



III MEĐUNARODNA NAUČNA KONFERENCIJA

„SPORT, REKREACIJA, ZDRAVLJE“

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”SPORT, RECREATION, HEALTH”

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**TREĆA MEĐUNARODNA NAUČNA KONFERENCIJA
„SPORT, REKREACIJA, ZDRAVLJE“
THIRD INTERNATIONAL SCIENTIFIC CONFERENCE
„SPORT, RECREATION, HEALTH“**

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COLLEGE OF SPORTS AND HEALTH**

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UVODNA REČ

Treća međunarodna naučna konferencija “SPORT, REKREACIJA, ZDRAVLJE”, u organizaciji Visoke sportske i zdravstvene škole strukovnih studija, održana je 10. i 11. maja 2019. godine u Beogradu.

Cilj konferencije bio je razmena i unapređenje naučnih i stručnih znanja, iskustava, ideja i širenje dobre prakse među naučnicima i stručnjacima iz kompleksnog i multidisciplinarnog prostora fizičke kulture, menadžmenta u sportu i medicine. Posebna pažnja je posvećena svim relevantnim činiocima fizičke aktivnosti, počev od savremenih tendencija fizičkog vaspitanja, sporta i rekreacije, preko zdravstvenih aspekata fizičke aktivnosti i promocije sporta u funkciji zdravog stila života, prevencije i lečenja različitih zdravstvenih stanja, do značaja i uticaja funkcije menadžmenta u sportskim organizacijama.

Sve pristigle radove recenzirali su nezavisni recenzenti. Radovi koji su prošli recenziju biće objavljeni u Zborniku i predstavljaju značajan materijal za sticanje znanja iz oblasti sporta, rekreacije, zdravlja i menadžmenta u sportu.

Organizacioni odbor konferencije

* * *

FOREWORD

The third International Scientific Conference “SPORT, RECREATION, HEALTH”, organized by the College of Sports and Health – Vocational Studies, was held on May 10-11, 2019 in Belgrade.

The goal of the conference was to exchange and improve scientific and professional knowledge, experiences, ideas, as well as to spread good practice among the scientists and professionals engaged in the complex and multidisciplinary fields of physical culture, sports management and medicine. Particular attention was given to all relevant factors of physical activity, from contemporary tendencies in physical education, sport and recreation, as well as health-related aspects of physical activity and the promotion of sport for the purpose of a healthy lifestyle, prevention and treatment of different conditions, to the significance and impact of the function of management in sports organizations.

All submitted papers were reviewed by unbiased reviewers. The accepted author papers will be published in the Conference Proceedings and represent a significant material for the acquisition of knowledge in the field of sport, recreation, health and sports management.

Organizing Committee of the Conference

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PLENARNA PREDAVANJA
KEYNOTE LECTURES

PROBLEMI IDENTIFIKACIJE I RAZVOJA TALENATA U SAVREMENOM SPORTU

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Sažetak: Identifikacija talentovanih mladih sportista i njihovo pravovremeno uključivanje u proces treniranja sportske discipline koja najviše odgovara njihovim sposobnostima, jedan je od najvažnijih zadataka kojim se bave sportska nauka i struka. Pogrešne odluke su brojne i veoma bolne. Problem talentovanih pojedinaca je u činjenici da oni nisu sposobni samo na jednom polju, nego po pravilu na brojnim poljima. Osnovna dilema povezana je sa odlukom o izboru sportske discipline i vremenu uključivanja u specifičan sport. Da li je rano uključivanje dece u sport korisno ili ne? Odgovor je i da i ne! Rano uključivanje dece u sport inače je trend u savremenom sportu. Mnogi mladi talentovani sportisti prebrzo izgaraju (eng. *burn out*). Mnogi treneri i previše ambiciozni roditelji često imaju sasvim nerealna očekivanja oko sportskih rezultata svoje dece. Mladi talentovani sportisti često završavaju svoju sportsku karijeru zbog predimenzioniranog i previše specifičnog treninga, zbog povreda i nedostatka unutrašnje motivacije.

Ključne reči: sportski talenat, selekcija, povrede, motivacija, vrhunski sport

PROBLEMS OF IDENTIFICATION AND DEVELOPMENT OF TALENTS IN CONTEMPORARY SPORT

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Abstract: Identification of sport talented individuals and their timely introduction in the training process of a sport that corresponds the most to their abilities is one of the most demanding procedures in the modern sport science. Wrong decisions are frequent and usually very painful. The problem of talented individuals is in the fact that they are not talented only in one area but they are, as a rule, successful in many areas. The basic dilemma is related to the decision about which sports to engage in and how much time to devote to a specialised sport. Is early engagement of children in sport useful or not? The answer is yes and no. However, early engagement in sport has become trendy in contemporary sport. Many young champions burn out too soon. Coaches and too ambitious parents often have completely unrealistic expectations about the sports results of their children. Due to oversized and extremely specialised trainings, young athletes sustain injuries relatively frequently on average and also lack internal motivation.

Key words: sport talent, selection, injuries, motivation, elite sport

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THE INTEGRATED CURRICULUM AND THE PEDAGOGICAL-DIDACTICAL POTENTIAL OF PHYSICAL EDUCATION

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Abstract: In the modern researches in pedagogy, the integrated curriculum becomes a topical and challenging question more and more, especially when it comes to the quality of the overall education and the quality of the realization of the accredited and established goals and contents in the curricula. The specificity of this matter can also be seen in the general goals and expectations from the primary education, the manner of realization, the professional competencies and the training of the teachers for the realization of the tasks, the use of different approaches, sources, learning tools, the development of the personality and the building of a foundation for the life in future. In this perspective, there is a need to deal with the pedagogical-didactical potential of the integrated curriculum from the aspect of physical education, as one of the aspects with great importance for the development of the personality. On the other hand, the modern understanding of the place and the role of the physical education in a pedagogical sense contributes for changing the understanding of the pedagogical-didactical potential of its function and assumptions in the frames of the integrated curriculum in primary education. This leads to a new treatment of the approaches, models and the potential to use physical education in the planning and realization of the integrated curriculum, especially in primary education. For this purpose, we conducted a qualitative research by using the descriptive method, along with analytical-descriptive and analytical-interpretative approaches. We used an analysis of the content as a research technique. The sample of the research covers all the curricula in primary education.

Keywords: integrated curriculum, pedagogical-didactical potential, physical education, primary education.

POZIVNA PREDAVANJA
INVITED LECTURES

SPORT KAO NEIZOSTAVNI FAKTOR ODRASTANJA MLADIH

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Sažetak: Poznato je da je bavljenje sportom ili bilo kojim drugim oblikom fizičke aktivnosti korisno i poželjno, kako za decu i mlade tako i za odrasle osobe. Deca koja se bave sportom razvijaju samostalnost, lakše sklapaju prijateljstva i poboljšavaju sposobnost koncentracije. O važnosti sporta u životu govore mnogi sportski stručnjaci i naučnici, napominjući kako je bavljenje sportom vrlo važan faktor uspešnog psihofizičkog odrastanja, i kako je sportom vrlo dobro početi baviti se od malena. Dete predškolskog uzrasta ima potrebu za kretanjem što doprinosi njegovom pravilnom rastu i razvoju, ono provodi veći deo dana u aktivnosti, ipak, polaskom u školu fizička aktivnost se smanjuje. Vrlo je poželjno da se deca uključuju u razne sportske škole (opšteg tipa), kako bi kasnije mogli izabrati ciljanu sportsku aktivnost kojom će se kontinuirano baviti tokom odrastanja. U skladu sa tim, proizlazi da sport prati svaku osobu kroz sve faze, od detinjstva do starijeg adolescentnog perioda. Sport je neizostavna potreba, on doprinosi razvoju motoričkih sposobnosti, poboljšava fizički izgled, uvećava osećaj sigurnosti i samopoštovanja, utiče na bolju socijalizaciju i prilagođavanje, regulše ophođenje sa drugima, ali i svaki lični vid komunikacije. Može se reći da je sport i fizička aktivnost, neizostavni faktor koji omogućuje sticanje informacija o očuvanju i unapređenju zdravlja pojedinca, kao i ljudi uopšte, što osposobljava decu i mlade da prate i preduzimaju mere za razvijanje i poboljšanje svojih osobina.

Ključne reči: sport, odrastanje, mladi, aktivnost

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SPORT AS A KEY ELEMENT IN THE DEVELOPMENT OF ADOLESCENTS

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Abstract: It is well known that sport or any other physical activity is useful and advisable behavior, not only for children and adolescents, but also for adults. Children that are involved in any kind of sport activity are more independent, more successful in making friends with their peers, and tend to improve their focus and concentration. Many scientists and sport experts have studied the importance of sport in our lives, defining it as one of the key factors of successful psychophysical development, and advising individuals to start practicing it from an early age. Preschool children possess an inborn need for physical movement that contributes to their optimal growth and development. Young children spend most of their day in movement, however, the activity level decreases when they reach school age. Therefore, it is very important to encourage students to join different sport clubs in order to develop a healthy approach to physical activity, and consequently to keep on practicing it later in life. The physical activity should be a part of a daily routine throughout one's life, it represents an indispensable human requirement. While improving one's motor abilities, physical appearance, self-esteem and self-confidence, the sport contributes to healthy socializing, and one's communication skills. We can say that the sport/physical activity represents the essential element that enables us to acquire information about maintaining and improving both the health of an individual, as well of a community, that eventually enable us to follow and implement the steps for personal development and improvement.

Key words: sport, development, activity, adolescents.

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AKTUELNI PROBLEMI ORGANIZACIJE ŠKOLSKOG SPORTA U BEOGRADU

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Sažetak: Osnovno obeležje sporta je usavršavanje i dostizanje maksimalnih potencijala sportiste u funkciji postizanja najvišeg sportskog rezultata. Ostvarenju ovog cilja podređena je čitava tehnologija trenažnog procesa. Školski sport povezuje fizičko i zdravstveno vaspitanje, rekreaciju i sport. Suština školskog sporta jeste redovno vežbanje, negovanje navike redovnog vežbanja tako da se podigne nivo sportsko - rekreativnog obrazovanja, pomogne svestrani rast i razvoj ličnosti, a takmičenje je u funkciji postizanja ovih ciljeva. Deskriptivni izveštaji opštinskih i gradskih sekretara za sport od 2000 – 2015 godine korišćeni su za analizu i dobijanje relevantnih rezultata. Takođe je izvršena analiza izveštaja nastavnika iz najvećih gradskih opština Palilula, Novi Beograd, Zemun tj. iz 20 osnovnih škola. Problem školskog sporta leži u dualizmu nadležnosti tj. neodgovarajućih i neusklađenih zakonskih i podzakonskih rešenja. Za uspešnu realizaciju i unapređivanje školskog sporta neophodna je interesorna saradnja sekretarijata na gradskom nivou, kao i ministarstava nadležnih za sport i obrazovanje na nivou Republike Srbije. Takođe neophodno je doneti odgovarajuća podzakonska akta koja su propisana Zakonom kako ne bi došlo do nedoumica u vezi sa ovom veoma značajnom oblasti za učenike. Vodeću ulogu treba da imaju profesori fizičkog vaspitanja koji snose najveći teret i odgovornost za uspešnost školskog sporta.

Ključne reči: školski sport, vaspitanje, zakonska regulativa.

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CURRENT PROBLEMS OF ORGANIZING SCHOOL SPORTS IN BELGRADE

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Abstract: The main feature of sports is the improvement and achievement of the maximum potential of an athlete in the function of achieving the highest sporting result. The realization of this goal is subject to the entire training technique. School sport connects physical and health education, recreation and sports. The essence of school sports is regular exercise, fostering the practice of regular exercise by raising the level of sports and recreational education, helping the versatile growth and personality development, and the competition is in the function of achieving these goals. Descriptive reports of municipal and city sports secretaries from 2000 to 2015 were used to analyze and obtain relevant results. Also, an analysis of teachers' reports from the largest city municipalities of Palilula, Novi Beograd, Zemun, from 20 primary schools. The problem of school sports lies in the dualism of competence, that is, inadequate and uncoordinated laws and by-laws. For the successful realization and improvement of school sports, inter-departmental cooperation between the secretariats at the city level and the ministries responsible for sports and education at the level of the Republic of Serbia is necessary. It is also necessary to adopt appropriate bylaws prescribed by the Law in order to avoid any doubts about this very important area for students. The leading role should be played by professors of physical education who bear the greatest burden and responsibility for the success of school sports.

Key words: school sport, education, education laws.

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TREND PROMENA U ANTROPOLOŠKOM STATUSU DECE U REPUBLICI SRBIJI

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Sažetak: Sve učestalija pojava gojaznosti kod dece kao i pitanje njihove “(ne)odgovarajuće” fizičke sposobnosti i posturalnog statusa u velikoj meri je posledica visoko urbanog načina života, odnosno smanjene mogućnosti i potrebe za kretanjem, uz sve lošije zdravstveno-higijenske uslove, uključujući i ishranu. Fizička sposobnost definisana je kao skup osobina koje su povezane sa sposobnošću čoveka da se bavi fizičkim aktivnostima (svaki pokret tela koji je nastao kao posledica mišićne aktivnosti i koji za posledicu ima povećanje energetske potrošnje u organizmu) i pozitivno je povezana sa kvalitetom zdravlja i dužinom života. U tom smislu, fizička sposobnost čoveka, u svim njegovim razvojnim periodima, od detinjstva pa do starosti, faktor je uspešnog i kvalitetnijeg života i rada, pa se kao takva može smatrati ličnim, ali i globalnim društvenim pitanjem (od nivoa lične do nivoa društvene obaveze). Cilj ovog rada je prikaz istraživanja i trend promena iz oblasti fizičke razvijenosti, fizičke sposobnosti i posturalnog statusa dece u Republici Srbiji.

Ključne reči: fizička razvijenost i sposobnost, posturalni status, deca

TREND CHANGES IN ANTHROPOLOGICAL STATUS OF CHILDREN IN REPUBLIC OF SERBIA

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Abstract: The more frequent presence of obesity in children, as well as the question of (un)suitable physical activity, is to a large extent a result of the modern lifestyle, i.e., fewer opportunities or requirements for walking and motion, as well as poorer health conditions, including those that relate to nutrition. Physical ability is defined as the ability of a human to perform a physical act (each body motion as a result of muscle activity and which, as a consequence, involves greater energy consumption in the human body) and is positively connected with health quality and longevity. In this sense, the physical ability of an individual, in all its developmental stages, from childhood to old age, is a factor contributing to success and quality life and work, and as such it must be thought of as both a personal and species-wide social issue. The aim of this paper is to present the research in the field of physical development, physical abilities and postural status of children in Republic of Serbia.

Keywords: physical development and physical fitness, postural status, children

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SAMOKONTROLA U DIJABETESU TIP 2 NA INSULINSKOJ TERAPIJI U CILJU PREVENCIJE HRONIČNIH KOMPLIKACIJA

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Sažetak: U poslednje dve decenije šećerna bolest tip 2 kao ekvivalent kardiovaskularne bolesti, odlikuje se neprekidnim pandemijskim porastom. Zbog svojih pratećih hroničnih komplikacija, predstavlja veliko opterećenje i za pojedinaca, kao i za zdravstveni, socijalni i ekonomski sistem. Intenzivna dugoročna intervencija, kao i stalna edukacija imaju za cilj da utiču na multiple faktore rizika, što može značajno smanjiti rizik od mikro i makrovaskularnih komplikacija.

Metode rada: Sprovedena je bicentrična prospektivna studija u grupi od 220 obolelih od dijabetesa tip 2 na insulinskoj terapiji u periodu Novembar 2018. godine - Januar 2019. godine u Domu Zdravlja i u Specijalnoj bolnici "Merkur" u Vrnjačkoj Banji. Evaluirani su parametri: trajanje dijabetesa i insulinske terapije, glikolizirani hemoglobin (HbA1c), indeks telesne mase (BMI), prisustvo pratećih hroničnih komplikacija: mikro (neuropatija, retinopatija, nefropatija) i makrovaskularnih: hipertenzija (HTA), angina pectoris (AP), stanje posle infarkta miokarda (IM), cerebrovaskularna bolest (CVB) i dijabetesno stopalo (PVB), zatim sprovođenje samokontrole glikemija po preporukama u kućnim uslovima, kontrola telesne mase, merenje krvnog pritiska i samopregled stopala. Rezultati su statistički obrađeni, tabelarno i grafički prikazani.

Rezultati rada: U grupi je bilo M 55,45% (122) i Ž 44,54% (98), prosečne starosti M 62,42±7,65 i Ž 65,23±8,25 god., prosečno trajanje dijabetesa Ž 10,78 ±8,1 i M 8,24±5,84god.; prosečno trajanje insulinske terapije: M 5,42±4,1 i Ž 5,8±3,9god. Prosečni HbA1c 7,4±1,96%. U grupi je bilo 50,45% gojaznih. Učestanost hroničnih komplikacija: neuropatija 57,27%, retinopatija 24,54% i nefropatija 6,81%, HTA 68,18%, AP 12,72%, IM 6,36%, CVB 4,09% i PVB 0,45% i bez komplikacija 31,81%. Redovnu samokontrolu glikemija našte sprovodi 31,82%, postprandijalno 20,9%, celodnevni profil 13,64%. Svakodnevnu kontrolu krvnog pritiska 31,81%, povremeno 42,72%, retko 18,18%. Kontrolu telesne mase nedeljno ne sprovode, mesečno 30,9%, povremeno 42,72%. Samopregled stopala redovno sprovodi 98,18%.

Zaključak: Gojaznost, nezadovoljavajuća glikoregulacija i visoka učestanost pratećih hroničnih komplikacija, pre svega neuropatija, retinopatija i hipertenzija, prate šećernu bolest tip 2 na insulinskoj terapiji. Od samokontrole redovno se sprovodi samopregled stopala i značajno kontrola jutarnje glikemije našte, relativno kontrola krvnog pritiska, dok se najređe sprovodi kontrola telesne mase i celodnevnog profila glikemija. Dobra metabolička kontrola je glavna preventivna mera. Redovna samokontrola glikemija je značajna u cilju postizanja dobre glikoregulacije. Samokontrola krvnog pritiska i telesne mase je još uvek nedovoljna, što se može objasniti nezdravim načinom života, nedovoljnom prosvetenošću, slabljenjem motivacije i neprihvatanjem bolesti u psihološkom smislu. Nesumnjivo je značajno stalno sprovođenje edukacije i motivacije pacijenta u redovnom sprovođenju samokontrole radi prevencije hroničnih komplikacija.

Ključne reči: dijabetes tip 2 na insulinskoj terapiji, mikrovaskularne dijabetesne komplikacije, makrovaskularne komplikacije, samokontrola u dijabetesu tip 2, prevencija hroničnih dijabetesnih komplikacija

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SELF-CONTROL IN DIABETES TYPE 2 ON INSULIN THERAPY FOR PREVENTION OF CHRONIC COMPLICATIONS

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Abstract: Introduction and aim: In the last two decades, diabetes type 2, being an equivalent to cardiovascular diseases, is characterized by an ongoing pandemic increase. Because of its accompanying chronic complications, it is a huge burden for individuals as well as for the health, social and economic system. Intensive long-term intervention and ongoing education, aim to influence multiple risk factors, which can significantly reduce the risk of micro and macrovascular problems.

Methods of work: A bicentric prospective study was conducted in a group of 220 patients with type 2 diabetes on insulin therapy in the period November 2018 - January 2019 in the Health Center and in Special hospital "Merkur" in Vrnjačka Banja. These parameters were evaluated: duration of diabetes and insulin therapy, glycol hemoglobin (HbA1c), body mass index (BMI), presence of accompanying chronic complications: micro (neuropathy, retinopathy, nephropathy) and macrovascular: hypertension (HTA), angina pectoris (AP) condition after myocardial infarction (IM), cerebrovascular disease (CVB) and diabetic foot (PVB), then the administration of glycemic control according to recommendations in home conditions, weight control, blood pressure measurement and self-evaluation of the foot. The results were statistically processed, tabulated and graphically displayed.

Results: in the group there were 55.45% (122) men and 44.54% (98) women, average age men 62.42 ± 7.65 and women 65.23 ± 8.25 , average duration of diabetes women 10.78 ± 8.1 and men 8.24 ± 5.84 ; average duration of insulin therapy: M 5.42 ± 4.1 and W 5.8 ± 3.9 years. Average HbA1c $7.4 \pm 1.96\%$. The group had 50.45% fat patients. Frequency of chronic complications: neuropathy 57,27%, retinopathy 24,54% and nephropathy 6,81%, HTA 68,18%, AP 12,72%, IM 6,36%, CVB 4,09% and PVB 0,45 % and without complications 31.81%. Regular self-control of glycemia is performed by 31.82%, postprandial 20.9%, all-day profile 13.64%. Daily blood pressure control is 31.81%, occasionally 42.72%, rarely 18.18%. They do not carry out weight control on a weekly basis, monthly 30.9%, occasionally 42.72%. Self-examination of the feet is carried out regularly by 98.18%.

Conclusion: obesity, unsatisfactory glycoregulation, and high frequency of accompanying chronic complications, primarily neuropathy, retinopathy and hypertension, are associated with diabetes type 2 on insulin therapy. Considering self-control, self-observation of the foot is regularly performed and significant is morning glycemic control, relatively blood pressure control, while the least frequent is the control of body weight and overall glycemic profile. Good metabolic control is the main preventive measure. Regular self-control of glycemia is important in order to achieve good glycoregulation. Self-control of blood pressure and body weight is still insufficient, which can be explained by an unhealthy way of life, insufficient enlightenment, weakening of motivation and non-acceptance of the disease in psychological terms. What is undoubtedly significant is constant education of patients and motivation in the regular implementation of self-control for the prevention of chronic complications.

Key words: diabetes type 2 on insulin therapy, microvascular diabetes complications, macrovascular complications, self-control in diabetes type 2, prevention of chronic diabetic complications.

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SPORT, REKREACIJA, ZDRAVLJE
SPORT, RECREATION, HEALTH

STUDY OF THE RELAXING EFFECT OF SPECIAL GYMNASTIC EXERCISES

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Abstract: The aim of the study is to prove reducing of muscular tension as a result of special gymnastic exercises practice. According to the hypothesis of the research, applying of the mentioned exercises, except that it will enhance the working capacity will also increase the relaxing level of the performers. The object of the study is a specialized set of gymnastic exercises. The complex includes dynamic gymnastic exercises performed with slow movements and holding of static poses. The assessment of the relaxation degree was made through physiological and psychological parameters. Physiological data collected included measuring of heart rate, breathing frequency, blood pressure, and finger skin temperature. Psychological data were assessed with the Spielberger State Anxiety Inventory and a seven-point Likert type scale for self-rated relaxation. The measurements were made before and after the gymnastics complex performance. Statistically significant results were found for all variables except for systolic blood pressure. The comparison of the parameters tested before and after the application showed the greatest differences in two parameters – the heart rate index (6 bpm, $p < 0.05$) and finger temperature (3° , $p < 0.05$). In conclusion, the established decrease in the values of the heart rate and the increase of the finger temperature after the application of the special gymnastic exercises confirms the hypothesis of the study and proves that the researched complex has a relaxing effect.

Keywords: types of relaxation, psycho-physiological parameters, specialized set of gymnastic exercises

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CHANGE OF TOYS FROM PAST TO PRESENT IN RELATION WITH CHILD AND LEISURE

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Abstract: Toy, regulate the child's movements in all stages of development and support their development in mental, physical, social and psychological fields. Toys, used as play material in recreational activities supporting these areas of development, are important for the child to use their leisure time effectively. The aim of this study is to investigate the change of toys from past to present in different dimensions. The study was actualized with a document analysis which cover the analysis of written materials, which were based on qualitative data and which contain the information about the facts or facts intended to be investigated. Theses were downloaded from National Thesis Center. Only open access theses which are related with the research were included in the study. The articles included in the research were accessed from the database called Arastirmax and Google Scholar Search Engine. Four themes have been created such as health, economy, industry and technology to suit the scope of the study. According to the findings, it is concluded that today's toys become a material that takes away the imagination, creativity, naturalness and health of the child.

Keywords: Leisure time, toy, game, child

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USE OF TECHNOLOGY IN RECREATION ACTIVITIES

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Abstract: People's perception of leisure time changes with the modernizing world. In this understanding, the way of individuals evaluate their leisure time differ as well. Individual preferences affect the participation in recreational activities and the purpose for which these activities are carried out. Today's technological developments shape the people's understanding and choice of recreation. Within the framework of this understanding, the aim of the study is to examine the use of technology in the content of recreational activities that individuals prefer to evaluate their leisure time. The study was carried out with a document analysis that included analysis of written materials which gives information on facts or phenomena based on qualitative data. The theses related to the research subject from the National Thesis Center were included in the study. The articles included in the research were obtained from the database called Arastirmax with Google Scholar search engine. In the study, the recreation activities according to their aims were limited and those who interacted with technology were evaluated. In this respect, recreation activities for rest, sports, culture and art purposes are evaluated as activities that can be actively participated by using technology and examples of technological materials used in these activities are exemplified in this study. In this way, the relationship between technology and recreation has been put forth. As a result, it has been determined that the technology has a positive effect on the recreation area. However, it is not known whether the future technological developments will be negative or possitive effect in terms on recreational activities. It is thought that this situation will be shaped according to the future leisure and recreation approach of individuals.

Keywords: Recreation, Leisure time, technology

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VISOKORIZIČNE SPORTSKE POVREDE – LEČENJE I REHABILITACIJA

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Sažetak: S obzirom na sve učestalije povrijeđivanje vezane za sportske aktivnosti, analizirane su kraniocerebralne povrede čija je etiologija vezana za razne vidove sportskih aktivnosti, kao i za neadekvatnost sportskih terena (kamen na stazi za skijanje, nedovoljno pričvršćena stativa). Materijal je statistički obrađen u odnosu na slijedeće parametre: težina kraniocerebralnih povreda, vid sportske aktivnosti u toku koje je povreda nastala i vrste tretmana koja je primijenjena u liječenju (konzervativno i operativno). U radu je također istaknuta neophodnost pravovremenog uvođenja i stručnog vođena rehabilitacije u cilju funkcionalnog oporavka ispitanika. Rezultati su pokazali da je potres mozga (commotio cerebri) najčešći patološki entitet u okviru kraniocerebralne traume koji se javlja u povrijeđivanju vezanog za sport, te da takve kraniocerebralne povrede najčešće nastaju zbog neadekvatnosti sportskih terena.

Cilj rada je da skrene pažnju na okolnosti na koje bi se moglo djelovati u cilju smanjenja povrijeđivanja ili ublažavanja sekvela prilikom povrijeđivanja u sportu.

Materijal i metode istraživanje je obuhvatilo pacijente-sportiste koji su zbog kraniocerebralnih povreda zadobijenih prilikom sportskih aktivnosti ili na sportskim terenima hospitalizovani u Službi za neurohirurgiju UKC Banja Luka u periodu od 2012-2017.godine. Ovu grupu čine ukupno 36 pacijenta starosti od 9 do 58 godina. Metodom grafičkog prikaza materijal je obrađen u odnosu na slijedeće parametre: Stepenn povreda (laka ili teška), vid sportske aktivnosti u kojoj je povreda nastala (takmičarska, rekreativna, nastavna, neadekvatnost sportskog terena), vrsta tretmana primjenjenog u liječenju (konzervativni, operativni). Prema istim parametrima urađena je i statistička analiza

Ključne reči: Kraniocerebralna trauma, Vrsta neurohirurškog tretmana, Stepenn telesne povreda, Sekvele, Rehabilitacija, Kabat, Bobath.

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HIGH – RISK SPORTS INJURIES – HEALING AND REHABILITATION

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Abstract: Today there are more and more injuries due to sport activities and therefore craniocerebral injuries were analyzed with etiology is related to various types of sports activities, as well as the inadequacy of sports grounds (rock on the ski trail, insufficiently attached tripod). The material was statistically processed in relation to the following parameters: the severity level of craniocerebral injuries, the type of sport activity during which the injuries occurred and the type of treatment applied in the treatment (conservative and surgical). In this part is also emphasized the necessity of timely action and professional-led rehabilitation with the goal of functional recovery of respondents. The results showed that the commotio cerebri is the most common pathologic entity within the craniocerebral trauma that occurs in sports related injuries, and that such craniocerebral injuries are most often due to the inadequacy of sports grounds.

The goal of the work is to draw attention to the circumstances that could be dealt with in order to reduce injuring or alleviating sequelae when injuries occurred in sports.

MATERIAL AND METHODS - The research included patients-athletes who, due to craniocerebral injuries sustained during sports activities or at sports courts, were hospitalized in the Department of Neurosurgery UKC Banja Luka in the period 2012-2017. This group consists of 36 patients aged 9 to 58 years. The graphic display method is based on the following parameters: The degree of injury (light or heavy), the type of sports activity in which the injury occurred (competitive, recreational, teaching, inadequate sports terrain), the type of treatment applied in the treatment (conservative, surgical). According to the same parameters, a statistical analysis was also performed.

Key words: Craniocerebral trauma, Type of neurosurgical treatment, Body injuries, Sequels, Rehabilitation, Kabat, Bobath.

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INTERNATIONAL CURRENT FESTIVALS WITHIN THE SCOPE OF RECREATION ACTIVITIES CLASSIFIED BY PURPOSE

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Abstract: Leisure activities are individual or group activities, individuals participate voluntarily with pleasure and enjoy. These activities vary according to their purpose, specific functions, various criteria. Purpose of this study to examine the international current festivals in Turkey within the scope of recreation activities classified by purpose. This qualitative study is compiled and content analysis is used for data collection methods. Festivals are restricted with current international festivals organized in Turkey and only the most popular international current festival is examined for each classification. It has been reached to postgraduate theses, academic articles and informations. Only open access theses were downloaded from National Thesis Center . Included articles were accessed from the database called Arastirmax and Google Scholar Search Engine and in addition to festival's websites, the websites of the Ministry of Culture and Turism and the Association of Publicity Volunteers were used to obtain information about the festivals. As a result, reaching to wide audiences at international festivals, as can be a reason to reviving the cultural economy by improving Turkey's image and also can be increase the rate of being preference the country by offer many different alternatives in the name of evaluating individuals their leisure times.

Keywords: Leisure time, recreation, festival.

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WATER-BASED ACTIVITIES ACTUALIZED IN TURKEY WITHIN THE SCOPE OF SPORTIVE RECREATIONAL ACTIVITIES AND PLACES WHERE ACTIVITIES ARE DONE

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Abstract: The aim of this study is to provide information about water-based recreation activities, which are participated popularly by domestic or foreign tourists in our country in the holiday period, and places where activities are done. This qualitative study is compiled and content analysis is used for data collection methods. The water-based recreational activities to be examined were determined according to the participant rate and preference status on the related web sites and were restricted with sportive recreational activities within and over water. It has been reached to postgraduate theses, academic articles and informations. Only open access theses were downloaded from National Thesis Center. Included articles were accessed from the database called Arastirmax and Google Scholar Search Engine and in addition to water-based recreational activities' web sites, the websites of the Culture and Travel Agents Association of Turkey and Turkey Hoteliers Association. As a result, it is observed that sportive recreational activities, which are done within the water such as scuba and deepflight super falcon and which are done over the water such as wind surfing, rafting and recreational activities for fun, are preferred intensely on holiday destinations in the south and west of Turkey.

Keywords: Water-based recreational activities, turism, holiday destinations

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FIZIČKA AKTIVNOST I PSIHOLOŠKO BLAGOSTANJE STARIJIH OSOBA

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Sažetak: Zdravstvene koristi od redovne fizičke aktivnosti i vežbanja su široko priznate. Nažalost, veliki broj istraživanja ukazuje na opadanje nivoa fizičke aktivnosti kod starijih osoba. Svrha ove studije bila je da se ispita uloga fizičke aktivnosti u psihološkom blagostanju starijih osoba (62-78). U istraživanju je učestvovalo 150 ispitanika. Fizička aktivnost je utvrđena na osnovu primene Međunarodnog upitnika za fizičku aktivnost (International Physical Activity Questionnaire (IPAQ)), duža verzija. Subjektivna percepcija zdravlja utvrđena je na osnovu odgovora ispitanika na dva pitanja. Psihološko blagostanje procenjeno je skalom Bradburn Affect Balance. Skala se sastoji od dve dimenzije: pozitivnog i negativnog afekta. Rezultati pokazuju da 57% muškaraca i 49% žena procenjuje najmanje 150 minuta kombinovane srednje i / ili snažne fizičke aktivnosti nedeljno. Aktivnosti iz domena slobodnog vremena najviše doprinose nivou fizičke aktivnosti muškaraca, dok su kućni poslovi najviše doprineli nivou aktivnosti žena. Fizička aktivnost je važan instrument koji generiše pozitivnu subjektivnu percepciju zdravlja i psihološkog blagostanja u ovoj starosnoj grupi.

Ključne reči: fizička aktivnost, psihološko blagostanje, starije osobe

PHYSICAL ACTIVITY AND PSYCHOLOGICAL WELL-BEING IN OLDER ADULTS

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Abstract: The health benefits of regular physical activity and exercise have been widely acknowledged. Unfortunately, a decline in physical activity is visible in older adults. The purpose of this study was to study the role of physical activity on psychological well-being among older adults (62-78). A total of 150 older adults were enrolled. Physical activity was assessed with the International Physical Activity Questionnaire (IPAQ), long version. The subjective perception of health was comprised of two questions. Psychological well-being was assessed with the Bradburn Affect Balance Scale. The scale consists of two dimensions: positive affect and negative affect. Results show that 57% of men and 49% of women reported at least 150 min of combined moderate and/or vigorous physical activity per week. The leisure domain contributed most to the men's physical activity level, while domestic tasks contributed most to the women's activity level. Physical activity is an important instrument that generates positive subjective perception of health and psychological well-being in this age group.

Keywords: physical activity, psychological well-being, older adults

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POVEZANOST TELESNE KOMPOZICIJE I MOTORIČKIH SPOSOBNOSTI FUDBALERA

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Sažetak: Cilj ovog rada je da se utvrdi stanje fudbalera pre početka priprema za predstojeću polusezonu. Uzorak je činilo 18 fudbalera trećeg saveznog ranga. Ispitanicima je najpre izmerena telesna visina (antropometrom), a zatim i telesna kompozicija pomoću instrumenta Inbody 770. Nakon toga urađeni su testovi za procenu eksplozivne snage nogu (CMJ, CMJa, SJ) koristeći instrument Optojump, agilnosti (9-6-3-6-9, sprint 20m) i izdržljivosti (Yo-Yo endurance). Korelacije su pokazale da postoji povezanost između BMI i testova agilnosti. Procenat telesne masti i telesnih masti u kilogramima korelirali su sa CMJ i sprintom u sve tri etape. Nakon istraživanja utvrđen je nivo spremnosti sportista na osnovu čega će se izraditi adekvatan plan i program trenažnog procesa radi postizanja što boljih rezultata u predstojećem periodu.

Ključne reči: fudbal, seniori, Srpska liga, eksplozivna snaga, agilnost, brzina, telesna kompozicija.

CORELATION BETWEEN BODY COMPOSITION AND SOME MOTOR SKILLS OF FOOTBALL PLAYERS

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Abstract: The aim of this paper is to determine the state of the football player before starting preparations for the upcoming half-season. The sample consisted of 18 players of the third federal rank. The subjects were first measured body height (anthropometer) and then the body composition using the Inbody 770 instrument. Subsequently, tests were performed to assess the explosive leg power (CMJ, CMJa, SJ) using an instrument Optojump, agility (9-6-3-6-9, sprint 20m) and endurance (Yo-Yo endurance). Correlations have shown that there is a correlation between BMI and agility tests. The percentage of body fat and body fat in kilograms correlated with CMJ and sprint in all three stages. After the research, the level of readiness of athletes was determined and an adequate plan and program of the training process will be developed in order to achieve the best possible results in the upcoming period.

Key words: football, seniors, Serbian league, explosive force, agility, speed, body composition

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INFLUENCE OF NUTRITION IN THE PRESCHOOL PERIOD ON CHILDREN'S PHYSICAL ENDURANCE

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Abstract: In the developed world, there is an increasing proportion of children in an »slothogenic-environment« and »obesogenic-environment«. The consequence of such a way of life is the moderation in motor abilities and the decrease in motor efficiency of today's children and the increased risk of certain diseases.

Longitudinal study presents an analysis of the physical endurance and nutrition of four-to-five year olds (N=25) in a period of eight months. Dependent variable is represented by two general endurance-tests (run 10x5 meters, 6 minutes continuous run). Independent variable is the Waist-to-Height ratio. Children $WHtR \leq 0.50$ represent a group of normally-nutrition (66.7%), a group of overnutrition children (33.3%) represent children $WHtR \geq 0.51$.

With the t-test for independent samples, it was found that there was no statistically significant difference in physical endurance between normally-nutrition and overnutrition children ($p > 0.05$). When analyzing individual measurements, it was found that the physical endurance of overnutrition children compared to normally-nutrition children gets much worse after the summerholidays. The reason is probably the sedentary-life-style in the free-time of the families from which the overnutrition children come from. After the summerholidays, when these children return to the kindergarten and are included in the day-to-day activities, their physical endurance improves.

Keywords: pre-school children, nutrition, physical endurance, Waist-to-height ratio

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TELESNA AKTIVNOST STUDENATA GRADA MOSTARA

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Sažetak: Telesna aktivnost jedna je od važnijih uloga u zdravstvenom životu pojedinca. Brojna istraživanja pokazuju pozitivan uticaj telesne aktivnosti na zdravstveni status čoveka. Telesna neaktivnost koja dovodi do prekomerne telesne težine sve je veći javno zdravstveni globalni problem. Studentsko razdoblje je vreme kada je moguće unaprediti telesnu aktivnost s ciljem da telesna aktivnost postane navika i svakodnevica pojedinca. Na osnovu saznanja o telesnoj neaktivnosti primarni cilj ovoga istraživanja bio je utvrditi razinu telesne aktivnosti studenata grada Mostara u različitim domenima svakodnevnog života. Istraživanje je provedeno anketnim upitnikom International Physical Activity Questionnaire – IPAQ sa ciljem upoznavanja studenata o važnosti telesne aktivnosti u savremenom načinu života. Uzorak ispitanika činilo je ukupno 400 studenata, 150 muških (25%) i 250 ženskih (75%) sa Sveučilišta u Mostaru. Na ukupnom uzorku utvrđeno je 31,07% nedovoljno aktivnih studenata i 68,93% dovoljno aktivnih studenata. Telesne aktivnosti na poslu, u prevozu, u kućanstvu i u slobodno vrijeme podeljene su na nisku, umerenu i visoku telesnu aktivnost. Rezultati pokazuju razlike između muškaraca i žena u niskoj, umerenoj i visokoj telesnoj aktivnosti, a statistički značajna razlika dobivena je samo u telesnoj aktivnosti visokog intenziteta gde su muškarci telesno aktivniji od žena ($p < 0,05$).

Ključne reči: telesna aktivnost, telesna neaktivnost, Mostar, studenti

PHYSICAL ACTIVITY OF STUDENTS IN MOSTAR CITY

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Abstract: Physical activity is one of the most important roles in individual's health life. Numerous researches show positive influence of physical activity on human health status. Physical inactivity is a growing public health problem which leads to overweight. Student period is the perfect opportunity to improve physical activity aiming to make it a habit and a part of everyday life. Based on knowledge of physical inactivity the purpose of this study was to determine the level of activity of university students in Mostar in different areas of everyday life using the International Physical Activity Questionnaire (IPAQ) – long form with the aim of getting students acquainted with the importance of physical activity in the modern lifestyle. Survey data collection was conducted on a sample of 400 students, 150 male (25%) and 250 female (75%) from the University of Mostar. The percentage of physically inactive students was 31,07% and 68,93% physically active students. Physical activities at work, in transport, at home and leisure are divided into low, moderate and high physical activity. The results show differences between men and women in low, moderate and high body activity, and a statistically significant difference was obtained only in high intensity physical activity where men were more active than women ($p < 0.05$).

Key words: physical activity, physical inactivity, Mostar, students

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PLANINE SRBIJE KAO DESTINACIJE SPORTSKO REKREATIVNOG TURIZMA

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Sažetak: Planine predstavljaju značajan prirodni resurs za razvoj turizma. U Srbiji su se izdvojila četiri planinska centra sa polivalentnom turističkom ponudom. Cilj rada je da na osnovu istraživanja stavova i mišljenja stanovnika Novog Sada, koji su učesnici u planinskom turizmu, utvrdi koji su planinski centri najprivlačniji turistima i zašto, odnosno koji su to elementi ponude koji su potrošačima važni prilikom izbora planinskog centra. Istraživanjem je potvrđeno da su odmor, zdravlje i relaksacija primarni motivi za posetu planinama.

Ključne reči: planine, turizam, sport, motivi posete, Srbija

SERBIAN MOUNTAINS AS DESTINATIONS FOR SPORTS-RECREATION TOURISM

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Abstract: Mountains represent an important natural resource for the development of tourism. In Serbia, four mountain centers with a multivalent tourist offer were separated. The aim of the paper is to determine, based on the research of the attitudes and opinions of the inhabitants of Novi Sad who are participants in mountain tourism, which mountain centers are most attractive to tourists and why, ie what are the elements of the offer that are important to consumers when choosing a mountain center. The research confirmed that rest, health and relaxation are the primary motives for visiting the mountains.

Keywords: mountains, tourism, sport, motives of visit, Serbia

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BADMINTON I NJEGOVA ULOGA U RAZVOJU PREDŠKOLSKE DECE

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Sažetak: Badminton je globalno popularan i vrlo zabavan sport u kojem mogu uživati svi. Za rekreativni badminton treba vrlo malo opreme, a može se igrati i bez pridržavanja pravila. To ga čini vrlo pristupačnom razonodom za sve uzraste. Tada ne govorimo o badmintonu kao takmičarskom sportu sa utvđenim pravilima već obliku rekreacije. Badminton je deci atraktivan jer ih, u početku, ne obavezuje na pravila. Posle određenog vremena kod dece se razvija želja za učenjem i ovladavanjem ovim sportom. Fizičke aktivnosti imaju poseban značaj za dečji organizam koji je u dinamičnom razvoju. Kretanje predstavlja jedan od osnovnih uslova za normalan rast i razvoj mladog organizma. Telesni razvoj i stepen fizičke razvijenosti dece predstavlja dobru osnovu za sistematsku i organizovanu primenu odgovarajućih programa fizičkih aktivnosti. Pravilnim izborom programa i fizičkih aktivnosti značajno se utiče na potpuniji odmor i oporavak dece, prevenciju i otklanjanje početnih oblika degenerativnih promena dečjeg organizma. Badmintonom se kod dece kretanjem i udarcima razvija motorika, spretnost i eksplozivnost, razvijaju se koordinacija oko-ruka i akomodacija oka koja je za ovaj uzrast veoma važna, zatim razvoj snalaženja u prostoru, razvoj misaonog procesa, razmišljanja, razvijanja taktike, brze reakcije, izdržljivosti, upornosti, istrajnosti, razvijanje timske igre, takmičarskog duha i pre svega razvoj samopouzdanja.

Ključne reči: badminton, razvoj, deca

BADMINTON AND ITS ROLE IN DEVELOPMENT OF PRE-SCHOOL CHILDREN

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Abstract: Badminton is globally popular and very fun sport enjoyable for everyone. In order to play recreational badminton one needs just a few pieces of equipment, and it can be played without rules. This fact makes it accessible pass time for children of all ages. In this case we do not consider badminton as a competitive sport with defined rules but as a type of recreational activity. Badminton is attractive for children because at first they do not have to follow rules. After a period of time desire to learn and master the sport is developed in children. Physical activities have special significance for child's body which is dynamically developing. Movement is one of the primary conditions for normal growth and development of young body. Body development and a degree of physical development of children forms a good basis for systematic and organized application of physical activities. Choosing correct programme and physical activities considerably influences more complete recovery and resting of children, prevention and treatment of degenerative alterations in child's organism. Playing badminton and moving as well as practicing strokes children develop motor skills, agility and reaction time, moreover, eye-hand coordination and accommodations of eye which is very important in this age. Furthermore, space coordination and cognitive processes, tactical thinking, fast reaction, stamina, perseverance, persistence, team play, competitive spirit and most importantly confidence is developed.

Keywords: badminton, development, children

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ISPOLJAVANJE MOTORIČKIH SPOSOBNOSTI U ZAVISNOSTI OD MIŠIĆNE RELACIJE SILA-BRZINA

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Sažetak: Cilj ovog rada bio je da se kretanje čoveka i funkcija skeletnih mišića objasne kroz pojedine biomehaničke pojmove. U tu svrhu opisane su neke od biomehaničkih zakonitosti ljudskog kretanja, kao i mehanizmi mišićnog naprezanja – kako na ćelijskom nivou, tako i na nivou celokupnog mišića. S tim u vezi objašnjeni su režimi rada aktivnog mišića sa aspekta kinematike, ali i sa aspekta njegove efikasnosti. Od mehaničkih činilaca mišićnog naprezanja u radu je objašnjena zavisnost sile mišića (F) od veličine njegovog fiziološkog preseka (*relacija „sila-fiziološki presek“*), dužine mišića (*relacija „sila-dužina“*), kao i brzine promene njegove dužine (*relacija „sila-brzina“*). Zavisnost F od brzine promene dužine mišića (skraćanja / izduženja) u direktnoj je vezi i sa ispoljavanjem snage, te se u literaturi često pominje kao najznačajniji mehanički faktor F. Iz tog razloga je, na osnovu teorijskih postulata relacije *sila-brzina*, u ovom radu izvršena analiza pojedinih tipičnih pokreta i kretanja, kroz praktične primere iz pojedinih sportskih disciplina.

Ključne reči: mišićno naprezanje, ciklus izduženje-skraćenje, komponente mišićne sile.

BIOMECHANICAL PRINCIPLES OF MUSCLE „FORCE-VELOCITY“ ILLUSTRATED BY PRACTICAL EXAMPLES

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Abstract: The aim of this paper was to explain the human movement and the skeletal muscle function through certain biomechanical concepts. For this purpose, some of the biomechanical principles of human movement are described, as well as mechanisms of muscle contraction – both at the cellular and overall muscular level. In this regard, the modes of active muscle work from the aspect of kinematics, as well as the aspect of its effectiveness are explained. Of all the mechanical factors of muscle contraction, the paper explains the dependence of muscle force (F) of its physiological cross-section, muscle length (*the “length-tension” relationship*) as well as the rate of change of its length (*“force-velocity” relationship*). The dependence of F from the rate of muscle length change (shortening / stretching) is directly related to strength expression, and is often referred to as the most important mechanical factor of F. For this reason, based on the theoretical postulates of the force-speed relationship, this paper presents an analysis of certain typical moves and movements through practical examples from certain sports disciplines.

Keywords: muscle contraction, stretch-shortening cycle, components of muscle force

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ZDRAVSTVENE NAVIKE DECE MLAĐEG ŠKOLSKOG UZRASTA

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Sažetak: Zdravi stilovi života dece i omladine preduslov su za formiranje psihofizički zdrave odrasle osobe. Iz tog razloga cilj ovog istraživanja bio je procena zdravstvenih navika dece mlađeg školskog uzrasta. U tu svrhu anketirano je 798 roditelja dece iz gradske i seoske sredine. Kao merni instrument korišćen je anketni list sačinjen od 48 ajtema.

Rezultati istraživanja pokazali su da deca u najvećem procentu imaju zdrave navike po pitanju ishrane, fizičke aktivnosti i sna. Poređenjem prema polu ustanovljene su razlike između dečaka i devojčica u odnosu na to koju vrstu tečnosti najčešće unose ($\chi^2_{(3)}=9,43$, $p<0,05$), da li konzumiraju gazirana pića ($\chi^2_{(3)}=8,16$, $p<0,05$), da li se bave nekim sportom ($\chi^2_{(1)}=10,15$, $p<0,01$) i koliko sati nedeljno ($\chi^2_{(2)}=29,13$, $p<0,001$), koliko u toku dana provode vremena uz televiziju i "igrice" ($\chi^2_{(2)}=18,20$, $p<0,001$) i koliko im traje popodnevni san ($\chi^2_{(2)}=8,16$, $p<0,05$). Poređenjem prema uzrastu ustanovljene su razlike za sledeće ajteme: koju vrstu tečnosti dete najčešće unosi ($\chi^2_{(12)}=21,39$ $p<0,05$), da li dete konzumira gazirana pića ($\chi^2_{(12)}=21,32$ $p<0,05$), ako dete konzumira slatkiše, kog su tipa ($\chi^2_{(12)}=22,52$ $p<0,05$), da li se dete bavi nekim sportom ($\chi^2_{(4)}=21,81$ $p<0,001$), kada dete odlazi na spavanje ($\chi^2_{(20)}=41,94$ $p<0,01$) i koliko traje popodnevni san deteta, ukoliko ga ima ($\chi^2_{(8)}=17,91$ $p<0,05$).

Ključne reči: pravilna ishrana, gojaznost, hipokinezija, fizička aktivnosti, san.

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HEALTH HABITS OF YOUNG SCHOOL-AGE CHILDREN

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Abstract: Healthy lifestyles of children and youth are a condition for them to become psychophysically healthy adults. In line with this, the aim of this research was to assess the health habits of the young school-age children. For this purpose 798 parents of the children from urban and rural environment were involved in the study. The measuring instrument was a poll composed of 48 items.

The research results indicated that the highest percentage of children cherish healthy lifestyle in terms of nutrition, physical activity and sleep. Comparing the results by sex, research have shown differences between boys and girls in terms of the type of liquids they usually drink ($\chi^2_{(3)}=9,43$, $p<0,05$), whether they consume fizzy drinks ($\chi^2_{(3)}=8,16$, $p<0,05$), whether they engage in any sport ($\chi^2_{(1)}=10,15$, $p<0,01$), and how many hours per week ($\chi^2_{(2)}=29,13$, $p<0,001$), how many per day they spend watching TV and playing games ($\chi^2_{(2)}=18,20$, $p<0,001$), and how long their afternoon nap is ($\chi^2_{(2)}=8,16$, $p<0,05$). Comparing the results by age categories research have shown differences in the following items: *the type of liquid they usually drink* ($\chi^2_{(12)}=21,39$ $p<0,05$), *whether they consume fizzy drinks* ($\chi^2_{(12)}=21,32$ $p<0,05$), *if they eat candies, what type of candies* ($\chi^2_{(12)}=22,52$ $p<0,05$), *whether a child engages in any sport* ($\chi^2_{(4)}=21,89$ $p<0,001$), *when they go to sleep* ($\chi^2_{(20)}=41,94$ $p<0,01$) and *how long a child's afternoon nap is, if any* ($\chi^2_{(8)}=17,91$ $p<0,05$).

Keywords: healthy eating, obesity, hypokinesia, physical activity, sleep.

**EFFECT OF DIFFICULTY MANIPULATIONS ON PERFORMANCE IN
FINE MOTOR COORDINATION THROWING TASK, PERCEIVED
DIFFICULTY ACHIEVEMENT GOALS AND PERCEIVED
COMPETENCE IN YOUNG BOYS**

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Abstract: This study investigated whether the progressive difficulty level manipulations affect learning in fine motor coordination task, achievement goals and the perceived self-efficacy stability associated with perceived difficulty. Thirty-nine novices' right-handed boys (age 11.3 ± 0.4 years; stature 147 ± 8.94 cm; body mass 40.57 ± 0.07 kg; mean \pm SD), volunteers, were assigned to either control group (CTG: no difficulty manipulations), and two experimental groups: group 1 (EG1: one-dimension difficulty manipulation) and group 2 (EG2: two-dimensions difficulty manipulation). The primary outcome measures from the darts throwing performance were accuracy, assessed by means scores and errors, and consistency through the coefficients of variation. The perceived difficulty (PD) level, goal-setting and perceived competence was also recorded. Results show significant effect between-groups ($p = 0.01$, $\eta^2 = 0.215$) based on difficulty strategy manipulation. Analysis showed an improvement in accuracy values in retention tests for only EG₁ and also a significant lower coefficient of variation compared to the CTG and EG₂ ($p = 0.025$, $\eta^2 = 0.265$). Moreover, PD for only EG₁ was significantly different between all test-phases ($p = 0.041$, $\eta^2 = 0.234$) ($p < 0.05$). Analyses do not show significant dependence between achievement goals adoption for all groups. Moreover, Bland and Altman test showed no correlation between achievement goals, perceived competence and performance in dart throwing. PD may be used as indicator when learning a novel and fine motor coordination task.

Keywords: Difficulty manipulation; Fine motor skills; perceived competence; Perceived difficulty; Achievement goal

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OPŠTI NIVO AKTIVNOSTI I UČEŠĆE UČENIKA U PRAKTIČNOJ NASTAVI U STRUČNIM ŠKOLAMA

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Sažetak: Adolescencija predstavlja kritični period razvoja tokom kojeg se uspostavljaju lični životni izbori i obrasci ponašanja, uključujući i izbor mladih da budu fizički aktivni. Mladi današnjice suočeni su sa mnoštvom izbora i njihovi interesi se menjaju iz aktivnog u sedentarni. Cilj ovog istraživanja bio je da se ispita uloga fizičke aktivnosti u angažovanju učenika u praktičnoj nastavi u stručnim školama. U ovoj studiji učestvovalo je 87 učenika uzrasta od 15 do 19 godina i dvanaest nastavnika praktične nastave. Istraživanje je sprovedeno u Medicinskoj i Tehničkoj školi u Užicu. U ovom istraživanju smo se fokusirali na bihevioralno angažovanje i obuhvatili sve tri dimenzije: ponašanja učenika u toku praktične nastave, učešće u praktičnim aktivnostima i interesovanje učenika za praktični zadatak. Nastavnici su procenjivali angažovanje učenika. U istraživanju je korišćen instrument Profil aktivnosti mladih (Youth Activity Profile (YAP), alat koji je dizajniran za procenu fizičke aktivnosti i sedentarnih navika dece i adolescenata u školi i kod kuće. Rezultati su pokazali da je fizička aktivnost povezana sa svim aspektima angažovanja učenika u praktičnoj nastavi u stručnim školama. Na kraju, predložene su praktične implikacije za školsku praksu.

Ključne reči: fizička aktivnost, angažovanje učenika, stručne škole

GENERAL ACTIVITY LEVELS AND STUDENT ENGAGEMENT IN PRACTICAL ACTIVITIES IN VOCATIONAL SCHOOLS

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Abstract: Adolescence represents a critical period of development during which personal lifestyle choices and behaviour patterns establish, including the choice to be physically active. The youth of today is faced with a plethora of activity choices, and their interests change from being active to sedentary. The aim of this research was to study the role of physical activity in student engagement in practical activity in vocational schools. Eighty-seven students aged 15 to 19 years participated in this study and twelve teachers. The research was conducted at Medical and Technical School in Užice. In the present study we focused on behavioral engagement and encompassed all three dimensions of student conduct in class, participation in practical activities, and student interest in the practical task. The teachers assessed the student engagement. We used Youth Activity Profile (YAP), tool that was designed to assess children and adolescent's PA and sedentary habits both in school and at home. The results revealed that physical activity is related to all the aspects of student engagement in practical activities in vocational schools. Finally, we conclude with sets of practical implications for school practice.

Keywords: physical activity, student engagement, vocational schools

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RAZLIKE U STAVOVIMA PREMA BORILAČKIM SPORTOVIMA IZMEĐU UČENIKA STAROSTI 13 GODINA KOJI SE BAVE BORILAČKIM SPORTOVIMA I UČENIKA NESPORTISTA

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Sažetak: Istraživanje je provedeno na 120 ispitanika, učenika starosti od 13 godina iz urbanih sredina s područja Zeničko-dobojskog kantona, muškog spola od koji treniraju borilačke sportove (đudo, karate, tekvondo) deca nespportisti (nisu u sportskoj školi ili treningu). Osnovni cilj istraživanja bio je utvrditi eventualno postojanje statistički značajnih razlika u stavu prema borilačkim sportovima kod učenika koji se bave određenim borilačkim sportovima i učenika nespportista. Stav prema borilačkim sportovima je mjereno skalom stava prema borilačkim sportovima (SBS, Bosnar, Sertić i Prot, 1996). Analizom rezultata Mann Whitney testa može se konstatovati da djeca koja upražnjavaju borilačke sportove, u većini varijabli imaju značajnu razliku u općem stavu prema borilačkim sportovima u odnosu na učenike koji nisu uključeni u sportske aktivnosti.

Ključne reči: borilački sportovi, skala stava, sportisti, nespportisti.

DIFFERENCES IN ATTITUDES TO MARTIAL ARTS BETWEEN STUDENTS AGED 13 WHO ARE ENGAGED IN MARTIAL ARTS AND NON-ATHLETE STUDENTS

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Abstract: The study was conducted on 120 subjects, male students aged 13, from urban areas, from the area of Zenica-Doboj Canton, male gender who train martial arts (judo, karate, taekwondo), non-athletic children (who are not in Sports school or training). The main objective of the study was to determine the existence of statistically significant differences in attitude to martial arts between students who are engaged in various martial arts and non-athlete students. The attitude to martial arts is measured with a scale of attitudes to martial arts (SBS, Bosnar, Sertić and Prot, 1996). With the analysis of the results of the Mann Whitney test can be concluded that children who practice martial arts in most of the variables have a significant difference in the general attitude to martial arts compared to students who are not engaged in sport activities or non-athletes.

Key words: martial arts, scale of attitude, athletes, non-athletes.

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DA LI POSTOJI STATISTIČKI ZNAČAJNA RAZLIKA U MOTORIČKIM SPOSOBNOSTIMA IZMEĐU UČENIKA SPORTISTA I NE SPORTISTA?

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Sažetak: Cilj ove studije je bio da se potvrdi hipoteza da postoji statistički značajna razlika u motoričkim sposobnostima učenika-sportista i učenika-nesportista. Uzorak ispitanika je činilo 112 učenika sedmog i osmog razreda osnovne škole. Jednu grupu su sačinjavali 54 učenika oba pola koji su uključeni u organizovane sportske aktivnosti hronološke dobi 13.52 ± 0.54 godina, TM 61.57 ± 10.16 (kg), TV 172.77 ± 8.84 (cm) i BMI 20.57 ± 2.59 (kg/m²). Subuzorak učenika-nesportista sačinjavali su 58 učenika oba pola hronološke dobi 13.57 ± 0.50 godina, TM 57.49 ± 11.69 (kg), TV 166.88 ± 6.30 (cm) i BMI 20.61 ± 3.85 (kg/m²). Za procenu motoričke sposobnosti eksplozivne snage donjih ekstremiteta korišćen je test skok u dalj iz mesta, za procenu eksplozivne snage gornjih ekstremiteta korišćen je test bacanje medicine sa stolice i za procenu agilnosti korišćen je test sprint 5x10m. Nakon testiranja i obrade podataka studija je potvrdila hipotezu da postoje statistički značajne razlike u motoričkim varijablama između učenika-sportista i učenika-nesportista. Vrednost Sig (2-taild) $p=0.000$ za sve tri zavisne varijable, kazuje nam da postoji statistički značajna razlika između srednjih vrednosti zavisnih varijabli. Ovom rezultatu doprinele su razlike u pojedinačnim varijablama. Vrednosti gornje i donje granice sa verovatnoćom od 95% sadrži stvarne veličine tih razlika. Dobijena Vrednost Sig (2-taild) $p=0.000$ za sve tri zavisne varijable nam kazuje da postoji statistički značajna razlika između srednjih vrednosti zavisnih varijabli. Dobijeni pokazatelj veličine uticaja ukazuje na veličinu razlike između grupa. Na osnovu dobijenih rezultata zaključuje se da učesnici u sportu imaju statistički značajno bolje motoričke sposobnosti.

Ključne reči: Fizičko vaspitanje, sport, učenici-sportisti, učenici-nesportisti

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IS THERE A STATISTICALLY SIGNIFICANT DIFFERENCE IN MOTOR SKILLS BETWEEN A SPORTS AND UNSPORTS STUDENTS?

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Abstract: The aim of this study was to confirm the hypothesis that there is a statistically significant difference in the motor skills of student athletes and non-sports students. The sample of the examiners consisted of 112 students of the seventh and eighth grades of elementary school. One group consisted of 54 students of both sexes involved in organized sports activities chronologically age 13.52 ± 0.54 years, BM 61.57 ± 10.16 (kg), BH 172.77 ± 8.84 (cm) and BMI 20.57 ± 2.59 (kg / m²). The sample of non-admission students consisted of 58 pupils of both sexes of chronological age of 13.57 ± 0.50 years, BM 57.49 ± 11.69 (kg), BH 166.88 ± 6.30 (cm) and BMI 20.61 ± 3.85 (kg / m²). To test the motor abilities of the explosive power of the lower extremities, was used a long jump test, for the evaluation of the explosive power of the upper extremities, was used the test of the medicine from the chair, and the sprint test 5x10m was used to assess the agility. After testing and data processing, the study confirmed the hypothesis that there are statistically significant differences in motor variables between sports students and non-sports students. Sig (2-tailed) whose value $p = 0.000$ for all three dependent variables tells us that there is a statistically significant difference between the mean values of the dependent variables. This result has contributed to differences in individual variables. Upper and lower bounds with a probability of 95% contain the actual sizes of these differences. The obtained Sig value (2-tailed) whose value $p = 0.000$ for all three dependent variables tells us that there is a statistically significant difference between the mean values of the dependent variables. This result has contributed to differences in individual variables. The obtained indicator of the size of the effect indicates the size of the difference between the groups. Based on the obtained results, it is concluded that the participants in the sport have statistically significantly better motor skills.

Key words: Physical education, sport, sports students, non- sport students

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FAKTORSKA STRUKTURA NEGATIVNOG PONAŠANJA KARATE TRENERA

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Sažetak: Cilj istraživanja bio je da se ispita intenzitet i struktura relacija negativnog ponašanja trenera, kao i povezanost između njihovog nepoželjnog ponašanja i rukovođenja kod karatista adolescenata. Studijom preseka obuhvaćen je prigodni uzorak (N=202) karatista juniora prosečne starosti $17,30 \pm 0,70$ godina. U istraživanju su korišćena dva merna instrumenta: Upitnik negativnog ponašanja trenera (UNPT; Greblo i Bosnar, 2008) i Upitnik rukovođenja u sportu (LSS; Chelladurai & Saleh, 1980). Povezanost između varijabli procenjivana je Pirsonovom koeficijentom korelacije, a latentna struktura Analizom glavnih komponenti (PCA). Početni stepen statističke značajnosti bio je $p < 0,05$. Vrednosti Kronbahovog α koeficijenta su bile veće od 0,70, što je pokazalo da su testirani merni instrumenti validni i primenljivi i u srpskoj karate populaciji. Utvrđene su statistički signifikantne interkorelacije između kompozitnih varijabli UNPT-a i LSS upitnika i supskala upitnika. Primenom kosougle *Direct Oblimin* rotacije na osnovu 13 varijabli ekstrahovane su tri latentne dimenzije, koje objašnjavaju 52,55% ukupne varijanse. Prvi faktor (F_1) – „Nesenzibilnost za lično blagostanje karatista“ tumači 38,56%, ukupne varijanse, drugi faktor (F_2) – „Negativna povratna informacija“, objašnjava 7,90% i treći faktor (F_3) – „Orijentacija na rezultat“ tumači 6,09% varijanse. Rezultati korelacionog istraživanja su diskutovani u kontekstu savremenih istraživanja negativnog ponašanja trenera u različitim sportskim kulturama. Izolovani konstrukti u skladu su sa rezultatima dosadašnjih sličnih inostranih studija i faju relevantan doprinos teorijskom razumevanju latentnih odnosa sklopa negativnog ponašanja karate trenera.

Ključne reči: latentne dimenzije, nepovoljno ophođenje trenera, rukovođenje u sportu, karatisti adolescenti

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FACTORIAL STRUCTURE OF NEGATIVE BEHAVIOR OF KARATE INSTRUCTORS

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Abstract: The aim of this research was to examine the intensity and structure of the relations of negative behavior of instructors, as well as the link between their undesirable behavior and teaching karate to adolescents. This cross-sectional study included the pertinent sample (N=202) of junior karatekas, age $17,30 \pm 0,70$. Two measuring instruments were used in this research: Instructors' Negative Behavior Questionnaire (INBQ; Greblo and Bosnar, 2008) and Leadership Scale for Sport (LSS; Chelladurai & Saleh, 1980). The link between the variables was measured using Pearson correlation coefficient, and the latent structure was measured using Principal component analysis (PCA). The initial degree of statistical relevance was $p < 0,05$. The values of Cronbach's alpha coefficient were over 0,70, which showed that the measuring instruments are valid and applicable to Serbian population of karateka. Statistically significant intercorrelations were found between the composite variables of INBQ and LSS and the subscales. Applying the direct oblimin rotation on 13 variables, three latent dimensions were extracted and they account for 52,55% of total variance. The first factor (F₁) – “Insensitivity to personal well-being of the athlete” accounts for 38,56% of total variance, the second factor (F₂) – “Negative feedback” accounts for 7,90% of total variance, and the third factor (F₃) – “Orientation towards result” accounts for 6,09% of total variance. The results of this correlational research are discussed within the context of modern research on negative behavior of instructors in various sports. The isolated constructs are in accordance with the results of current international studies and they contribute to theoretical understanding of the latent relations of the negative behavior of karate instructors.

Key words: latent dimensions, negative behavior of instructors, leadership in sport, karateka adolescents

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ZNAČAJ I ZASTUPLJENOST SPORTSKO REKREATIVNIH AKTIVNOSTI NA PROSTORU MEDITERANA

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Sažetak: Animacija sportsko rekreativnim aktivnostima u turizmu ima važnu ulogu primenom kvalitetnih programa rekreativnih aktivnosti na turističkim destinacijama. U skladu sa savremenim uslovima života i turistički uslovi prate potrebe pa se savremenom turisti nude brojni programi u kojima može aktivno učestvovati i unapređivati svoja iskustva, mogućnosti i svoje zdravlje. Predmet rada su potrebe i značaj primene animacije programima sportsko rekreativnih aktivnosti u turizmu. Cilj rada je da se analizira ponuda sportsko-rekreativnih sadržaja u turističkim objektima širom Mediterana. Korišćena je metoda teorijske analize. U ovom delu istraživanja birali smo hotele i hotel rizorte koji imaju animaciju. Zbog složenosti problematike koju smo pratili, podatke smo prikupljali pre svega uz pomoć internet prezentacija, turističkih časopisa, promotivnih materijala i ličnim kontaktom. Izvršena je analiza 48 hotela koji imaju programe animacije. Rezultati istraživanja nam pokazuju da je najviše takvih hotela na prostoru Grčke, zatim slede Egipat, Turska i druge države navedene u tabeli. Na primeru ovih programa vidimo da je ponuda sportsko-rekreativnih aktivnosti velika i varira od hotela do hotela. Aktivnosti poput: jutarnjeg vežbanja, mini-kluba, odbojke na pesku, vodene gimastike, škole plesa, vaterpola, boćanja, igara u bazenu, svih sportskih igara na terenima itd., deo su aktivnosti koje se pojavljuju u većini hotela i time čine ponudu ujednačenom i sličnom.

Ključne reči: Animacija, Sportsko - Rekreativne aktivnosti, Turizam

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SIGNIFICANCE AND PRESENCE OF SPORT - RECREATIONAL ACTIVITIES IN MEDITERRANEAN

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Abstract: Animation with sport- recreational activities in tourism plays an important role by applying quality programs of recreational activities on tourist destinations. In accordance with the modern conditions of life and tourist conditions, the needs are followed, so modern tourists are offered numerous programs in which they can actively participate and improve their experiences, opportunities and their health. The subject of work is the need and importance of applying animation to recreational tourism programs. The aim of the paper is to analyze the offer of sports and recreational facilities in tourist facilities around the Mediterranean. The method of theoretical analysis was used. In this part of the research, we selected hotels and hotel rickshorts that have animation. Due to the complexity of the issues we have followed, we collected data first of all with the help of internet presentations, tourist magazines, promotional materials and personal contact. An analysis of 48 hotels with animation programs was carried out. The results of the survey show that most such hotels are located in Greece, followed by Egypt, Turkey and other countries listed in the table. On the example of these programs we see that the offer of sports and recreational activities is large and varies from hotel to hotel. Activities such as morning exercise, mini club, beach volleyball, water gymnastics, dancing schools, water polo, boccia, pool games, all sports games on terrains, etc. are part of the activities that appear in most hotels and thus offer a uniform and similar.

Keywords: Animation, Sport- Recreational Activities, Tourism

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EFEKTI ZDRAVSTVENO – PREVENTIVNOG PROGRAMA NORDIJSKOG HODANJA NA FUNKCIONALNI STATUS ŽENA STAROSTI OD 30 DO 40 GODINA

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Sažetak: Za ublažavanje negativnih efekata tehnološkog razvoja i savremenog načina života neophodna je primena odgovarajućih modela programa fizičke aktivnosti zdravstveno – preventivne usmerenosti. Njihovom primenom se efikasno utiče na optimizaciju funkcionalnih sposobnosti, očuvanju i unapređenju zdravlja, otklanjanju i ublažavanju zdravstvenih tegoba. U poslednje vreme nordijsko hodanje kao sportsko-rekreativna aktivnost se koristi kao zdravstveno-preventivna tehnologija. U ovom istraživanju uzorak ispitanika je bio sačinjen od ispitanica ženskog pola starosti od 30 do 40 godina. Ukupan uzorak u istraživanju činilo je 28 ispitanica (N= 28). Primljeni eksperimentalni program nordijskog hodanja, tri puta nedeljno, u trajanju od tri meseca, izazvao je promene u rezultatima funkcionalnih sposobnosti. Testiranje razlika između inicijalnog i finalnog merenja efekata funkcionalnih sposobnosti primenjenog programa pokazuju značajnu statističku razliku na nivou značajnosti $p < 0,05$ kod svih ispitivanih varijabli (vitalni kapacitet - FVITKP, frekvencija srca u miru - FFSRCM, radni puls - FFSRCR, sistolni arterijski krvni pritisak - FTASI, dijastolni arterijski krvni pritisak - FTADI, relativna potrošnja kiseonika - VO₂ max, proba Štange - PŠ, proba Romberga - PR). Cilj istraživanja je evaluacija efekata tromesečnog programa nordijskog hodanja na funkcionalne sposobnosti žena starosti od 30 do 40 godina.

Ključne reči: nordijsko hodanje, funkcionalna sposobnost, ženski organizam

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EFFECTS OF HEALTH AND PREVENTION PROGRAMME OF NORDIC WALKING ON THE FUNCTIONAL STATUS OF WOMEN AGED 30-40

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Abstract: In diminishing negative effects of technological development and the contemporary lifestyle, it is necessary to apply proper models of physical activity programmes namely oriented towards health and prevention. The application of such models enables efficient optimization of functional capacities, preserving and enhancing health, as well as eliminating and diminishing health problems. Lately, Nordic walking has been used as a sports-recreational activity and as a health and prevention technique. In this research the sample of examinees consisted of females aged 30-40. The total number of examinees comprised 28 individuals (N=28). The applied Nordic walking experimental programme of three times a week in the duration of three months resulted in change in the results of functional capacities. Testing differences between the initial and final measuring of the effects of functional capacities of the applied programme show a significant statistical difference corresponding to significant level $p < 0.05$ in all examined variables (vital capacity - FVITKP, heart rate in state of inactivity - FFSRCM, pulse in state of activity - FFSRCR, systolic blood pressure - FTASI, diastolic blood pressure - FTADI, relative oxygen consumption - VO₂ max, Stanga test - PŠ, Romberg test - PR). The aim of this research is to evaluate the effects of a three-month long programme of Nordic walking on functional capacities of women aged 30-40.

Key words: Nordic walking, functional capacity, female body

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ISHRANA SPORTISTA PRE, ZA VREME I NAKON SPORTSKE AKTIVNOSTI

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Sažetak: Cilj ovog rada je usmeren na isticanje bitnih odrednica koje je neophodno poštovati kako bi se pružila adekvatna ishrana sportista u svakoj fazi sportskog ciklusa. U radu su predstavljene specifičnosti unosa hrane pre, za vreme i nakon sportskog događaja uz sadržaj obroka, vremena kada se konzumira, pozitivnih i negativnih efekata konzumiranja hrane za potrebe sporta. Svaka fizička aktivnost, posebno ona koja je svojstvena sportu, suštinski je stres za organizam. Usled stresnog stanja metabolički procesi se odvijaju pod specifičnim režimom rada. Razumevanje potreba organizma tokom sporta doprinosi pravilnom određivanju obroka za svakog sportistu. Faktori pola, vrsta sporta, uzrast, takmičarski period, razvojne faze sportista, individualne karakteristike, zdravstveni status određuju plan i program konzumiranja nutritivnih elementa koji se konzumiraju u različitim periodima sportskog razvoja. Pažljivo planirana ishrana ima za cilj da sportisti pruži podršku u prevazilaženju svih fizičkih zahteva sporta, pripremi sportistu za takmičenje ili trenažni napor, pruži dovoljno energije, obnovi organske sisteme, posebno lokomotorni aparat i očuva zdravlje. Sportistima je neophodan adekvatan obrok za sva tri perioda tokom takmičarske sezone.

Ključne reči: nutritivni elementi, plan i program ishrane, sportisti, takmičarski period

SPORTS NUTRITION BEFORE, DURING AND AFTER THE SPORTS ACTIVITY

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Abstract: The aim of this paper is to highlight important guidelines that must be respected in order to ensure adequate nutrition for athletes in every stage of the sports cycle. The paper presents the specificity of food intake before, during and after the sporting event, highlighting the content of the meal, the time when consumed, the positive and negative effects of consuming food for the needs of sports. Every physical activity, especially the one that is characteristic of sports, is essentially a stress for the body. Due to stress, metabolic processes take place under a specific mode of operation. Understanding the needs of an organism during sport contributes to the correct determination of the meal for each athlete. Gender factors, type of sport, age, competitive period, developmental stages of athletes, individual characteristics, health status determine the plan and program of consumption of nutritional elements consumed in different periods of sports development. Carefully planned nutrition aims at athletes to provide support in overcoming all physical needs of sports, preparing athletes for competition or training effort, providing enough energy, restoring organic systems, especially locomotor apparatus and preserving health. Athletes need meal planning for all three periods during the competitive season.

Keywords: nutrition elements, nutrition plan and program, athletes, competitive period

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MULTIMODALNI PROGRAM TRENINGA RAZVOJA PSIHOLOŠKIH VEŠTINA U SLUŽBI POBOLJŠANJA SPORTSKE TEHNIKE

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Sažetak: Razvojem psiholoških veština u službi sportskog postignuća podiže se mentalni nivo mladih sportista čiji se benefiti manifestuju kroz bolju iskorišćenost psiho-fizičkih potencijala. Savremene tendencije profesionalnog sporta usmerene su na tretmane mentalnog treninga, psihologija sporta predstavlja rezervu koja se može iskoristiti u podizanju nivoa takmičarske uspešnosti. Razvoj specifičnih, multimodalnih programa koji razvijaju psihološke veštine sa individualnim pristupom omogućava razvoj novih trenažnih tehnologija i proširuje bazu naučnih saznanja. Cilj rada usmeren je na predstavljanje dodatnih metoda i tehnika koje se mogu koristiti u obuci sportskih veština ali i u otklanjanju psiholoških stanja koja narušavaju sportsko postignuće. Multimodalni program treninga je nekonvencionalni pristup u radu sportskih stručnjaka na poboljšanje sportskih performansi, sportski psiholozi u mnogome mogu poboljšati kognitivne puteve kojima je uslovljeno motoričko izvođenje. Takođe, multimodalni program treninga razvoja psiholoških veština doprinosi umanjenju ili otklanjanju mnogih negativnih psiholoških stanja, anksioznosti, strahova, mentalnih barijera i dr. U radu su predstavljene osnovne tehnike koje se koriste u multimodalnom programu psihološkog razvoja, teorijska pozadina mehanizama koji povezuju kognitivne i motoričke dimenzije i primeri dobre prakse u kojima je multimodalni program razvoja psiholoških veština doveo do poboljšanja performansi.

Ključne reči: imaginacija, postavljanje ciljeva, samorazgovor, sport, razvoj veština

MULTIMODAL PROGRAM TRAINING DEVELOPMENT PSYCHOLOGICAL SKILLS IN SERVICE IMPROVEMENT SPORTS TECHNIQUES

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Abstract: With the development of psychological skills in the service of sports achievement raises the mental level of young athletes whose benefits are manifested through the better use of psycho-physical potential. Modern tendencies of professional sports are focused on the treatment of mental training, sport psychology present to reserve that can be used to raise the level of competitive success. Development of specific, multimodal programs that develop psychological skills with an individual approach to the development of new technologies and expand the training base of scientific knowledge. The aim of the paper is focused on the presentation of additional methods and techniques that can be used in the training of sports skills, but also in the elimination of psychological conditions that interrupt the sport achievement. The multimodal training program is an unconventional approach in the work of sports professionals to improve sports performance, sports psychologists can greatly improve cognitive pathways that are conditioned by motor performance. Also, the multimodal training program for the development of psychological skills contributes to the reduction or elimination of many negative psychological states, anxiety, fears, mental barriers, etc. The paper presents the basic techniques used in the multimodal program of psychological development, theoretical background mechanisms that connect cognitive and motor dimensions and examples of good practice in which the multimodal program of development of psychological skills has led to improved performance.

Keywords: imagination, goal setting, self-talk, sport, skills development

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METODE ZA PROCENU BIOLOŠKE ZRELOSTI U SPORTU

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Sažetak: Cilj rada usmeren je na prikaz različitih metoda za procenu biološke zrelosti kojima se mogu definisati razlike između hronološkog uzrasta i biološke zrelosti kod mladih sportista. Biološko sazrevanje je nelinearan proces, odvija se na svim organskim nivoima različito od protoka vremena nakon rođenja. Sa tog stanovišta javlja se potreba utvrđivanja razlika u brzini biološkog sazrevanja u okviru hronološkog perioda. Definisane biološke zrelosti sportista ima višedimenzionalni značaj, procena zrelosti mladih u poređenju sa hronološkim uzrastom ima implikativnu vrednost, selekcija i predikcija sportskog postignuća na individualnom nivou od presudnog je značaja za planiranje i programiranje trenažnog procesa. Povratne informacije procene zrelosti imaju funkciju u prevenciji i sprečavanju povređivanja sportista koji kasne u razvoju od svojih vršnjaka. Sportisti koji su napredni u odnosu na svoju hronološku generaciju, u mlađim selekcijama rano dosežu plato sportske performanse što se može negativno odraziti na uspeh u seniorskom periodu. U radu su prikazane osnovne metode procene biološke zrelosti koje se koriste u dijagnostici mladih sportista. Biološka zrelost može se odrediti metodom radiografije, antropometrijskih mera i polnih pokazatelja.

Ključne reči: radiografija, polni pokazatelji zrelosti, maksimalna brzina rasta, mladi sportisti

METHODS FOR THE EVALUTION OF BIOLOGICAL MATURITY IN SPORT

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Abstract: The aim of the paper is to present various methods for the evaluation of biological maturity which can define the differences between chronological age and biological maturity in young athletes. Biological maturation is a non-linear process, taking place at all organic levels, differing from the flow of time after birth. From this point of view, there is a need to determine the differences in the rate of biological maturation within the chronological period. Defining the biological maturity of athletes has a multidimensional significance, the evaluation of youth's maturity in comparison with the chronological age has an implicit value, the selection and prediction of sports achievement at the individual level is crucial for the planning and programming of the training process. Evaluation maturity feedback has a function in preventing and stopping injuries of athletes who are lagging behind from their coeval. Athletes who are advanced in comparison to their chronological generation, in younger selections, reach a plateau of sports performance early, which can negatively affect success in the senior period. The paper presents the basic methods of evaluation of biological matrices used in the diagnosis of young athletes.

Keywords: radiography, sexual indicators of maturity, height peak velocity, young athletes

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**PRIMENA ELEMENTARNIH IGARA U CILJU RAZVOJA
ANTROPOMOTORIČKIH SPOSOBNOSTI DECE MLAĐEG ŠKOLSKOG
UZRASTA**

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Sažetak: Cilj ovog rada bio je da se ispita uticaj elementarnih igara na razvoj antropomotoričkih sposobnosti dece mlađeg školskog uzrasta, kao i razlika u nivou antropomotoričkih sposobnosti između različitih uzrasnih kategorija (7, 8, 9 i 10 godina) pre (PRE) i nakon (POST) šestomesečne primene eksperimentalnog faktora. U tu svrhu praćene su morfološke varijable *visina tela* (TV) i *masa tela* (TM), kao i antropomotoričke varijable *taping rukom* (TR), *skok udalj iz mesta* (SDM), *ležanje-sed* (LS) i *čunasto trčanje 10 x 5 m* (ČT). Istraživanje je pokazalo da za sve uzrasne kategorije postoji razlika po pitanju morfoloških varijabli PRE i POST, kao i razlika u TV i TM između pojedinih uzrasnih kategorija. Ispitivanje antropomotoričkih varijabli pokazalo je poboljšanje antropomotoričkog statusa dece po svim praćenim varijablama, uz veliki uticaj eksperimentalnog faktora. Veličina uticaja kretala se u rasponu od $\eta_p^2 = 0,19$ do $\eta_p^2 = 0,95$. Međutim, prilikom tumačenja rezultata ovog istraživanja treba imati u vidu činjenicu da kod dece ovog uzrasta antropomotoričke sposobnosti još uvek nisu jasno izdiferencirane, te da je teško govoriti o poboljšanju pojedinačnih sposobnosti, već pre o opštem antropomotoričkom statusu, i to prvenstveno opšte motorne koordinacije.

Ključne reči: motorika, igra, rast i razvoj, opšta motorna kordinacija.

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THE IMPLEMENTATION OF RECESS GAMES FOR THE DEVELOPMENT OF ANTHROPOMOTOR ABILITIES OF YOUNG SCHOOL-AGE CHILDREN

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Abstract: The aim of this study was to assess the effect of recess games on the development of anthropomotor abilities of young school-age children, as well as the difference between the levels of anthropomotor abilities among different age categories (7, 8, 9 and 10 years of age) before (PRE) and after (POST) the six-month implementation of the experimental factor. For that purpose, the following morphological variables were assessed: *body height* (TV) and *body mass* (TM), as well as anthropomotor variables: *hand tapping* (TR), *standing long jump* SDM, *supine to sit* (LS) and *shuttle run test 10 x 5 m* (ČT). The results indicate that there is a difference in the PRE and POST morphological variables for all age categories, as well as in TV and TM between certain age categories. Anthropomotor variables showed an improvement in the anthropomotor status of children in terms of all variables, with a great impact of the experimental factor. The effect size ranged from $\eta_p^2 = 0.19$ to $\eta_p^2 = 0.95$. However, when interpreting the results of this research, one should bear in mind the fact that the anthropomotor skills in children of this age are not yet clearly differentiated, and that it is difficult to talk about improving individual abilities, but rather about general anthropometric status, primarily general motor coordination.

Keywords: motor abilities, game, growth and development, general motor coordination.

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STATUS STOPALA DECE UZRASTA 12 GODINA IZ URBANE SREDINE

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Sažetak: Zahvaljujući svojoj specifičnoj građi stopalo predstavlja značajan segment aparata za kretanje od izuzetnog značaja za celokupnu posturu, naročito mladog organizma u razvoju. Međutim, poslednjih decenija primetan je trend porasta deformiteta stopala kod dece, još od ranog detinjstva. Iz tog razloga cilj ovog istraživanja bio je procena statusa stopala dece osnovnoškolskog uzrasta. Uzorak ispitanika činilo je 78-oro dece uzrasta 12 godina, oba pola (32 dečaka i 46 devojčica) iz urbane sredine. U istraživanju su praćene sledeće varijable: visina tela (TV), masa tela (TM), status stopala (SS) i učestvovanje u programiranom fizičkom vežbanju, mimo redovne nastave fizičkog vaspitanja (BS). U svrhu procene statusa stopala primenjena je metoda plantografije po Tomsenu (*Thomsen*).

Rezultati istraživanja zabeležili su odsutvo razlika između polova po svim praćenim varijablama. Ispitivanje SS pokazalo je da 46,2% ispitivane dece ima normalno stopalo, 37,2% - I stadijum, 3,8% - II stadijum i 12,8% - III stadijum poremećaja statusa stopala. Pored toga, istraživanjem je zabeleženo da dečaci koji se dodatno bave nekim sportom imaju bolji status stopala od dečaka koji mimo nastave fizičkog vaspitanja ne učestvuju u dodatnim oblicima fizičkog vežbanja (levo stopalo: $\chi^2_{(3)} = 9,77$, $p < 0,05$ i desno stopalo: $\chi^2_{(3)} = 16,79$, $p < 0,01$).

Ključne reči: držanje tela, posturalni status, plantografija, deformiteti stopala.

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THE FOOT POSTURE OF 12-YEAR-OLD CHILDREN FROM THE URBAN ENVIRONMENT

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Abstract: Thanks to its specific structure, the foot represents a significant segment of locomotor system of exceptional importance for the entire body posture, especially the young developing organism. However, in recent decades, the trend of an increase in foot deformity in children has been noticeable since the early childhood. For this reason, the aim of this study was to assess the status of foot posture of elementary school children.

Subject were 78 children aged 12 years, both boys (N = 32) and girls (N = 46) from the urban environment. The following variables were monitored: body height (TV), body mass (TM), foot posture (SS) and participation in programmed physical exercise, beyond regular classes of physical education (BS). For the purpose of assessing the foot posture, Thomsen's plantography method was applied.

The results showed the absence of sex differences across all observed variables. Assessment of SS showed that 46.2% of the children had a proper foot posture, 37,2% – I degree, 3,8% – II degree and 12,8% – III degree of the foot disorder. In addition, the study found that boys who practice additional sports have a better foot posture than boys who do not participate in additional physical exercise activities (left foot: $\chi^2_{(3)} = 9,77$, $p < 0,05$ and the right foot: $\chi^2_{(3)} = 16.79$, $p < 0.01$).

Keywords: body posture, postural status, plantography, foot deformities.

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RAZLIKE U IGRI UČESNIKA FINALA EVROPSKOG PRVENSTVA 2016 U FUDBALU NA OSNOVU SREDSTAVA TAKTIKE NAPADA

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Sažetak: Cilj istraživanja je da se na osnovu uporedne analize sredstava taktike napada, utvrde razlike u igri timova i na osnovu toga, izdvoje značajni indikatori uspešnosti u fudbalu. Analiza je sprovedena na utakmici finala EP 2016 u fudbalu, u trajanju od 120 minuta. Analizirana su sredstva taktike fudbalske igre u napadu na finalistima - Portugalija i Francuska. Učešće je uzelo ukupno 28 igrača, po 14 u oba tima. Za potrebe rada formiran je posmatrački list, na osnovu prethodnih istraživanja i ličnog iskustva autora. U posmatrački list je uneto 30 varijabli, koje su analizirane u radu. Video snimak utakmice je skinut sa interneta, a analiza je izvršena uz pomoć prenosivog uređaja, u aplikaciji Dartfish EasyTag. Dobijeni rezultati bili su obrađeni postupcima deskriptivne statistike - ukupna vrednost i procentualna vrednost. Nakon celokupnog izvršenog istraživanja, dokazano je da postoje značajni indikatori uspešnosti, odgovorni za razlike u igri timova, ali ne i za rezultat.

Ključne reči: analiza igre, napad, napadačka sredstva taktike, fudbal

DIFFERENCES IN THE PERFORMANCE OF THE PARTICIPANTS IN THE EUROPEAN FOOTBALL CHAMPIONSHIP FINALS 2016 BASED ON OFFENSIVE TACTICS

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Abstract: Based on comparative analysis of the offense tactics methods, this research is aimed at establishing the differences in teams' performances regarding which significant success indicators will be specified. This analysis was applied to the EC 2016 Finals match which lasted 120 minutes. It examined the finalists' football offense tactics methods – Portugal and France. Twenty-eight players (fourteen players per team) have participated in the match. To the needs of this research, an examination sheet has been designed based on previous research and author's personal experience. This sheet includes thirty variables which have been observed in the research paper. Video recording of the match was downloaded from the internet and the analysis was done via removable gadget in Dartfish EasyTag application. The founded results were processed in descriptive statistics methods – overall value and percent value. After the complete research, it has been proved that there are significant success indicators responsible for the differences in teams' performances.

Key words: game analysis, offense, offense tactics methods, soccer

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MOTORIČKI TESTOVI U FUDBALU U POSLEDNJIH 12 GODINA

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Sažetak: Cilj ovog preglednog istraživanja bio je da se na osnovu dosadašnjih radova na polju testiranja motoričkih sposobnosti u fudbalu, utvrdi koji su testovi najčešće upotrebljavani u savremenom fudbalu i na osnovu toga da se predloži baterija testova za fudbal. Nakon procedure selekcije radova u odnosu na odgovarajuće kriterijume, svedeno je na 35 istraživanja koja odgovaraju potrebama ovog sistematskog preglednog rada. Za prikupljanje dosadašnjih istraživanja, pretražene su elektronske baze podataka: Google scholar i PubMed/Medline. Osnovni kriterijumi selekcije bili su: da je rad baziran na testiranju motoričkih sposobnosti fudbalera, da se pregledani radovi nalaze na SCI listi i da nisu stariji od 12 godina. Na osnovu obrade dosadašnjih istraživanja, stečen je uvid o najupotrebljivijim motoričkim i funkcionalnim testovima u savremenom fudbalu i na osnovu toga, predložena je baterija testova za fudbalski sport.

Ključne reči: fudbal, test fizičkih performansi, motorički test, baterija testova

MOTOR TESTS IN FOOTBALL IN THE LAST 12 YEARS

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Abstract: The aim of this review was to determine, on the basis of the previous work in the field of testing of motor skills in football, which tests are most often used in modern football and based on the suggestion of a battery of tests for football. After the procedure of selection of the work in relation to the relevant criteria, it was reduced to 35 studies that correspond to the needs of this systematic overview. For the collection of previous research, electronic databases have been searched: Google scholar and PubMed / Medline. The basic selection criteria were: that the work is based on the testing of the motor skills of the football player, that the examined works are on the SCI list and that they are not older than 12 years. Based on the results of the research so far, the insight into the most demanding motor and functional tests in modern football has been gained, and on the basis of this, a test battery for football is proposed.

Keywords: soccer, physical performance test, motor test, battery test

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ULOGA SPORTA I NJEGOV ZNAČAJ U PREVENCIJI I KOREKCIJI POSTURALNIH POREMEĆAJA KIFOZA KOD DECE PREDŠKOLSKOG PERIODA U RAŠKOJ REGIJI U ODNOSU NA PRIPADNOST POLU I MESTU BORAVKA

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Sažetak: Predškolsko doba, predškolski period dece, predstavlja period u kojem se stiču osnove za razvoj čoveka, a ujedno i obezbeđuje preduslov daljeg uspešnog obrazovanja i vaspitanja. Savremeni način života dece, kako one predškolskog, tako i školskog uzrasta karakteriše sve manja fizička aktivnost i sve duži periodi sedenja pred televizorom ili kompjuterom.

Uzorak ispitanika predstavljaju deca predškolskog uzrasta oba pola predškolskih ustanova Opštine Tutin, Sjenice, Novog Pazara i Raške. Starosna granica dece je od 6 do 7 godina ± šest meseci. Istraživanjem je obuhvaćeno 229-toro dece predškolskih ustanova u Tutinu, Sjenici, Novom Pazaru i Raškoj koja žive u urbanoj sredini.

Cilj istraživanja je utvrditi da li postoje razlike kifotičnog držanja tela u odnosu na olnu pripadnost i mesto boravka kod dece predškolskog uzrasta. **Statistička obrada podataka.** Urađena je analiza kategoričkih varijabli posturalnih poremećaja istraživanog uzorka uz pomoć deskriptivne statističke Crosstabs analiza i Chi - square testa posturalnih poremećaja kod dece u odnosu na pripadnost polu i mestu boravka.

Ključne reči : deca predškolskog uzrasta, sport, posturalni poremećaj kifoza

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THE ROLE OF SPORT AND ITS SIGNIFICANCE IN THE PREVENTION AND CORRECTION OF POSTURAL ABNORMALITIES OF KYPHOSIS IN PRE-SCHOOL CHILDREN IN THE RAŠKA REGION IN RELATION TO GENDER AND PLACE OF RESIDENCE

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Abstract: Pre-school age, preschool period of children, represents the period in which the foundations for human development are acquired, and at the same time provides the prerequisite for further successful education and upbringing. The modern way of life of children, both pre-school and school age, is characterized by a decrease in physical activity and longer seating periods in front of a TV or computer. **Sample respondents.** The sample of respondents is represented by children of pre-school age of both sexes at pre-school institutions of Tutin, Sjenica, Novi Pazar and Raska. The age limit for children is 6 to 7 years \pm six months. The survey included 229 children in preschool institutions in Tutin, Sjenica, Novi Pazar and Raska living in the urban environment. **The goal of research.** To determine whether there are differences in the biological position of the body in relation to full affiliation and place of residence in pre-school children. **Statistical data processing.** An analysis of the categorical variables of postural disorders of the investigated sample was performed with the help of descriptive statistical Crosstabs analyzes and the Chi - square test of postural disorders in children in relation to gender and place of residence.

Key words: pre-school children, sport, postural disorder of kyphosis

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PROMENE U BIOMEHANICI TORAKALNOG DELA KIČME KAO POTENCIJALNI UZROK LUMBALNOG SINDROMA U ROTACIONIM SPORTOVIMA: PRIKAZ SLUČAJA

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Sažetak: Smatra se da prenaplašeni, kompenzatorni pokreti lumbalnog dela kičmenog stuba, često uzrokovani smanjenom pokretljivošću torakalnih segmenata, mogu biti odgovorni za nastanak hronicnog lumbalnog bola. Ovakva promena u kinematici u rotacionim sportovima (golf, tenis, bejzbol) može objasniti veliku incidencu lumbalnog sindroma u populaciji koja participira u ovim sportovima. Ovo je slučaj osamnaestogodišnjeg tenisera sa šestomesečnim bolom u lumbalnom delu kičme koji ga je sprečavao da trenira i igra mečeve. U više navrata je bio tretiran različitim oblicima fizikalne terapije (elektro, manuelna masaža, kiropraktika) koji su bili usmereni na bolnu regiju, ali čim bi počeo da trenira tegobe bi se vraćale. Snimak magnetske rezonance nije pokazao nikakva strukturalna oštećenja lumbalnih segmenata. Prethodno obavljani klinički testovi su bili negativni na radikulopatiju, sakroilijačni sindrom kao i na probleme sa kukovima. Na funkcionalnom pregledu zapazena je značajno smanjena rotacija torakalne kičme merena „sedećim rotacionim testom sa drvenom šipkom na grudima“, koji ima visoku pouzdanost. Na skali od 1-3, pacijent je imao 1 obostrano jer ivica šipke nije došla do linije sa patelom. Nakon obavljenog testiranja pacijent je podvrgnut obuci za 2 vežbe (3 serije po 6 ponavljanja, 3 puta nedeljno) koje imaju za cilj da povećaju obim pokreta torakalne kičme i ujedno stabilizuju lumbalni segment. Nakon šestonedelnog programa korektivnih vežbi uradjeno je retestiranje na kom je pacijent iskazao napredak u vidu povećanja skora sa 1 na 3 obostrano i prijavio smanjenje tegoba u lumbalnom delu kičme. Važno je napomenuti da je za vreme korektivnog programa učestvovao u treninzima tenisa i kondicije ali u formi koja nije izazivala simptome. Pacijent se vratio svom regularnom režimu treniranja i igranja mečeva i nakon 6 meseci na retestiranju je zadržao isti nivo torakalne rotacije (skor 3) i prijavio potpuno odsustvo simptoma u lumbalnom delu kičme. Ovaj slučaj podržava hipotezu da poremećaji biomehanike jednog segmenta mogu uticati na pojavu simptoma u susednom, kao i da se te disfunkcije mogu detektovati jednostavnim ali pouzdanim testovima, i da se mogu korigovati precizno dizajniranim programom korektivnog vežbanja.

Ključne reči: kompenzatorni pokreti, bol u donjem delu leđa, rotacija grudnog koša

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ALTERED THORACIC SPINE KINEMATICS AS A POTENTIAL CAUSE OF LOW BACK PAIN IN ROTATIONAL-SPORT ATHLETES: A CASE STUDY

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Abstract: It has been hypothesized that compensatory motions of the lumbar vertebrae, often caused by hypomobility of the thoracic vertebral segments, can induce low back pain in athletic population. This is the case of a young male tennis player with chronic low back pain who has been treated with different modalities of physical therapy with no major effect. On functional examination patient showed significant restriction in bilateral thoracic spine rotation measured by seated rotation test with bar in front. After the testing, the 6-week intervention programme was started. The intervention programme included two exercises with the aim to improve thoracic spine rotation and to stabilize the lumbar spine. Following the six-week intervention period, a significant improvement in thoracic spine rotation was noted with a score of three for both sides on the seated rotation test with bar in front. The patient also reported a complete reduction in symptoms and he was able to return to high level of training and competition.

Keywords: compensatory motions, low back pain, thoracic rotation

PROFESIONALNI SKAUTING TALENATA KAO NEIZOSTAVNA KOMPONENTA SAVREMENOG FUDBALA

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Sažetak: Čuveni moto oca modernog olimpijskog pokreta Pjera de Kubertena „Nije važno pobediti, važno je učestvovati“ gotovo je u potpunosti potisnut u savremenom sportu, naročito fudbalu. Vremenom, fudbal je prestao da predstavlja samo igru, sport u svom iskonskom obliku, već se pozicionirao kao ozbiljan, organizovan biznis, koji se prema godišnjem obrtu novca može smatrati i posebnom privrednom granom. Na klupskom nivou takmičenja, dominiraju kolektivi koji pripadaju tzv. „ligama petice“ (pet najjačih zemalja: Engleska, Nemačka, Španija, Italija i Francuska), koji ostvaruju ne samo vrhunske sportske, već i izvanredne finansijske rezultate, dostojne velikih svetskih korporacija. Činjenica da su u klubovima pomenutih zemalja trenutno smešteni najbolji reprezentivi svetskog fudbala predstavlja jednu stranu medalje. Drugu stranu medalje predstavlja činjenica da je dovođenje vrhunskih igrača u klubove rezultat ozbiljnog i studioznog pristupa posebno formiranih skauting službi. U radu će biti predstavljeni osnovni postulati skautinga talentovanih fudbalera, kao neizostavnog segmenta savremenog fudbala.

Ključne reči: skauting, talenti, profesionalna karijera, fudbal.

PROFESSIONAL SCOUTING OF TALENTS AS THE INEVITABLE COMPONENT OF MODERN FOOTBALL

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Abstract: The famous motto of the modern Olympic Games “father” Pierre de Coubertin "The most important thing is not winning, it is important to participate" is almost completely suppressed in modern sports, especially football. Since then, football has stopped being solely a game, a sport in its primal form, already it is a serious, organized business, which according to the annual turnover could be considered as a specific economic activity. At the club level of the competition, the dominant collectives belong to the so-called "Top 5 European Leagues" (the best five competitions situated in following countries: England, Germany, Spain, Italy and France), who achieve not only top-level sports, but also outstanding financial results, worthy of the world's major corporations. The facts that in the clubs of the countries mentioned above are currently placed the best players of the world football represent one side of the medal. The other side of the medal is the fact that bringing top players to clubs is the result of a serious and studied approach of specially formed scouting departments. The paper will present the basic postulates of the scouting job among talented footballers, as the inevitable segment of modern football.

Keywords: scouting, talents, professional career, football.

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PREKID IGRE KAO ZNAČAJNI FAKTOR U POSTIZANJU GOLA NA FUDBALSKOJ UTAKMICI – SISTEMATSKO PREGLEDNO ISTRAŽIVANJE

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Sažetak: Cilj preglednog rada je da se utvrdi značajnost prekida igre u postizanju gola na fudbalskoj utakmici. Prikupljanje radova obuhvatalo je period između 2000. i 2018. godine. Za pretraživanje literature korišćene su sledeće elektronske baze: PubMed, MEDLINE, Google Scholar, EBSCO u periodu od 2000. do 2018. godine. Uključena su i istraživanja koja su obuhvatila oba pola, različitih uzrasnih kategorija. Istraživanja pisana na drugom jeziku, autori koji nisu analizirali prekide i istraživanja čiji su rezultati dobijeni na treningu, a ne na takmičarskoj utakmici bili su isključeni. Postoji statistički značajna povezanost između prekida igre i postignutih golova. Najviše golova se postiže iz slobodnih udaraca, a zatim iz korner igre. Oko 30% postignutih golova na raznim takmičenjima ili prvenstvima čine prekidi. Na postizanje gola iz prekida dosta utiču i broj igrača u živom zidu, udaljenost i pozicija iz koje se izvodi slobodan udarac ili broj igrača koji se nalaze između golmana i mesta odakle se izvodi. Nije utvrđeno da postoje velika odstupanja kod mlađih kategorija u odnosu na seniorsku kategoriju, kao i da ne postoje značajne procentualne razlike između muškaraca i žena. Prekidi igre imaju značajni faktor u postizanju golova. Oni spadaju u standardne situacije u igri i kao takve potrebno je obratiti posebnu pažnju tokom analize.

Ključne reči: analiza izvođenja, fudbal, notacijska analiza, analiza meča, indikatori izvođenja

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ON SOCCER GAME SIGNIFICAL FACTOR FOR ACHIVING A GOAL IS INTERRUPTION OF GAME

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Abstract: The aim of this review paper is to determine significance of scoring or achieving a goal from interruption in soccer game. Collection of scientific papers are have norm of time publication from 2000 to 2018. For searching adequate literatures was used following electronic data bases PubMed, MEDLINE, Google Scholar, EBSCO in the period from 2000 to 2018. In search are included both sex male and female and different age categories. Scientific papers that was excluded from this paper are ones who was wrote on another language, acquired results from training not competition game and papers which didn't analyzed interruption of game. Results show statistical significance for correlation between interruption of game and scoring a goal. Most of scoring a goal are from free kicks and then from corner kicks. About 30% of goals from different competitions and games was achieved from interruptions. Factors that are most affect achieving a goals from interruption are: number of players in live wall, distance from goal and number of players in the field between goalkeeper and place of free kick. Data showed that difference in results of correlation are minimal in percentages or not significant between male and female and also in senior categories and younger ones. Interruption of game have significant part in scoring a goal. There are standard situation of game and as such as are given certain amount of analyzed time.

Key words: performance analysis, soccer, notational analysis, match analysis, performance indicators.

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GENDER DIFFERENCES OF THE FITNESS GOALS OF THE SLOVENIAN FUTURE PHYSICAL EDUCATION TEACHERS AND SPORT WORKERS

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Abstract: The purpose of the study was to present gender differences of the fitness goals of the Slovenian future physical education teachers and sport workers on the sample of the students at the Faculty of sport, University of Ljubljana. The research was done in the academic year 2015-16 on the 15% random sample of the students (38 women, 51 men) of the Faculty of sport, University of Ljubljana. We used the questionnaire of life style habits (Majerič, 2015). In this study, we analysed fitness goals (12 variables) of the students of the Faculty of sport in Ljubljana. Respondents had to choose for each variable of fitness goals one answer on six-Likert scale. The data of variables were analysed with SPSS for Windows. We calculated the basic statistics parameters and t-test for equality of means to calculate the gender differences. In general, analyse showed us for student's fitness goals statistically significant ($p \leq 0.05$) gender differences. We found out, that female students statistically significantly higher rated the following goals: to lose excess fat ($p < 0.001$); to improve overall health ($p < 0.05$); to have healthy diet ($p < 0.05$); to improve the vitality of the body ($p < 0.05$); and to have more personal satisfaction ($p < 0.05$). Concern for physical health, reflected through fitness goals is one of the important factors that can show us some characteristic of the lifestyle focus of the future physical education teachers and sport workers.

Key words: fitness goals, physical education, teachers, sport workers.

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GENDER DIFFERENCES OF THE NUTRITIONAL HABITS OF THE SLOVENIAN FUTURE PHYSICAL EDUCATION TEACHERS AND SPORT WORKERS

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Abstract: The purpose of the study was to present gender differences of the nutritional habits of the Slovenian future physical education teachers and sport workers on the sample of the students at the Faculty of sport, University of Ljubljana. The research was done in the academic year 2015-16 on the 15% random sample of the students (38 women, 51 men) of the Faculty of sport, University of Ljubljana. We used the questionnaire of life style habits (Majerič, 2015). In this study, we analysed the nutritional habits (25 variables) of the students at the Faculty of sport in Ljubljana. Respondents had to choose for each variable one answer on eight-Likert scale. The data of variables were analysed with SPSS for Windows. We calculated the basic statistics parameters and t-test for equality of means to calculate the gender differences. In general, the analyse showed us that female students had more healthy nutritional habits than male students did. They ate statistically significant ($p \leq 0.05$) more often fresh vegetables ($p < 0.05$) and drunk more often vegetable milk ($p < 0.05$). Female students also drunk less often cow's milk ($p < 0.05$) and ate less often all types of meat ($p < 0.05$), all types of processed cereals ($p < 0.05$) and all types of fried food ($p < 0.05$). It is interesting, that female students statistically significant ($p \leq 0.05$) more often drunk coffee ($p < 0.05$) and ate less often in restaurants ($p < 0.05$). Concern for physical health, reflected through nutritional habits is important factor of the healthy lifestyle. The future physical education teachers will have as a physical education teachers and sport workers big influence on education of young inhabitants of Slovenia. Therefore, we must educate them and raise their awareness of the importance of a healthy diet for their health.

Key words: nutrition, physical education, teachers

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POVEZANOST UOBIČAJENE FIZIČKE AKTIVNOSTI I POJAVE NEALKOHOLNE MASNE JETRE KOD GOJAZNIH OSOBA

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Sažetak: Cilj ovog istraživanja bio je da utvrdi razlike u uobičajenoj fizičkoj aktivnosti kod gojaznih osoba sa i bez dijagnostikovane nealkoholne masne jetre (NAFLD). Istraživanje je sprovedeno po tipu studije slučaj-kontrola, a ispitivano je 120 gojaznih osoba (60 sa ultrasonografski potvrđenom nealkoholnom masnom jetrom i 60 sa normalnim ultrasonografskim nalazom, ujednačenih po polu i starosti). Nivo fizičke aktivnosti procenjivan je međunarodnim upitnikom o fizičkoj aktivnosti (IPAQ), koji ispituje sve vrste fizičke aktivnosti koje se upražnjavaju kao deo svakodnevnog života (fizička aktivnost na poslu, u transportu, u obavljanju kućnih poslova i u okviru rekreacije i slobodnog vremena). Rezultati su izračunavani kao metabolički ekvivalent (MET-minuti/sedmično) za ukupnu fizičku aktivnost, i posebno za svaki intenzitet fizičke aktivnosti (hodanje, umerena i intenzivna). Pacijenti sa NAFLD imali su značajno manji stepen ukupne fizičke aktivnosti od ispitanika kontrolne grupe ($2576,45 \pm 2029,22$ vs $4013,60 \pm 1807,25$ MET min/sedmično, $p < 0.0005$). Ispitanici kontrolne grupe imali su značajno više napornih fizičkih aktivnosti ($422,92 \pm 517,19$ vs $165,33 \pm 390,40$ MET min/sedmično, $p = 0.001$). Najznačajniju razliku konstatovali smo u okviru hodanja kao vida fizičke aktivnosti ($1447,60 \pm 821,56$ vs $587,95 \pm 767,99$ MET min/sedmično, $p < 0.0005$). Ispitanici sa steatozom različitog stepena imali su značajno različit nivo ukupne fizičke aktivnosti, dok razlike u pojedinačnim domenima fizičke aktivnosti nisu bile značajne. Uobičajena fizička aktivnost značajno utiče na nastanak i progresiju NAFLD kod gojaznih osoba.

Ključne reči: nealkoholna masna jetra, fizička aktivnost, gojaznost

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ASSOCIATION OF USUAL PHYSICAL ACTIVITY AND NON-ALCOHOLIC FATTY LIVER DISEASE IN OBESE PATIENTS

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Abstract: The aim of this study was to evaluate differences in usual physical activity among obese patients with and without nonalcoholic fatty liver (NAFLD). In this case-control study we evaluated 120 obese patients (60 with ultrasonographically verified NAFLD and 60 with normal liver ultrasound finding, matched for gender and age). An international physical activity questionnaire (IPAQ) was used to assess the level of physical activity. This questionnaire examines all kinds of physical activities that are being performed as part of everyday life (physical activity at work, transportation, housework and within recreation and leisure time). The results were calculated as the metabolic equivalence (MET-min / week) for total physical activity, and especially for each intensity of physical activity (walking, moderate and vigorous physical activity). Patients with NAFLD had significantly lower overall physical activity (2576.45 ± 2029.22 vs 4013.60 ± 1807.25 MET min/week, $p < 0.0005$). Control group subjects had significantly more vigorous physical activity (422.92 ± 517.19 vs 165.33 ± 390.40 MET min/week, $p = 0.001$). The most significant difference was found in walking as a form of physical activity (1447.60 ± 821.56 vs 587.95 ± 767.99 MET min/week, $p < 0.0005$). Respondents with varying degrees of steatosis had a significantly different level of total physical activity, while differences in individual domains of physical activity were not significant. The usual physical activity significantly influences the onset and progression of NAFLD in obese people.

Keywords: nonalcoholic fatty liver disease, physical activity, obesity

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DVOSTRUKA ULOGA SPORTSKE ORGANIZACIJE U SPONZORSKOM ODNOSU – NA PRIMERU KK HEMOFARM

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Sažetak: Kada se govori o oblicima komunikacije na sportskom tržištu, najčešće se pominje sponzorstvo. Hemofarm koncern je čitavu deceniju na sportskom tržištu Srbije delovao u izvornom značenju reči sponzor, kao jamac, finansijer, pokrovitelj i zaštitnik istoimenog košarkaškog kluba. Taj odnos je bio i više od navedenog, jer se radilo o poslovnom odnosu razmene, gde je za određenu sumu novca sponzor kupovao određena prava i samim tim mogućnost plasmana svojih poruka u javnost. Brojne poruke plasirane su pod brendom KK Hemofarm na sportskom tržištu Srbije, kako u direktnoj komunikaciji na sportskim terenima, tako i putem elektronskih i štampanih medija, kao i u specijalnim sportskim i humanitarnim manifestacijama. U ovom radu biće prikazan primer dobre prakse ostvarenja ciljeva sponzorstva za sponzora - Hemofarm koncern i sponzorisanog - KK Hemofarm, prikazanih prema parametrima: publika, tj. nivo izloženosti publike sponzorisanom događaju i permanentna, kontinuirana zastupljenost u medijima.

Ključne reči: marketing, sport, sponzori, publika

DUAL ROLE OF SPORTS ORGANISATION IN SPONSORSHIP RELATIONSHIP – EXAMPLE OF HEMOFARM BASKETBALL CLUB

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Abstract: Considering communication forms on a sports market, we have to point out that sponsorship appears as the most frequent form of communication. For over a decade on the Serbian sports market, Hemofarm Group was a sponsor in the original sense of the word: guarantor, investor, patron and protector of the basketball club bearing its name. This relationship was even more than that, since it was a business exchange relationship in which, the sponsor, for certain amount of money or some other rights, used to purchase certain rights, hence purchasing the possibility to communicate its messages to the public. A large number of messages have been communicated to the Serbian sports market under the brand name of Hemofarm BC, both through direct communication on sports fields and through electronic and printed media and special sports and humanitarian events. This paper will present an example of good practice of achieving sponsorship goals by the sponsor – Hemofarm Group and by the sponsored party – Hemofarm BC, according to the following parameters: audience, i.e. the level of exposure of the audience at the sponsored event and permanent, continuous presence in the media.

Key words: marketing, sport, sponsors, audience

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PRIMENA REALNOG AIKIDOA U OBUCI PRIPADNIKA SPECIJALNIH JEDINICA VOJSKE REPUBLIKE SRBIJE

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Sažetak: Realni aikido kao relativno mlada borilačka veština čiji je tvorac soke Ljubomir Vračarević crni pojas 10. dan svoju primenu našao je u obuci pripadnika: specijalnih jedinica vojske Rusije, službe obezbeđenja predsednika Rusije Vladimira Putina, kao i službi obezbeđenja predsednika još nekoliko država. Svoje mesto realni aikido zaslužen je dobio i u obuci pripadnika Specijalnih jedinica Vojske Srbije. Obuka pripadnika elitnih jedinica sastoji se od teorijsko-praktičnih aktivnosti, kao i od specijalne fizičke obuke koja podrazumeva dizanje fizičke kondicije i snage, kao i obuku samoodbrane / primenjenog borenja, kroz izučavanje tehnika realnog aikidoa. Za pravilnu i uspešnu obuku veoma je važno da postoji kontinuitet i postupnost u realizovanju. I sam trening treba da bude organizovan po ovim načelima. Primarni cilj rada prvenstveno je detaljan opis elemenata tehnika realnog aikidoa kojima će biti obučavani pripadnici Specijalnih jedinica Vojske Srbije.

Ključne reči: Realni aikido, Vojska Srbije, specijalne jedinice, obuka, tehnike.

APPLICATION REAL AIKIDO IN THE TRAINING OF SPECIAL UNITS OF THE ARMY OF REPUBLIKA SERBIAN

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Abstract: of real aikido as a relatively young martial art created by the Soke Ljubomir Vračarević black belt 10th day of their application found in the training of : special army units of Russia, the security service of the Russian President Vladimir Putin, as well as the security service of the President few countries. Its place Aikido deservedly got in the training of Special Forces of the Army of Serbia. Training members of the elite unit consists of theoretical and practical activities, as well as the special physical training, which includes lifting physical fitness and strength, as well as training of self-defense / martial arts applied, through the study of real aikido techniques. For proper and effective training is very important to have continuity and gradual realization. I'm training should be organized according to these principles. The primary objective of this paper is primarily a detailed description of the elements of real aikido techniques that will be trained members of the Special Forces of the Army of Serbia.

Key words: Real aikido, Martial Serbia, special units training techniques.

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KVALITET RADA INSTRUKTORA U GRUPNOM FITNESSU

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Sažetak: Cilj istraživanja je bio utvrditi karakteristike i sposobnosti od kojih zavisi kvalitet rada instruktora u grupnom fitnessu. Na uzorku od sto ispitanika ženskog pola, koji redovno vežbaju program miks aerobika, primenjen je anketni upitnik zatvorenog tipa koji sadrži 24 ajtema podeljenih u tri grupe: instruktorska osnova, instruktor kao izvor informacija i reakcije instruktora. Rangiranjem varijabli u svakoj grupi, ispitanici su se opredeljivali za redosled njima najbitnijih karakteristika i sposobnosti. Rezultatima istraživanja izdvojili su se stručnost i kompetentnost instruktora sa rangom 1.93, način na koji ih instruktor motiviše sa rangom 2.76 i prilagodljivost intenziteta i logičnog sleda vežbi na treningu sa rangom 3.29. Praktična vrednost dobijenih rezultata ogleda se u primenljivosti daljeg razvoja sposobnosti i karakteristika instruktora u grupnom fitnessu kako bi on bio što uspešniji u svom poslu.

Ključne reči: fitness instruktor, grupni fitness programi, karakteristike i sposobnosti

WORK QUALITY OF GROUP FITNESS INSTRUCTORS

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Abstract: The aim of research was to determine characteristics and abilities on which the quality of instructors work in group fitness depends. On a sample of one hundred female respondents who regularly practice mix aerobics program, a closed questionnaire was applied containing 24 items divided into three groups: instructor base, instructor as the source of information and response of the instructor. By ranking variables in each group, the respondents determined what is the most important order of characteristics and abilities for them. The results of the research highlighted the professionalism and competence of the instructor with the rank of 1.93, the way in which the instructor motivates them with the rank of 2.76 and the adaptability of the intensity and the logical trajectory of the training exercise with the rank of 3.29. The practical value of the obtained results is reflected in the applicability of further development of the abilities and characteristics of instructors in group fitness to make it as successful as possible in their work.

Key words: fitness instructor, group fitness programs, characteristics and abilities

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MOTOR EFFICIENCY AND NUTRITION OF PRESCHOOL EDUCATION STUDENTS

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Abstract: Requirements and possibilities of modern times alter evolutionary human needs and habits, while movement and physical activity are losing their original values. The ability to exercise physical activity is limited by a physical fitness, which is defined as the ability to effectively carry out daily physical activity without too much fatigue and with sufficient energy. The profession of the kindergard teacher requires constant physical readiness for all activities with children.

The purpose of the study was to determine the differences in the motor efficiency of students (N=112) with respect to their nutrition.

Dependent Variable is the motor efficiency expressed in the average standardized value of five motor tests. Independent variables represent the division of students into the BMI category (Underweight N=11/9.8%; Normalweight N=76/67.9; Overweight N=20/17.9; Obesity N=5/4.5) and division into nutrition rates by the Waist-to-height ratio (normallynutrition WHtR \leq 0.50, N=89/79.5; overnutrition WHtR \geq 0.51, N=23/20.5).

ANOVA was used to analyze the correlation between BMI and motor efficiency. Normalweight (Z=0.03041) are the most motor efficient than students in the Obesity (Z=-0.4371). T-test was used to analyze the correlation between WHtR and motor efficiency. Normallynutrition (Z=0.0279) are more motor efficient than overnutrition (Z=-0.1083). The differences in both analyzes is not statistically significant ($p>0.05$).

Keywords: students, motor efficiency, Waist-to-height ratio, BMI

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UTICAJ PLESA NA OPORAVAK MOTORIČKIH FUNKCIJA OSOBA NAKON MOŽDANOG UDARA

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Sažetak: Moždani udar predstavlja klinički sindrom i jedan od vodećih uzročnika smrtnosti i invaliditeta, nastao pod dejstvom velikog broja faktora rizika, čiji se simptomi nalaze u korelaciji sa veličinom, vremenom i mestom nastanka lezije. Rehabilitacija, koja obuhvata primenu konvencionalnih i dopunskih metoda, u vezi je sa procenom sposobnosti, stepenom oštećenja zahvaćenih funkcija pojedinca i adekvatno dizajniranim programom. Primena plesa, kao rehabilitacionog postupka, zahteva slušanje i aktivno učešće pojedinca sa određenom motoričkom reakcijom na stimuluse. Cilj rada jeste prikazati značaj i efekte primene plesa u procesu rehabilitacije osoba nakon moždanog udara, a posebno za unapređenje motoričkih sposobnosti i funkcija. U skladu sa postavljenim kriterijumima i ciljem rada, izvršeno je prikupljanje i analiza stručno-naučnih istraživačkih radova, dostupnih u bazama PubMed/MEDLINE, Science Direct i Oxford Academic, objavljenih u periodu od 2010. do 2019. godine. Rezultati istraživanja pokazuju da ples, koji je u osnovi sportsko-rekreativna aktivnost, primenjen u terapijske svrhe kod osoba nakon moždanog udara, doprinosi razvoju i oporavku motoričkih sposobnosti, ravnoteže, pokretljivosti, izdržljivosti, koordinacije, motoričkih veština, posture, hoda i preciznosti. Takođe, ples je od izuzetnog značaja za unapređenje funkcionisanja celog organizma, koje na direktan ili indirektan način utiče na oporavak motoričkih funkcija i sveukupno blagostanje pojedinca.

Ključne reči: motorni oporavak, motoričke sposobnosti, motoričke veštine, moždani udar, rehabilitacija

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THE EFFECTS OF DANCE ON RECOVERY OF MOTOR FUNCTIONS OF PERSONS AFTER STROKE

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Abstract. Stroke is a clinical syndrome and one of the leading causes of mortality and disability, occurred under the influence of a huge number of risk factors, whose symptoms are in correlation with the size, time and location of the lesion. Rehabilitation, which involves the application of conventional and supplementary methods, relates to the assessment of the ability, the level of damage of the affected functions of the individual and the adequately designed rehabilitation program. The use of dance in post-stroke patients, as a rehabilitation procedure, requires listening and active participation of an individual with a specific motor reaction to the stimulus. The purpose of this study was to show the importance and effects of the application of dance in rehabilitation process in post-stroke patients, with a special emphasis on the process of improving motor skills and functions. In accordance with the set criteria and purpose of study, it was conducted the collection and analysis of the scientific research papers, available in the PubMed/MEDLINE, Science Direct and Oxford Academic bases, published in the period from the year 2010 to the year 2019, which indicate to the importance of application of dance in the treatment a person after stroke. The obtained results suggest that the dance, which is basically sports-recreational activity, applied in the therapeutic purposes in persons after stroke, contributes to the development and recovery of motor abilities, balance, mobility, endurance, coordination, motor skills, stance, walking and precision. Also, dancing is of great importance for the improvement of the functioning of the whole organism, which directly or indirectly affects the recovery of motor functions and the overall welfare of the individual.

Key words: motor recovery, motor abilities, motor skills, rehabilitation, stroke

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TREND PROMENE OSNOVNIH ANTROPOMETRIJSKIH KARAKTERISTIKA I MOTORIČKIH SPOSOBNOSTI DECE PREDŠKOLSKOG UZRASTA

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Sažetak: Antropometrijske karakteristike i motoričke sposobnosti nisu često bili predmet interesovanja istraživača u oblasti fizičkog vaspitanja kod dece predškolskog uzrasta. Veća zainteresovanost za ovaj problem započela je sve češćom pojavom gojaznosti i posturalnih deformiteta u ranom školskom uzrastu dece, kao i većim obuhvatom predškolske dece institucijalnim vaspitanjem i obrazovanjem i intenzivnijim praćenjem rasta i razvoja dece. S obzirom na to da pažnja stručne i naučne javnosti sve više okupira gojaznost dece, loše držanje tela i nedovoljna fizička aktivnost, javlja se intenzivna potreba za stalnim praćenjem antropometrijskih karakteristika i motoričkih sposobnosti dece predškolskog uzrasta. Primarni cilj istraživanja je da se primenom eksperimentalne metode definiše trend promene osnovnih antropometrijskih karakteristika i motoričkih sposobnosti predškolske dece oba pola. Istraživanjem će biti obuhvaćeno 40 ispitanika predškolskog uzrasta oba pola, polaznika predškolske ustanove „Lane“ na teritoriji Grada Pirot, uzrasta 5 – 6 godina. Za procenu fizičke razvijenosti, meriće se visina i masa tela i na osnovu njih biće izračunat telesno maseni indeks i obim grudi, i motoričke sposobnosti (brzina alternativnih pokreta, pokretljivost, eksplozivna snaga, repetativna snaga, brzina, agilnost) biće procenjene putem testova taping rukom, duboki preklon na klupici, skok u dalj iz mesta, ležanje - sed, trčanje na 20 m. Dugoročno i kontinuirano praćenje promena koje nastaju manifestacijom određenih motoričkih kvaliteta omogućava da se iznađu optimalni načini za intervenciju u pravcu povećanja fizičke aktivnosti kod dece i jačanje obrazovnog procesa u fizičkom vaspitanju, posebno na teritorijama gde se to prvi put radi, kakav je slučaj sa opštinom Pirot.

Ključne reči : telesna razvijenost, brzina alternativnih pokreta, pokretljivost, snaga, brzina, deca, predškolski uzrast

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TREND OF CHANGES IN BASIC ANTHROPOMETRIC CHARACTERISTIC AND MOTOR ABILITIES OF PRE-SCHOOL CHILDREN

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Abstract: Anthropometric characteristics and motor abilities were not often the subject of researchers' interest in the field of physical education in pre-school children. The greater interest in this problem began with the increasing occurrence of obesity and postural deformities in the early school age of children, as well as a greater inclusion of pre-school children by institutional education and more intensive monitoring of children's growth and development. Considering that the attention of the professional and scientific public is increasingly occupied by children's obesity, poor posture and insufficient physical activity, there is an intense need for continuous monitoring of the anthropometric characteristics and motor abilities of children of pre-school age. The primary aim of the research is to use the experimental method to define the trend of changing the basic anthropometric characteristics and motor abilities of pre-school children of both sexes. The research will cover 40 examinees of pre-school age of both sexes, pupils of the preschool institution "Lane" in the territory of the City of Pirot, age 5 - 6 years. For the assessment of physical development, the height and weight of the body will be measured and based on them the body mass index and the extent of the breast, and motor skills (speed of alternative movements, mobility, explosive power, repetitive power, speed, agility) will be calculated and assessed by handwriting tests, deep bumping on the bench, long distance jogging, lying down - sed, running at 20 meters long and continuous tracking of the changes that occurs from the manifestation of certain motor qualities, allows us to find optimal ways of intervention in the direction of increasing physical activity in children and strengthening the educational process in physical education, especially in the territories where this is done for the first time, as is the case with the municipality of Pirot.

Key words: body development, speed of alternative movements, mobility, strength, speed, children, preschool age

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**SIGNIFICANCE OF THE DIFFERENCES AND THE DEVELOPMENT TREND OF
THE SYSTOLE AND DIASTOLE PRESSURE AND THE HEART RATE OF
STUDENTS OF EARLY SCHOOL AGE FROM SCHOOLS IN MUNICIPALITY OF
KISELA VODA**

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Abstract: On a sample of 1712 subjects (841 male and 871 female), between the age of 6 to 10, a research has been conducted in order to establish some functional characteristics of students of early school age from both sexes on the territory of municipality of Kisela Voda. Three measures have been used in order to establish the functional characteristics: systole pressure, diastole pressure and heart rate at rest of subjects of both sexes. Aside from the main descriptive parameters, MANOVA and ANOVA were also used to establish the statistically significant differences at a multivariate and univariate level. Based on the results from this research we can conclude that there are statistically significant differences in most functional measures at both boys and girls.

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THE RISK PERCEIVED BY PRACTITIONERS IN ADVENTURE SPORTS IN BRAZIL

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Abstract: This study aimed to analyze risk perception of 73 paragliding practitioners. Standard deviation with significance $<0.05\%$ was considered and the descriptive-exploratory study method was used. Data was collected via a questionnaire validated according to the Delphi technique. Variables were evaluated from a bipolar Likert type scale, ranging from 1 to 7. Paragliding pilots perceive risk as a genuine form of ludic adventure. When airborne, their perception of risk is related to their level of confidence in technique mastering and equipment quality. A self-centered attitude was also observed: pilots are aware of their own risks but fail to realize the risk they can pose to others when rules are ignored.

Key words: Risk, practitioner, paragliding.

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THE VISION OF A HERMENEUTIC INTERPRETATION ON SKIERS' GESTURES

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Abstract: The meaning of mental visualization skier movements gestures contributes to a more accurate focusing on the representation of the path travelled. Thus, there is an interpretation derived from the skier's performance gestures, gestures that can be analysed quite deeply through hermeneutical interpretation.

Starting from the simple basic gestures, as component parts of the movement as a whole, we will analyse and interpret, in terms of hermeneutics, their knowledge of these interpretations and implications in achieving sporting performance.

The impact and implication in terms of multidisciplinary shape and generates finalities with major role in differentiating gestures that athlete playing under stress, maximum concentration and accumulation fatigue.

In his work in extensor we intend to argue these allegations and to interpret by hermeneutics nuances the skier performance gestures.

Keywords: hermeneutical interpretation, gesture specific, multidisciplinary

Goals

The creative elements of meanings for communication are those that relate to the physical appearance of the overtaken person. Clothes worn by this have a certain motivation to impress, to create certain communicational meanings. Another series of metalanguage item are facial expressions and body movements. Bodily movements and facial expressions tell more than we want to let you understand.

On the one hand, gestures serve to restore a balance with the environment, and with their own psyche. In communication, gestures represent a useful synthetic code of information, but in this context are studied by the skier who treats him like a behavioural grammar scientific and technical imaginative and creative.

Objective

Hermeneutical interpretation of skier gestures can be found in all motor skier which he displayed under stress, concentration only appeal to multidisciplinary information that can allow shaping of positive end points.

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HIPERTROFIJA MIŠIĆA – FIZIOLOŠKI MEHANIZMI

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Sažetak: Razvoj mišićne mase je oduvek bio poseban izazov za sportiste i sportske radnike, osobito u sportovima u kojima dominiraju zahtevi za mišićnom snagom. Povećanje površine poprečnog preseka je važno za sportiste budući je stepen razvitka maksimalne napetosti mišića u direktnoj vezi sa volumenom t.j veličinom preseka mišića. Cilj ovog rada je da napravi pregled fizioloških mehanizama koji su tokom izučavanja hipertrofije mišića bili ponudjeni kao objašnjenja za nastanak hipertrofije. Dobro poznavanje bazičnih mehanizama za povećanje mišićne mase je neophodan temelj za planiranje uspešnog treninga snage za sportiste. Hipertrofija je nemoguća kod osoba koje ne treniraju ili tačnije hipertrofija se pojavljuje tokom treninga snage t.j treninga sa opterećenjem. Uzroci koji objašnjavaju pojavu hipertrofije koja je prouzrokovana treninzima snage dele se u tri grupe: 1) mehanički inducirana napetost, 2) metabolički stres i 3) mišićno oštećenje. Fiziološki mehanizmi pak koji objašnjavaju kako nastaje hipertrofija se odnose na različite vrste hipertrofije, sarkoplazmatičnu i miofibrilarnu. Smatra se da hipertrofija može nastati pomoću satelitiskih (miogenih matičnih) ćelija, pomoću nekoliko različitih puteva signalne transdukcije (Akt/ Mammalian Target of rapamycin pathway; Mitogen Activated protein kinase pathway; Calcium zavisni put); pomoću hormona i citokina (IgF, GH, testosteron) ili pomoću ćelijskog edema. Naučna istraživanja iz oblasti mišićne hipertrofije treba da pomognu sportistima da pravilno kombinuju osobine treninga (opterećenje, intenzitet, trajanje, frekvencija, pauza i dr.) da bi postigli maksimalan uspeh u razvoju mišićne mase i mišićne snage.

Ključne reči: mišić, hipertrofija, mehanizam

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SKELETAL MUSCLE HYPERTROPHY – PHYSIOLOGICAL MECHANISMS

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Abstract: The development of muscular mass was always a challenge for athletes and sport experts, especially when sport is based on muscle strength. Increasing of cross-sectional area of certain skeletal muscle is of utmost importance for athlete because the intensity of maximal muscle contraction is in direct relationship to transversal dimension of the muscle. The aim of this paper is to make a review of physiological mechanisms which are suggested as explanation for muscle hypertrophy. The good understanding of physiological mechanisms is needed to planning the successful strength training.

It is well documented that muscle hypertrophy could occur only when external load is prevailed. The proposed physiological mechanisms which lead to muscle hypertrophy are divided into three groups: 1) mechanically induce tension 2) metabolic stress and 3) muscle damage. Depending on the part of the muscle cell which dominantly contributes to the increasing of the muscle volume hypertrophy could be sarcoplasmic or miofibrilar. Cellular mechanisms which explain the hypertrophy involve the myogenic satellite cells, several signal transducing pathways (Akt/ Mammalian Target of rapamycin pathway; Mitogen Activated protein kinase pathway; Calcium depending pathway); hormones and cytokins (IGF, GH, testosterone). Scientific based knowledge of muscle hypertrophy is necessary for athletes and sport experts to design optimal training volume (load, intensity, duration, frequency, ect.) to achieve maximal increase in muscle volume and muscle strength for better sport performance.

Key words: muscle, hypertrophy, mechanisms

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PHYSICAL EDUCATION IN THE CONTEXT OF FUNCTIONAL USING OF THE STUDENTS' FREE TIME

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Abstract: This paper examines the question of the importance of the physical education in function of the students' free time. Namely, physical education as one aspect of personal development can greatly contribute to the by the social media, the Internet, video games, etc. In fact, the development of an "active lifestyle" that includes the acquisition of healthy habits, skills and knowledge, aims to reduce the passiveness of the student and improve their health and physical activity.

Therefore, the physical education can not be observed independently from the other educational areas the pedagogical science deals with: intellectual, moral, aesthetic, work-technical and socio-emotional education. On the contrary, its place is in synthesis with the others educational areas, above mentioned.

The paper presents a survey of students usage of free time at the age of 10-11. For this purpose, a questionnaire was distributed among 100 students in 4th and 5th grade, analyzing their attitudes and opinions about their free time in today's information society.

Keywords: physical education, leisure, students, pedagogical science

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BIOMEHANIČKA ANALIZA ATLETSKE DISCIPLINE BACANJA KLADIVA

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Sažetak: Cilj ovog preglednog rada je utvrđivanje faktora koji utiču na rezultat u disciplini bacanja kladiva. Rezultati istraživačkih radova dobijeni biomehaničkom analizom daju tačne podatke o elementima tehnike koji utiču na efikasnost. Prikupljanje radova obuhvatalo je period izdavanja između 1994. i 2018. godine. Za pretraživanje literature korišćene su sledeće elektronske baze: PubMed, MEDLINE, Google Scholar, EBSCO. Uključena su i istraživanja koja su obuhvatila oba pola. Istraživanja koja su isključena iz analize su: radovi čija tema nije efikasnost bacanja kladiva, istraživanja čiji su rezultati dobijeni na treningu i autori koji nisu analizirali elemente tehnike. Postoji statistički značajna povezanost između rezultata i početne brzine i ugla izbačaja dok visina izbačaja, vertikalna i horizontalna brzina, tokom rotacije, imaju manji koeficijent povezanosti. Pregledani i obrađeni radovi su uredno svrstani u tabeli koja prikazuje detalje istraživačkih radova. Sumirani su zaključci iz 10 istraživačkih rada.

Ključne reči: Uspešnost u bacanju kladiva, biomehanička analiza bacanja kladiva i svetski record u bacanju kladiva.

BIOMECHANICAL ANALYSIS ATHLETIC DISCIPLINE HAMMER THROW

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Abstract: The aim of this review paper is determining factors which are have influence on result in hammer throw. Results of scientific works obtained with biomechanical analysis give exact data about elements technique which are affects on score. Collection of scientific papers have norm of time publication from 1994 to 2018. For searching adequate literatures was used following electronic data bases PubMed, MEDLINE, Google Scholar, EBSCO. In search are included both sex male and female. Scientific papers that were excluded from this paper are: papers which theme is not efficiency of hammer throw, papers which results are collect from training and authors that didn't analyzed elements of technique. Results show statistical significance for correlation between result and initial throw speed and angle of throw while height of release, vertical and horizontal speed, during rotation, have smaller coefficient of correlation. Reviewed and analyzed scientific works are neatly sorted in table which shows details of work papers. Conclusions are summarized from 10 scientific papers.

Key words: Efficiency in hammer throw, biomechanical analysis of hammer throw, world record in hammer throw

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RAZVOJ NACIONALNIH PARKOVA U FUNKCIJI OČUVANJA PRIRODNIH RESURSA I ZAŠTITE ŽIVOTNE SREDINE

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Sažetak: Negativna iskustva iz prošlosti koja su za posledicu imala narušavanje prirodnog ambijenta i životnog okruženja dovode do neophodne transformacije postojećeg koncepta. Zdrava životna sredina, ostvarenje socijalnog i ekonomskog integriteta i unapređivanje prirodnih, radom stvorenih i kulturnih vrednosti na trajnoj osnovi sve više dobijaju na značaju. Nacionalni parkovi kao najvžniji delovi prirode, uživaju zaštitu kako na međunarodnom tako i na nacionalnom nivou jer očuvanje prirodnih resursa za posledicu ima zdravu i očuvanu prirodnu sredinu na dugi rok a ujedno i neophodan uslov zdravlja ljudi.

Ključne reči: nacionalni parkovi, zaštita prirode, zdrava životna sredina.

DEVELOPMENT OF NATIONAL PARKS FOR THE SAKE OF MAINTENANCE OF NATURAL RESOURCES AND PROTECTION OF THE ENVIRONMENT

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Abstract: Negative experience from past had terrible consequences, resulted in deterioration of natural environment and led us to necessary transformations of existing concept. Healthy environment, realization of social and economic integrity and improvement of natural resources, but also all manmade and cultural values on ongoing basis are increasingly gaining in importance.

National parks as most important part of the natural environment, enjoys protection both on international and national level. Preservation of natural resources results in a healthy and preserved natural environment on ongoing basis, and at the same time it is a necessary condition for human health.

Key words: national parks, nature protection, healthy environment

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ZNAČAJ PRIMENE JOGE NA FIZIČKO I MENTALNO ZDRAVLJE KOD PACIJENATA SA REUMATOIDNIM ARTRITISOM

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Sažetak: Reumatoidni artritis predstavlja autoimunu, inflamatornu, hroničnu bolest koja uzrokuje bol, ukočenost, otečenost zglobova, ograničenost pokreta, gubitak funkcije zglobova i usled toga smanjen kvalitet života. Takođe, dovodi do patoloških promena i u drugim sistemima i tkivima organizma što svrstava ovu bolest u vodeće uzročnike invalidnost. Za osobe sa reumatoidnim artritisom fizička aktivnost je esencijalna, kako za lečenje, tako i za očuvanje mobilnosti. Pomoćna terapija koju ovi pacijenti često koriste je joga. Ona može biti pogodna kod reumatoidnog artritisa iz razloga što kombinuje fizičku aktivnost sa moćnim tehnikama upravljanja stresom koje uključuju disanje, relaksaciju i usredsređenost pažnje. Cilj rada je da se pregledom literature ispita značaj primene joga kod RA. Za potrebe ovog istraživanja, koristili smo radove objavljene u poslednjih deset godina, koji su bili dostupni u PubMed/Medline bazi podataka. Dobijeni rezultati upućuju na zaključak da primena prilagođenih joga vežbi kod pacijenata sa artritisom ima uticaj na smanjenje bola, poboljšanje snage i elastičnosti mišića, poboljšanje balansa i disanja, poboljšanje psihičkog zdravlja i kvaliteta života.

Ključne reči: joga, artritis, reumatske bolesti

EFFECTS OF IMPLEMENTATION OF YOGA ON PHYSICAL AND MENTAL HEALTH OF PATIENTS WITH RHEUMATOID ARTHRITIS

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Abstract: Rheumatoid arthritis is an autoimmune, inflammatory, chronic disease that causes pain, stiffness, joint swelling, limitation of movement, loss of joint function and because of that reduced quality of life. It also leads to pathological changes in other systems and tissues of the organism which place this disease in the leading causes of disability. For people with arthritis, physical activity is essential for optimal disease management and preserving mobility. The most common alternative therapy that these patients use is yoga. It may be suitable for rheumatoid arthritis because it combines physical activity with powerful stress management techniques that include breathing, relaxation and mindfulness. The purpose of this study was to overview the articles and examine whether yoga can be an efficacious approach for managing RA. We searched PubMed/MEDLINE from last ten years. The obtained results suggest that yoga exercises in patients with RA has an effect on pain reduction, improve strength and muscle elasticity, improve balance and breathing, and also improve mental health and quality of life.

Keywords: yoga, arthritis, rheumatoid arthritis

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DOPRINOS SPORTA I REKREACIJE TURISTIČKOM AKTIVIRANJU GRADSKE OPŠTINE SURČIN

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Sažetak: Gradska opština Surčin poslednjih godina ulaže značajne napore u aktiviranje postojećeg turističkog potencijala. Turistička ponuda opštine Surčin zasnovana je na prirodnim resursima, kojima obiluje najmlađa beogradska opština, pored interesantne kulturne baštine ali i bogatim i različitim sadržajima i kvalitetnim programima sportsko-rekreativnih aktivnosti. Promene na međunarodnom turističkom tržištu utiču na smanjenje masovnog u korist posebnih oblika turizma, među kojima se upravo i izdvajaju sportsko-rekreativni programi kojima se obogaćuje sadržaj turističke destinacije. U svemu tome Gradsku opštinu Surčin izdvajaju značajne mogućnosti za razvoj sportskog i rekreativnog turizma, koji neposredno doprinose pozicioniranju Surčina kao aktivne turističke destinacije na turističkom tržištu Beograda i šire.

Ključne reči: sport, rekreacija, turizam, aktiviranje, Surčin

ADDITION TO SPORT AND RECREATION BY TOURISTIC ACTIVATION OF THE SURCIN CITY MUNICIPALITY

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Abstract: The City Municipality of Surčin has been making significant efforts in recent years to activate the existing tourism potential. The tourist offer of the Municipality of Surčin is based on natural resources, which are abundant by the youngest Belgrade municipality, besides the interesting cultural heritage, as well as rich and varied contents and quality programs of sports and recreational activities. Changes in the international tourism market influence the reduction of mass in favor of special forms of tourism, among which the sports and recreational programs that enrich the content of the tourist destination are distinguished. In all this City Municipality of Surčin is distinguished by significant opportunities for the development of sports and recreational tourism, which directly contribute to the positioning of Surčin as an active tourist destination on the tourist market of Belgrade and beyond.

Keywords: sport, recreation, tourism, activation, Surčin

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POSTURALNI KOREKTOR – NOVI STRUČNJAK ZA NOVE IZAZOVE

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Sažetak: Danas, kao nikad do sada, kretanje ima životnu važnost. Statistike govore da se manje krećemo, ustaljen je sedentarni način življenja, a da se kroz hranu i piće sve više unosi nepotrebnih kalorija. Usled načina života, preranog ulaska u sport i obaveza postizanja visokih sportskih rezultata imamo nepotpuno razvijene mehanizme za praćenje pravilnog rasta i razvoja dece u sportu, ali i onih koji nisu uključeni u sportske aktivnosti. Loše držanje tela je, ne tako davno, bilo neuporedivo manje zastupljeno kod školske dece. U novije vreme, pojava lošeg držanja tela, uzela je epidemiološke razmere, te s toga i korektivno vežbanje mora biti deo sistemskog rešavanja ovog problema. Veliki broj roditelja bezuspešno rešenje za posturalne poremećaje kod svoje dece traži u raznim sportskim školama. Znanja i kompetencije sportskih trenera u rešavanju posturalnih problema dece nisu dovoljne jer rešavanje tih problema zahteva specifična znanja i veštine. Tu se javlja potreba za uključivanjem kvalifikovanog, kompetentnog stručnjaka iz oblasti korektivnog vežbanja – posturalnog korektora. Dosadašnja definicija pojma "korektivna gimnastika" je u praksi prevaziđena, jer potrebe za korektivnim vežbanjem su postale sveprisutne. U ovom radu govorimo o značaju uvođenja posturalnog korektora u obrazovne i trenažne procese.

Ključne reči: Posturalni korektor, korektivno vežbanje, loše držanje tela, deca, sport

POSTURE CORRECTION SPECIALISTS - NEW PROFESSIONALS FOR NEW CHALLENGES

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Abstract: Today, like never before, the movement has vital importance. Statistics say that we are moving less, a sedentary lifestyle is settled, and that through food and drinks more and more unnecessary calories are introduced. Due to the way of life, the premature entry into the sport and the obligation to achieve high sports results, we have incompletely developed mechanisms for monitoring the proper growth and development of children in sports, but also those who are not involved in sports activities. Poor attitude of the body was, not so long ago, incomparably less represented in school children. In recent times, the occurrence of poor body health has taken epidemiological conditions, and therefore corrective exercise has to be part of the systemic solution of this problem. A large number of parents are looking for an unsuccessful solution for postural disorders in their children's sports schools. Knowledge and competencies of sports trainers in solving postural problems of children are not enough, because solving these problems requires specific knowledge and skills. There is a need to involve a qualified, competent practitioner in the field of corrective exercise - a postural corrector. The previous definition of the term "corrective gymnastics" has in practice been overcome since the need for corrective exercise has become ubiquitous. In this paper, we are talking about the importance of introducing a postural corrector into educational and training processes.

Key words: Postural corrector, corrective exercise, poor body sticking, children, sport

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TEMATSKI ORIJENTRING KAO INOVATIVNI SADRŽAJ OBAVEZNIH FIZIČKIH AKTIVNOSTI UČENIKA OSNOVNE ŠKOLE

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Sažetak: Orijetiring je sport koji gotovo u podjednako meri angažuje čovekove umne u fizičke sposobnosti. U mnogim zemljama sveta veoma je razvijen, ne samo kao takmičarski sport, već i kao školski i rekreativni sport. Zbog svojih izuzetnih vrednosti orijentiring je još 1942. godine postao deo nastavnih planova i programa švedskih škola. U našoj zemlji orijentiring se ubrzano razvija poslednjih nekoliko decenija. Ministarstvo prosvete, nauke i tehnološkog razvoja je 2017. godine podržalo strategiju razvoja orijentiringa i uvrstilo ga u nastavni plan i program redovnih aktivnosti fizičkog i zdravstvenog vaspitanja u osnovnim školama. Predmet rada je tematski orijentiring koji u osnovi ima orijentiring. To je fizička i umna aktivnost namenjena, pre svega učenicima školskog uzrasta koja se sastoji iz dva dele: prelaska staze uz pomoć karte i kompasa i rešavanja različitih i raznovrsnih tematskih zadataka. Kombinovano učenje sa fizičkim aktivnostima ispoljeno u obliku tematskog orijentiringa treba da deluje svestrano na fizički i umni razvoj učenika. Širina i raznolikost tematskog orijentiringa otvara nove mogućnosti da se klasično učenje bar jednim delom zameni. Cilj rada treba da ukaže na mogućnost primene jednog sasvim novog sportskog sadržaja u osnovnim školama i povežu različiti školski predmeti sa fizičkim vaspitanjem. Takođe, treba da pruži podršku profesionalnom razvoju zaposlenih u obrazovanju u sticanju znanja i veština u inovativnim aktivnostima, a sve zajedno unapredi proces nastave i učenja i podrži razvoj škole u celini. U radu je korišćen deskriptivni metod.

Ključne reči: tematski orijentiring, obavezne fizičke aktivnosti, inovativni sadržaj, nastava, osnovna škola

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THEMATIC ORIENTEERING AS AN INNOVATIVE CONTENT OF COMPULSORY PHYSICAL ACTIVITIES OF PRIMARY SCHOOL PUPILS

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Abstract: Orienteering is a sport that almost equally engages a man's mental and physical abilities. In many countries of the world it is very developed, not only as a competitive sport, but also as a school and recreational sport. Due to its exceptional value, orienteering became part of the curricula of Swedish schools as early as 1942. In our country, orienteering has been developing rapidly over the last few decades. In 2017, the Ministry of Education, Science and Technological Development supported the strategy of the development of orienteering and placed it in the curriculum of regular activities of physical and health education in elementary schools. The subject of this work is the thematic orienteering which in its basis has orienteering. It is a physical and mental activity intended primarily for pupils of school age, consisting of two parts: crossing the course with the help of a map and a compass and solving various and thematic tasks. Learning combined with physical activities in the form of thematic orienteering should act versatilely on the physical and mental development of students. The diversity of thematic orienteering opens up new opportunities to replace classical learning, at least partly. The aim of this paper is to point out the possibility of using a completely new sports content in elementary schools and link different school subjects with physical education. It should also provide support to the professional development of employees in education in acquiring knowledge and skills in innovative activities, and altogether it should improve the process of teaching and learning and help the development of the school as a whole. A descriptive method is used in this paper.

Key words: thematic orienteering, compulsory physical activity, innovative content, teaching, elementary school.

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MERENJE FIZIČKE AKTIVNOSTI DECE I ADOLESCENATA

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Sažetak: Najčešće, oblast fizičke aktivnosti uključuje sve vrste aktivnosti koje se obavljaju tokom slobodnog vremena, aktivnosti prevoza, sve zadatke koji se obavljaju u kućnom okruženju, časove fizičkog vaspitanja i odmora u školi. Merenje fizičke aktivnosti kod dece i adolescenata je izuzetno teško, zbog čega je neophodno imati valjane i pouzdane alate koji uključuju sve relevantne dimenzije i parametre. Do danas je korišćen širok spektar tehnika za merenje fizičke aktivnosti dece i adolescenata. Svrha ovog rada je pregled tehnika koje se trenutno koriste za merenje fizičke aktivnosti dece i adolescenata. Razlikujemo tehnike samoizveštavanja kao što su upitnici, dnevnici aktivnosti i objektivne mere fizičke aktivnosti kao što su direktno posmatranje, praćenje otkucaja srca, akcelerometri i pedometri. Kako bismo pomogli istraživačima i praktičarima u odabiru odgovarajućeg mernog alata za željenu studiju, predstavljene su tehnike koje se najčešće koriste za merenje fizičke aktivnosti i sedentarnog ponašanja dece, pri čemu su istaknute prednosti i ograničenja svakog instrumenta.

Ključne reči: fizička aktivnost, merenje, deca i adolescenti

MEASUREMENT OF PHYSICAL ACTIVITY OF CHILDREN AND ADOLESCENTS

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Abstract: Usually, physical activity domains include all types of activities performed during free time or leisure time, transportation activities, all tasks performed in the home environment, physical education sessions and break-time at school. Measuring physical activity behaviours in children and adolescents is extremely difficult, making it is necessary to have valid and reliable tools that are capable of including all of the relevant dimensions and domains. To date, a wide range of methods has been used to measure physical activity in children and adolescents. The purpose of this review is to overview the methods currently being used to measure physical activity in children and adolescents. We distinguish self-report methods such as questionnaires, activity logs, and diaries and objective measures of physical activity such as direct observation, heart rate monitoring, accelerometers, and pedometers. To assist researchers and practitioners in choosing the appropriate measurement tool for the desired study, we overviewed the most common methods currently being used to measure physical activity and sedentary behavior in children, noting the strengths and limitations of each instrument.

Keywords: physical activity, measurement, children and adolescents

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PREDLOG BATERIJE TESTOVA MOTORIČKIH SPOSOBNOSTI U FUTSALU

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Sažetak: Cilj ovog istraživanja je bio da se napravi predlog baterije testova motoričkih sposobnosti u futsalu i da se na taj način doprinese boljem sagledavanju ove sportske igre. Dobijeni su brojni radovi prilikom pretraživanja i napravljena je detaljna analiza. Ukupno je uzeto 10 naučnoistraživačkih radova, sačinjena je jedinstvena tabela gde su prikazani testovi koji su korišćeni u uzetim radovima kao i ostale kategorije ovih radova. Pored analize, pregledana je i odgovarajuća literetura koja daje informacije na zadatu temu. Za odabir baterije testova motoričkih sposobnosti u futsalu korišćena je analiza takmičarske aktivnosti. Pre svega je korišćena funkcionalna i anatomska struktura aktivnosti u okviru takmičarske aktivnosti. Na ovaj način se dobila predstava o motoričkim sposobnostima koje su dominantne na takmičenjima u futsalu. U rezultatima ovog istraživanja dat je predlog baterije testova motoričkih sposobnosti u futsalu. Uzeto je ukupno pet testa motoričkih sposobnosti koji se mogu primeniti na igrače futsala, takođe ovi testovi mogu biti svrstani u redovan plan i program jednog futsal tima.

Ključne reči: futsal, motoričke sposobnosti, test.

PROPOSAL OF BATTERY OF MOTORCYCLE ABILITY TESTS IN FUTSAL

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Abstract: The aim of this study was to draw up a battery test for motor skills in futsal and thus contribute to a better understanding of this sporting game. A number of papers were found during the search and a detailed analysis was made. A total of 10 scientific research papers were taken, a unique table was made, showing the tests used in the works taken, as well as other categories of these works. In addition to the analysis, the corresponding literature is also examined, which provides information on the subject. Competition analysis was used to select the battery of tests of motor skills in the futsal. First and foremost, the functional and anatomical structure of the activities within the competitive activity was used. In this way, you get a notion of motor skills that are dominant in futsal competitions. In the results of this research, the battery test of motor skills tests in futsal was given. A total of five tests of motor skills that can be applied to futsal players have been taken, and these tests can be grouped into the regular plan and program of a futsal team.

Keywords: futsal, motor skills, test.

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UTICAJ SNAGE NA REZULTAT SKOKA U DALJ

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Sažetak: Svrha ovog istraživanja je bila da utvrdi da li postoji uticaj snage kao motoričke sposobnosti na rezultat skoka udalj. Uzorak ispitanika je uzet iz osnovne škole „Jovan Jovanović Zmaj“ iz Vranja, odabrano je 30 učenika osmog razreda muškog pola. Ispitanici su mereni na sledećim testovima: skok udalj iz mesta, Abalakov test, pretklon trupa u ležećem položaju, mešoviti zgibovi, bacanje medicine iz ležećeg položaja i skok udalj. Najveće odstupanje od aritmetičke sredine je test bacanje medicine, dok je najmanje odstupanje kod Abalakovog testa i mešovitih zgibova. Sve vrednosti skjunisa se kreću od -3 do +3. Vrednost skjunisa skoka udalj iz mesta iznosi -1.02, vrednosti skjunisa Abalakovog testa iznosi 1.84. Kod ostalih varijabli vrednosti skjunisa pokazuju dobru simetriju distribucije. Vrednosti kurtozisa kod skoka udalj iz mesta i Abalakovog testa su 2.47 i 6.42 što ukazuje na homogenost rezultata distribucije. Ostale vrednosti kurtozisa imaju negativnu vrednost i predstavljaju smanjenu homogenost. Najveći stepen korelacija ima skok udalj iz mesta i Abalakov test i iznosi 0.676. Vrednost $p=0.07$ pokazuje da je uticaj nezavisnih varijabli na zavisnu ispod granica statističke značajnosti.

Ključne reči: snaga, skok, skok u dalj.

THE INFLUENCE OF STRENGTH ON LONG JUMP

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Abstract: The purpose of this research was to determine whether there is an impact of power as motor skills on the result of a jump jump. The sample of respondents was taken from elementary school "Jovan Jovanovic Zmaj" from Vranje, 30 students of the eighth grade male sexes were selected. Respondents were measured on the following tests: standing long jump, Abalakov test, crunches in a lying position, mixed pull ups, throwing the medicine from the lying position and long jump. The greatest deviation from the arithmetic mean is the test of the throwing the medicine, while the slightest deviation is in Abalakovag test and mixed pull ups. All values of the skewness range from -3 to +3. The value of the standing long jump is -1.02, the value of the Abalakov test is 1.84. In other variables, the values of the skewness are good distribution symmetry. The values of kurtosis at the standing long jump and the Abalakov test are 2.47 and 6.42 indicating the homogeneity of the distribution results. Other values of kurtosis have a negative value and represent reduced homogeneity. The highest degree of correlation has a standing long jump and the Abalakov test and is 0.676. The value of $p = 0.07$ and that the influence of independent variables is dependent below the bounds of statistical significance.

Key words: power, jump, long jump

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FIZIČKA AKTIVNOSTI I DEPRESIJA KOD STARIH OSOBA

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Sažetak: Stanovništvo starije dobi preko 65 godina je u porastu svaki dan u odnosu na bilo koje druge starosne grupe u društvu. Depresija ostaje kao značajan problem javnog zdravlja za starije osobe u svim uslugama sektorima kao što su bolnice, primarne zdravstvene zaštite i dugoročne nege. U današnje vreme depresija je značajan zdravstveni problem koji izaziva najviše patnje za ljude širom sveta. Pokazalo se da fizička aktivnost je značajna u prevalenciji depresije kod starih osoba. U ovom istraživanju ispitano je mentalno zdravlje kod 98 starih osoba putem Gerijatrijske skale za depresiju. Ustanovljeno je da je depresija manje prisutnija kod starih osoba koje primenjuju fizičku aktivnost.

Ključne reči: vežbanje, depresija, stare osobe

PHYSICAL ACTIVITY AND DEPRESSION IN THE ELDERLY

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Abstract: The population of elderly persons, aged over 65, is increasing every day in comparison to any other age group in society. Depression remains a significant public health problem for the elderly persons in all service sectors, including hospitals, primary health care and long-term care. Nowadays, depression is a significant health problem, which causes most of the suffering for people around the world. It has been shown that physical activity is important in the prevalence of depression in the elderly. This study examined the mental health of 98 elderly persons using the Geriatric Depression Scale. It was found that depression was less frequent among those elderly persons who engaged in a physical activity.

Key Words: exercise, depression, elderly

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SPORTSKI I VANSPORTSKI PRELOMI KOSTIJU LICA I VILICA: ETIOLOGIJA, DIJAGNOSTIKA I PROGNOZA

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Sažetak: Povrede kostiju lica deo su širokog spektra maksilofacijalne traumatologije i obuhvata povrede svih tkiva lica od manjih preloma sve do opširnih panfacijalnih i kraniofacijalnih povreda. Ove povrede treba zbrinuti što ranije jer su rana dijagnoza i lečenje ključ za brz oporavak pacijenta. Odlaganje lečenja utiče na slabiji ishod lečenja i pojavu komplikacija. Većinom su kod osoba muškog pola. Najčešći uzroci njihovih nastanaka su sportske povrede, saobraćajne nesreće, fizičko nasilje, padovi s visine i povrede pri radu. Prelomi kostiju lica dele se na: prelome gornjeg dela srednjeg lica, prelome srednjeg i prelome donje vilice. Najteže su panfacijalni i kraniofacijalni prelomi, nastaju delovanjem vrlo velikih sila, multipli su i kominutivni. Klasifikuju na centralne, lateralne i kombinovane kraniofacijalne frakture. Donja vilica je izložena udarcima prilikom pada, u napadu ili odbrani. Sve su češća oštećenja zigomatične i ostalih kostiju s kojima je ona u bliskom odnosu, pa se dejstvo traume prenosi prema dubljim koštanim tkivima i sadržaju lobanje. Mogu se javiti i infekcije koje prate ovakve povreda jer prodiru dublje prema endokranijumu i otežavaju i ugrožavaju život povređenog. Lečenje treba da bude timsko, tesna saradnja između stomatologa, oralnog ili maksilofacijalnog hirurga sa neurohirurgom, neurologom, ortopedom, otorinolaringologom i kod svih povreda.

Ključne reči: povrede kosti lica, povrede kosti vilica, panfacijalni i kraniofacijalni prelomi, timsko lečenje

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SPORTS AND NON-SPORTS-RELATED BONE FRACTURES: AETHOLOGY, DIAGNOSIS AND PROGNOSIS

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Abstract: Injuries to the facial bones are part of a wide spectrum of maxillofacial traumatology and include injuries to all tissues of the face from minor fractures to extensive panfacial and craniofacial injuries. These injuries should be taken care of as promptly as possible since an early diagnosis and treatment are the key to a patient's rapid recovery. Postponement of treatment may result in a poorer outcome of treatment and in further complications. This type of injuries mostly occur in males. The most common causes of their emergence are sports injuries, traffic accidents, physical violence, falls from heights and injuries at work. Facial bone fractures are divided into: fractures of the upper part of the middle face, fractures of the middle face and mandible fractures. The most difficult ones are panfacial and craniofacial fractures, caused by the impact of high forces, they are multiple and cominutive. They are classed as central, lateral and combined craniofacial fractures. The mandible is exposed to blows in falls, attacks, or defence actions. Traumas of zygoma and other bones it is closely related with are increasingly frequent with the impact of the trauma being transferred to the deeper bone tissues and the tissues the skull. Infections that follow such injuries can also occur as the injuries penetrate deeper into the endocranium and aggravate and endanger the life of the injured. Treatment should be a team one, including close collaboration of a dentist, oral or maxillofacial surgeon with a neurosurgeon, neurologist, orthopedist, otorhinolaryngologist in all injuries.

Key words: bone fractures, jaw bone injuries, panfacial and craniofacial fractures, team treatment

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MOTORIČKE SPOSOBNOSTI I MORFOLOŠKE KARAKTERISTIKE DECE PREDŠKOLSKOG UZRASTA

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Sažetak: Predškolskim periodom se smatra razdoblje od treće do sedme godine života i ono podrazumeva jednu od faza u sazrevanju i ostvarivanju svestrane ličnosti deteta. Predškolski period predstavlja doba kada dete, na njemu interesantan način, mnogo toga doživljava i saznaje. Neophodno je poznavanje zakonitosti koje se najviše manifestuju u vidu relacija između morfoloških dimenzija, jer se bilo koja efikasnost motoričkih programa uz odgovarajuće motoričke sposobnosti može ispoljiti jedino preko efektora, koje predstavljaju mišići, kosti i zglobovi. Prema rezultatima iz sprovedenog istraživanja evidentno je da u polovini analiziranih istraživanja dečaci i devojčice imaju uglavnom identične rezultate, a u ostalim istraživanjima bolje rezultate imaju dečaci u motoričkim sposobnostima i veće vrednosti antropometrijskih mera. Predškolski uzrast očito ne podrazumeva razliku između polova po pitanju morfoloških karakteristika i motoričkih sposobnosti, već predstavlja ravnopravnost u mogućnostima i razvoju dece, gde osnovni zadatak treba da bude praćenje rasta i razvoja u tom dobu.

Ključne reči: morfološke karakteristike, motoričke sposobnosti, predškolski uzrast

MOTOR ABILITIES AND MORPHOLOGICAL CHARACTERISTICS OF PRESCHOOL CHILDREN

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Abstract: The preschool period is considered to be the age of three to seven years of age and it is assumed as one of the stages in maturation and achieving a versatile personality of the child. Pre-school age is a time when a child, in an interesting way, experiences and learns a lot. It is necessary to know the laws that are mostly manifested in the form of relations between morphological dimensions, because any efficiency of motor programs with appropriate motor skills can be demonstrated only through the effectors, which are muscles, bones and joints. According to the results from the conducted research it is evident that in the half of the analyzed research boys and girls have identical results, while in other studies, boys have better results in motor skills and higher values of anthropometric measures. Apparently, pre-school age does not imply difference between the sexes but it means equality in the opportunities and development of children, where primary task should be to monitor their growth and development at that time.

Key words: morphological characteristics, motor skills, pre-school age

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RAZLIKE U MORFOLOŠKIM KARAKTERISTIKAMA I MOTORIČKIM SPOSOBNOSTIMA DECE PREDŠKOLSKOG UZRASTA

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Sažetak: Osnovna uloga fizičke aktivnosti dece predškolskog uzrasta u vrtićima je da stvori zdrave navike redovnog bavljenja organizovanim fizičkim aktivnostima kako bi se postigao skladan rast i razvoj antropoloških karakteristika u ovom izuzetno osetljivom periodu, podizanje motoričkih sposobnosti na viši nivo i, kroz sistematsku, naučno utemeljenu, dobro planiranu i programiranu fizičku aktivnost, pružanje visokokvalitetnih i dugoročnih podsticaja kako bi se razvile sve karakteristike i sposobnosti najmlađih. Osnovni cilj ovog istraživanja je utvrđivanje razlika u dimenzionalnosti morfoloških karakteristika i motoričkih sposobnosti dece uzrasta od 4 do 7 godina, koja borave u dečijem vrtiću na području opštine Zvezdara grad Beograd i koji u radu imaju redovni program fizičkog vaspitanja. Ispitivanje je sprovedeno na uzorku od 30 ispitanika starosti od 4 do 7 godina \pm 6 meseci od kojih su 20 dečaka i 10 devojčica. Merenje je izvršeno tokom 2018. godine. Rezultati ovog istraživanja potvrđuju važnost utvrđivanja nivoa morfološkog i motoričkog statusa dece, optimalnog programiranja telesnih aktivnosti, individualnog pristupa u radu a sve sa ciljem skladnog rasta i razvoja dece i očuvanja zdravlja, kako u predškolskom, tako i u starijem uzrastu.

Ključne reči: motoričke sposobnosti, morfološke karakteristike, predškolski uzrast

DIFFERENCES IN MORPHOLOGICAL CHARACTERISTICS AND MOTOR ABILITIES OF PRESCHOOL CHILDREN

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Abstract: The basic role of physical activity of pre-school children in kindergartens is to create healthy habits of regular physical activity organized in order to achieve a harmonious growth and development of anthropological characteristics in this extremely sensitive period, , well-planned and programmed physical activity, providing high-quality and long-term incentives to develop all the characteristics and abilities of the youngest. The main goal of this research is to determine the differences in the dimensionality of the morphological characteristics and motor skills of children aged 4 to 7 years, who are staying in a kindergarten in the municipality of Zvezdara city Belgrade, and who have a regular program of physical education. The study was conducted on a sample of 30 subjects aged 4 to 7 years \pm 6 months of which 20 boys and 10 girls. Measurement was performed in 2018. The results of this research confirm the importance of determining the level of morphological and motor status of children, optimal programming of physical activities, individual approach in work with the goal of harmonious growth and development of children and preservation of health both in pre-school and in older age.

Key words: motor skills, morphological characteristics, pre-school age

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PREGLED KRETANJA, STRUKTURA KAŽNJIVIH PONAŠANJA I VRSTE ODLUKA U POSTUPCIMA KAŽNJIVIH PONAŠANJA NA SPORTSKIM NATJECANJIMA U REPUBLICI HRVATSKOJ

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Sažetak: Europskom konvencijom o nasilju i nedoličnom ponašanju gledatelja na sportskim priredbama države ugovornice obvezale su se da će, radi sprječavanja i suzbijanja nasilja na sportskim natjecanjima prevenirati i sankcionirati nesportska, neetička i kažnjiva ponašanja kako bi se zaštitili građani ali i privatna i javna imovina. Uvažavajući smjernice Vijeća Europe, Republika Hrvatska je 2003. donijela Zakon o sprječavanju nereda na sportskim natjecanjima koji je *lex specialis* za dato područje. Petnaest godina kasnije nasilje i neredi na sportskim natjecanjima prisutni su i dalje u gotovo svim europskim državama kako na nacionalnim tako i na međunarodnim sportskim susretima i natjecanjima. U radu će se prikazati kažnjiva ponašanja sukladno uređenju u spomenutom Zakonu kao i broj svih kažnjivih ponašanja na sportskim natjecanjima u 2014., 2015., 2016., 2017. i 2018. godini. Od tog broja, prikazat će se koliko je počinitelja maloljetno, koliko je recidivista, koliko je pravnih osoba te koji je broj predloženih zaštitnih mjera. Uz to, prikazat će se broj kažnjivih ponašanja s obzirom na vrstu odluka koje su donesene u tim postupcima: broj uručenih obveznih prekršajnih naloga, broj uručenih prekršajnih naloga, broj podnesenih optužnih prijedloga i broj nepokrenutih postupaka.

Ključne reči: kažnjiva ponašanja u sportu, neredi na sportskim natjecanjima, kaznena djela u sportu.

OVERVIEW OF TRENDS, STRUCTURES AND TYPE OF RESOLUTIONS IN PROCEEDINGS OF CRIMINAL CONDUCT AT SPORTS EVENTS IN THE REPUBLIC OF CROATIA

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Abstract: The contracting states are bound by European Convention on Spectator Violence and Misbehaviour at Sports Events to prevent and sanction unsporting, unethical and criminal conduct in order to protect citizens as well as public and private property. Respecting the guidelines of the Council of Europe, the Republic of Croatia issued the Act on Prevention of Violence and Misbehaviour at Sports Events in 2003, which is *lex specialis* for that area. Fifteen years later, violence and misbehaviour still occur at sports events in almost each and every European country at national and international events. Criminal conduct according to the regulations in the aforementioned Act is going to be presented in this paper along with the total number of criminal conduct at sports events in 2014, 2015, 2016, 2017 and 2018. In the structure of criminal conduct the following numbers are going to be demonstrated: underage perpetrators, recidivists, legal entities and proposed protective measures. In addition, the number of criminal conduct with regard to the type of resolutions made in those proceedings is going to be presented: the number of mandatory misdemeanor warrants, the number of misdemeanor warrants, the number of indictments filed and the number of unfiled proceedings.

Key words: criminal conduct in sports, misbehaviour at sports events, sports crimes.

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