send a total of 26 balls in 3 different colors (6 whites, 10 yellows, 10 pinks) to different areas of the table, in random colors and at the rate of 90 balls per minute. The participants were asked to ignore the white balls, to touch the yellow balls and to grab the pink balls using their dominant hands. Pursuant to explaining the task to the participants, two consecutive trials were executed and recorded using a camera. Every action performed/not performed by the participants was transformed into points in the scoring system. Results: First trial total points in the Selective Action Array were 104±17 for athletes and 102±19 for non-athletes, whereas on the second trial total points were 122±11 and 105±20, respectively. The higher scores obtained in the second trial were significant for the athletes; the difference in the scores for non-athletes was minor. Non-athletes scored 33% better for the white balls as compared to the table tennis athletes. For the yellow balls, athletes and non-athletes scored similar points on the first trial, whereas the athletes improved their points around 20%, while no improvement

was observed for the non-athletes. Non-athletes scored the worst points for the pink balls and during the second trial a minor decrease in their points was observed. Table tennis athletes demonstrated the highest improvement in points in the second trial for the pink balls. Athletes hardly adapted to the white balls since their discipline dictates them to respond to all balls while playing table tennis. Discussion: According to the experimental Selective Action Array applications, in games played with a racket, it could be stated that, in forming a reaction to the balls hit by the opponent aiming at different areas of the table in different angles; focus span and the development related to visual perception could take place rapidly.

IMPROVING AEROBIC ENDURANCE VIA DIFFERENT CYCLING TRAINING LOADS.

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Introduction: The aim of this study was to improve aerobic endurance via different cycling training loads. Methods: Male subjects (n=24) involved maximal cycling incremental test (20W.dk-1) before and after the training period for to determine maximal oxygen consumption (VO2maks) and ventilator threshold (VT). All of the subjects attended six weeks of training 4 days per week for 30 minutes per session. Training loads of the first group of subjects (n=12; age=22±2; height=176±4; weight=71±7;body fat percentage=13±5) was moderate (M) (%90 VT). Training loads of the second group of subjects (n=12; age=22±2; height=179±6; weight=71±10;body fat percentage=13±5) was very heavy (VH) Δ%80 (%80 of between VT and VO2maks). Results: After training periods aerobic endurance was improved both of the training groups. As a parameters of aerobic endurance VO2max (L.min-1) was increased ($P<0.05$) after two training sessions (after M 8.5%; after VH 17 %). Relative VO2max (ml.kg-1.min-1) also was significantly increased after both exercise sessions (after ST 10.8%; after SPT 15.2 %). VO2 at VT and maximal hearth rate was changed significantly after two training period ($P<0.05$). But parameters were more change as a percentage after supra threshold exercise. Maximal lactate after the maximal incremental test was increased after moderate (% 32) and very heavy trainings (%45) ($P<0.05$). After very heavy training maximal lactate was increased more than moderate training ($P<0.05$). Discussion: Major question of this study was revolve around ‘‘how the affects of exercise volume (M and/or VH) on physiological adaptation’’. Though trainings are both effective for the metabolic and cardiovascular parameters, VH training is more effective. In contrast of present study, absolute and relative VO2max didn’t improved after 8-week severe interval training program (Demarle et al., 2001). Similarly with the study of Demarle et al. (2001) after 8 weeks of heavy training relative VO2max didn’t improved (Slawinski et al., 2001). Because of high VO2max values of subjects (61.2±2.7) at the start of experiments can be the reason of these results. References: Demarle, A.P., Slawinski, J.J., Laffite, L.P., Bocquet, V.G., Koralsztein, J.P., Billat, V.L., Decrease of O2 deficit is a potential factor in increased time to exhaustion after specific endur- ance training. J Appl Physiol 90: 947–953 (2001). Slawinski, J., Demarle, A., Koralsztein, J.P., Billat, V., Effect of Supra-Lactate Threshold Training on the Relationship between Mechanical Stride Descriptors and Aerobic Energy Cost in Trained Runners, Archives of Physiology and Biochemistry, 109(2), 110–116 (2001).

PSYCHOLOGICAL-PEDAGOGICAL TRAINING ASPECTS FOR NON-SWIMMERS

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Introduction: As all other motor activities, swimming should also be understood as a unique process of studying, mastering and automatizing of specific motorics. It should be especially kept in mind that it is the process which has its own program-time phases taking turns in a certain order. Methods: Generally defined, studying of swimming represents a complex process made of certain brain and motor activity passing through several phases: [1] Phase of wide irradiation - this phase is featured by simulation of many nerve cells in pyramidal zone of cortex than it is necessary. So many simulated nerve cells in motor centers condition involvement of more musculature in motions making. [2] Phase of differentiation – this phase is featured by a noticeable development of internal limitations restricting and changing concentration of irradiation processes in space and time. Thanks to this differentiation of stimulations and limitations it comes to gradual falling and disappearing of excessive movements and alleviating excessive tension in muscles. [3] Phase of concentration – is featured by more and more quality of stimulations which conditions a very conscious making of elementary moves with maximal activity of pyramidal motor zone. It comes to gradual elimination of excessive movements and gradual automatization of dynamical stereotype. [4] Phase of stabilization – in it, further exercising completely stabilizes automatized moving activity, i.e. technique of swimming. It means that swimmer has completely adopted patterns of a moving structure, and adjusted them to his own features. Results: Learning process of swimming is a complex and long-term activity. Besides pure repeating of a given motor activity, it is necessary to acknowledge a serie of psychological-pedagogical and didactical rules, starting from the general ones, to the individual ones which are specific for each trainee. References: Ahmetović, Z. i Matković, I. (1995): Teorija plivanja. Plivački savez Jugoslavije, Novi Sad. Counsilman, J.E. (1978): Nauka o plivanju. Sportska knjiga, Beograd,45-67. Matković, I. (1992): Mesto i značaj plivanja u sportskoj rekreaciji sa aspekta jačanja zdravlja i radne sposobnosti. Godišnjak 4, Fakultet fizičke kulture, Beograd, p. 150-152.

THE EFFECTS OF THE TRAINING IN THE PREPARATION PERIOD ON THE AGILITY TRANSFORMATION WITH CADET LEVEL FOOTBALL PLAYERS.

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Introduction: The main aim of the research was to identify a level of quantitative changes of the agility with fifteen years old football players under the influence of the programmed football training of a six weeks preparation period. Methods: According to the time orientation this was a longitudinal study with the aim to define in a two timely different points a quantitative changes of the agility under the influence of the programmed football training with fifteen years old football players under the influence of the programmed training process, which involved a summer preparation period of forty-two days. The training programme covered forty-four training units. The research was made on a sample of 120 cadet level football players. To estimate the agility three tests have been used: running with change of direction under the angle of ninety degrees, winding running and pin running 10x5m. In the area of comparative statistics, for determining differences in the variables used to estimate the agility at the beginning (initial state) and at the end (final state) training program in the preparation period we used

discriminant parametric procedure t-test for big paired samples. Results: Based on the numerical values of the t-test it can be concluded that there are no statistically significant differences in all three variables to estimate the agility. This confirmed the hypothesis that the expected significant positive quantitative changes of situational-motor abilities influenced by the proposed model of training in preparation period with fifteen years old football players. Discussion: In this research the authors were guided by the fact that this kind of training program in preparation period, where dominates the situational model training is very effective in terms of raising the agility level with fifteen years old, because the model that is used in this training period abounds in exercises in which dominates change of direction with and without the ball. The obtained results can be directed towards innovation plans and programs in the preparation period, and the adaptation of the same needs of the respective population. References: Bajramovic I, Talovic M, Alic H, Jeleskovic E (2008). Nivo kvantitativnih promjena specificno–motorickih sposobnosti nogometasa pod uticajem situacionog treninga, Sport Mont, (15, 16, 17./VI), 104–109. Bjelica D (2003). Uticaj fudbalskog treninga na biomotorni status kadeta Crne Gore, Doktorska disertacija, Fakultet sporta i fizickog vaspitanja Univerziteta u Beogradu. Bjelica D (2004). Zavisnost tjelesnih sposobnosti od sportskog treninga kod populacije fudbalskih kadeta Crne Gore, Sport Mont, (4/II), 58-71. Bjelica D (2005). Sportski trening i njegov uticaj na antropomotoricke sposobnosti fudbalera cetrnaestogodisnjaka mediteranske regije u Crnoj Gori, Sport Mont, (8-9), 26-41. Michels R (2001). Teamcoaching: Der Weg zum erfolg durch Teambuilding, Bpf Versand-onli Verlag.

ISOKINETIC LEG STRENGTH OF SEDENTARY MALES AND FEMALES.

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Introduction: Research on isokinetic strength of the legs at the knee joint in sedentary people is scarce. Borges (1989) reported isokinetic strength during extension at 12o, 90o and 150o/sec to be higher than flexion. Patten Wyatt and Edwards (1981) investigated sedentary males and females between 23 and 35 years of age at 60, 180, and 300o/sec. Peak torque at 300o/s for the hamstrings was 32 ± 8 Nm for the dominant leg (not specified) for the women. The aim of the present study, then, was to assess isokinetic strength in sedentary young adult males and females. Methods: Thirty-one males (23.39±3.43 years, 179.23±5.75 cm, 77.52±8.96 kg) and 16 females (21.69±1.51 years, 168.13±5.25 cm, 60.50±5.18 kg) were recruited from a local university in Czech Republic. They were assessed on a Humac Norm isokinetic CSMI (Stoughton, MA, USA) machine at 60˚/sec and 180˚/sec during extension and flexion of the legs at the knee joint. Subjects performed 5 repetitions at each angular velocity (Freedson et al., 1993) with a break of 2 minutes in between (Stratford et al., 1990). A 4-way (Gender x Leg x Movement x Angular velocity) Anova with repeated measures on the third and fourth factors was used to assess the differences between gender by leg, movement and angular velocity. The level of significance was set to an effect size of 0.20. Results: There was a Movement x Angular velocity interaction (eta2 = 0.722, 95% CI: 0.549–0.836). Simple effects analysis showed that leg extension peak torque at 180o/sec (123.56 ± 15.29 Nm) was higher than leg flexion (60.40 ± 10.76 Nm) at the same angular velocity (d=4.829, 95% CI: 2.185–7.473). Flexion at 60o/sec (95.67±15.56 Nm) was higher than at 180o/s (60.40±10.76 Nm) but the effect was not clear: d=2.665 (95% CI: -0.010–5.340). Discussion: Similar to previous research (Patten Wyatt and Edwards, 1981), isokinetic strength during leg extension was higher than during flexion. Yoon et al. (1991) reported isokinetic strength at 60o/sec for the right and left legs combined to be 107.8 Nm/s for leg extension at 180o/s for men (28.0±3.6 years), which was significantly different (d=0.93, 95%

CI: -4.56 – 9.26) from their Czech counterparts, although the effect was not clear. Murray et al. (1980) relayed leg flexion strength at the knee joint at 60o/sec to be 115.13 ± 4.90 Nm in American men, which was larger (d = 2.086, 95% CI: 0.283–3.888) than that of their Czech counterparts. References: Borges, O. (1989), Scan J Rehabil Med, 21, 1: 45 – 53. Freedson, P. S., Gilliam, T. B., Mahoney, T., Maliszweski, A. F., & Kastango, K. (1993), Isokin Exer Sci 3, 1: 34–42. Murray MP, Gardner GM, Mollinger SB (1980), Phys Ther, 60, 4: 412–419. Patten Wyatt, M., Edwards, AM (1981), JOSPT, 3, 2: 48–56. Stratford et al. (1990). Yoon, TS et al. (1991), Yonsei Med J, 32, 1: 33–43.

ACHIEVEMENT DIFFERENCES OF BASIC MEANDERING OVER MOTOR ABILITIES OF SKIERS.

Hadžić, R.[1], **Bjelica, D.**[1], **Vujović, D.**[1], **Krivokapić, D.**[1], **Popović, S.**[1]
[1] *University of Montenegro (Niksic, Montenegro)*

Introduction: This research analyzes the techniques involved in basic winding in relation to motor abilities of subjects. The aim of this study was to determine the difference in the technique of primary windings in relation to motor ablities of subjects. Methods: In a sample of 30 students, average age 22 years, male, measuring by 6 measures of motor abilities and one situational-motor test was carried out. The data were analyzed by SPSS 20.0 version. Results and discussion: Alpine skiing technique was assessed through primary windings, the technical element of skiing which is present in the basic form of skiing. Based on these results, we can conclude that, the differences are established and boundaries are clearly defined in the level of adoption of the basic winding techniques between subsamples in relation to motor ablities. References: Hadžić, R. (2008). Technique and methodology of skiing (In Montenegrin). Rozaje: Copyright. Hadžić, R., Bjelica, D., Vujovic, D., Popovic, S. (2012). Iinfluence of motor abilities on qvality of performing tehnical elementsin alpine sking. Journal TTEM – Technics Techonologies Education Management, 7 (4), 1641-1645. Hadžić, R., Bjelica, D., Vujovic, D., Muratovic, A.,Acimovic, D. (2013). Analysis of adoption degree of wedge (V) turn techniques over the respondents anthropometrical characteristics. Journal TTEM – Technics Techonologies Education Management, 8 (5/6), 845-854.

Workshops

Workshop 1

BRIDGING KINESIOLOGY RESEARCH AND INDUSTRY

Applied research has been strongly encouraged in the field of kinesiology for the last decade. We are witnessing a considerable shift of research focus from sport performance to health prevention. Additionally, research and development linking research institutions and industry is facilitated. The talk will give a presentation of several examples fulfilling the above mentioned tendencies in kinesiology science, including the following topics:

(1) Neuromuscular trunk functions in the context of lower back pain;
(2) Ground reaction force measurements as a diagnostic tool in sports and medicine;
(3) Cycling dynamics as an approach to bike-fitting;
(4) Ergonomics of sedentary jobs, and some others.

Organized by Assoc. Prof. Dr. Sc. Nejc Šarabon

Assoc. Prof. Dr. Nejc Šarabon, grad. physioth., grad. phys. edu. teacher; does his teaching and research work at the University of Primorska (Andrej Marušič Institute, Department of Health Study) and at the private company S2P, Science to Practice, d.o.o.. His scientific research focus is in the following fields: balance and postural stability, strength and power, and neuromuscular control of human motion – basic and applied aspects. He continuously transfers his knowledge to daily practice of top-level sports and physical medicine and rehabilitation. He is tightly involved in innovation development in the field of measurement technologies for sports and rehabilitation. He has (co-)authored >65 original scientific papers, 10 book chapters, >180 conference contributions, and >20 patents and technical innovations.

Workshop 2

THE USE AND APPLICATION OF SURFACE EMG IN SPORT

Surface Electromyography (sEMG) offers unique insights into the complex mosaic of the neuromuscular system, whilst at the same time considered to be fraught with misunderstandings and dogmatisms. With the advent of new and novel technologies it brings with it relatively easy access to this rich physiological information, yet *"To its detriment, electromyography is too easy to use and consequently too easy to abuse" De Luca, 1997.*

This workshop intends to offer clear and concise information on the use and application of surface EMG, with a particular focus on sports rehabilitation and performance. Aiming to both enthuse and encourage the application of sEMG and its tantalising possibilities through lecture and practical interactions.

Agenda:
(1) Introduction to Surface EMG
(2) Fidelity of the sEMG Signal
(3) EMG Technology
(4) Practical Demonstration
(5) Common Sporting Applications
(6) EMG Analysis
(7) Practical Demonstration
(8) Questions and Discussion

Organize by Dr Steven Lindley

Dr Steven Lindley has an academic background in Sports and Exercise Science (BSc) and Sports Therapy (MSc), including 5+ years clinical and applied experience in the field. Steven has complemented this with working as a clinical researcher at the University of Central Lancashire (UCLan, UK) for several years investigating musculoskeletal conditions and the efficacy of various clinical and training interventions. More recently completing his doctoral work investigating the neuromuscular, biomechanical and clinical factors within Patellofemoral Pain; explicitly focussing on the motor unit control and joint stability strategies.

Steven works with Delsys Inc. as the European Manager, based in Manchester UK. With a background from both clinical and research neuromuscular-biomechanics, his role within the company emphasizes on customer education and application support comprising of individual customer training to international workshops and lectures.

Steven's research interests/topics include: efficacy of clinical interventions on the motor control system, motor unit behaviour in musculoskeletal and neurological conditions, effectiveness of training modalities in sports performance and application of innovative technology in clinical and applied settings.

Authors Index

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Montenegro Sustainable Maritime Competence Development Initiative

University of Montenegro/ Maritime Faculty Kotor and Alesund University College/ Faculty of marine technology and operations are partners in a project called *Montenegro Sustainable Maritime Competence Development Initiative*, funded by the Ministry of Foreign Affairs of Kingdom of Norway.

Off-shore simulator installed at the Maritime faculty Kotor, unique at the Mediterranean region

Delegation from Montenegro on study visit in Norway

The project is within the HERD (Higher education, research and development) program for maritime sector intended for the Western Balkans. The project, worth around 1.4 million euros, is aiming toward improving human resources competence in the maritime sector in Montenegro through the transfer of knowledge and experience from the Norwegian experts, primarily off-shore business in which they are among the most competent in the world.

So far, the project has provided the following major activities: a joint Norwegian-Montenegrin maritime training center for is established at the Maritime Faculty Kotor, center for cooperation and innovation in the maritime industry at the Maritime Faculty Kotor is established, research equipment for marine engineering and electro-technical laboratory is provided, specialized training for the teaching staff of the Faculty is enabled, developing English language teaching materials is provided, harmonization of curricula with the requirements of International Maritime Organisation STCW Convention, exchange of experience between Norwegian and Montenegrin pilot services in order to increase the safety of navigation, the exchange of experiences between port authorities and the authorities, organisation of a number of thematic workshops is provided as well.

The project is of great importance to the University of Montenegro/Maritime faculty Kotor in efforts to become recognizable institution in the Mediterranean region.

Montenegrin Journal of Sports Science and Medicine

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AND **M**EDICINE

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