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„АНТРОПОЛОШКИ И ТЕОАНТРОПОЛОШКИ ПОГЛЕД НА ФИЗИЧКЕ
АКТИВНОСТИ ОД КОНСТАНТИНА ВЕЛИКОГ ДО ДАНАС“**

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“ANTHROPOLOGICAL AND TEO-ANTHROPOLOGICAL VIEWS ON
PHYSICAL ACTIVITY FROM THE TIME OF CONSTANTINE THE GREAT
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УВОДНА ПРЕДАВАЊА
INTRODUCTORY LECTURES

SELECTED INDICATORS OF QUALITY PHYSICAL EDUCATION IN OPINIONS OF HIGH SCHOOL STUDENTS IN SLOVAKIA, CZECH REPUBLIC AND CROATIA

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Abstract: In our presentation we present selected results of research made in Slovakia, Czech Republic and Croatia focused on evaluation of selected Indicators of quality physical education in opinions of high school students. Research sample was 555 pupils 18 years old, used research method was questionnaire focused on 5 basic areas: popularity, importance, demandingness and next selected indicators of quality physical education; social capital; new technologies in physical education teaching; health and healthy lifestyle and inclusion in physical education. Most important statistical differences we found in inclusion in opinions of students. Croatian students look at this topic more positively as students from Slovakia and Czech Republic. This study was supported by scientific grant VEGA 1/0523/19 entitled Physical and Sports Education and its Quality and Potential in Promoting Health from the Perspective of Pupils, Teachers and Parents.

INTEREST GROUPS IN SPORT

Žvan Milan

University of Ljubljana, Slovenia

Abstract: Human conduct in the rough define conceptual-ideological views, habits and interests. Conceptual-ideological views refer to life's philosophy, values and osmislation or/and their realization. The habits are by repeating a fixed form of everyday or routine behavior and operation. The interests are characterized by tracking utility. In this context, we can distinguish national, public, political, professional, private, group and other interests. The main relationship in the structure of interests is between short-term and long-term interests, with short-term interests in absolute dominance. The basis for the dominance of short-term interests is impossibility and nonviolence as a result of excessive selection and hyperproduction. Both men force in constant presing (excessive tension), which prevents normal experience of achievements. On this basis, a man always expects too much and too early to avoid the limits of achievements and the satisfaction that arises. In nature, interest dynamics in the field of sport are particularly intense. The main interest groups in sport form athletes, coaches and parents. The mandatory addition is also accompanied by the widest meaning of the word (service, equipment, management...). The friction between these interest groups is inevitable regardless of interdependence. The contribution refers to the profiling of interest groups in sport and the reflection on the possibility of more effective coordination on the principle of proportionality and sequencing.

Keywords: sport, interests, groups, proportions

MECHANISM OF ANTERIOR CRUCIATE LIGAMENT INJURY IN SPORT

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Abstract: The number of anterior cruciate ligament (ACL) injuries is on permanent increase, particularly in sport activities. Namely, participation in sports involves a significant risk of injuries for both professional and recreational athletes. ACL injuries mostly occur in sports in which there is a twist in the knee joint, such as football, handball, basketball and skiing. Majority of these injuries are caused by contactless mechanisms of injuring, such as landing and direction change. The aim of this research is to analyze the injury mechanisms in respondents diagnosed with ACL injury and their relationship with risk factors. The research is conducted as a retrospective study at The Clinic for Orthopedic Surgery and Traumatology in Novi Sad, with the prior permission of the Ethics Committee of the Clinical Center of Vojvodina. The study included 1,471 patients diagnosed with an ACL injury who were surgically treated in the period from the end of January 2012 to the middle of June 2018. Out of the total number of respondents, there were 1,192 men and 279 women. The age of the respondents ranged from 13 to 57 years. The mean age of the examined patients was 25.33 ± 7.79 years. Most respondents are in the under-21 group - 39.2%. The average weight of the patients is 80.96 ± 14.61 kg, and the average height is 180.75 ± 8.54 cm. The mean BMI is 24.68 ± 3.75 . We collected the data by reviewing medical records and analyzed the following parameters for each patient: gender structure, age structure, body weight and height, side of injury, activity during which the injury occurred, level of sports activity, level of competitive activity, type of sport, place of occurrence of injury, mechanism of injury, time of injury occurrence, and type of surface. The largest number of injuries occurred during sports activities (93%), and the most common sports are football (48.2%), basketball (15.4%) and handball (10%). Most injuries were caused by a non-contact mechanism (80%), when changing direction (47%) and landing (30.5%). The surface on which ACL injuries most often occurred was grass - in 39% of cases, considering the fact that the most common sport in which the ACL injury occurs is football. It is further followed by parquet in 28% of cases, then concrete in 12% of cases, mats and taraflex in 4% of cases, and other surfaces with a share of 13%. Grass was the most risky surface for contact injuries (28%), while the number of injuries during landing was most recorded on concrete and parquet (41%). The rupture of the ACL usually occurs due to hyperextension of the knee with internal rotation of the tibia or due to valgus position of the knee with external rotation of the tibia. The mechanism of injury was influenced by gender, side of the injury, level of sports activity, type of sport, part of the training on which the injury occurred, and the type of surface.

TREND OF RECREATIONAL SKI DEVELOPMENT IN SERBIA SINCE THE ESTABLISHMENT OF THE CAMPAIGN EVERYONE OUT IN THE SNOW 1972.

Mitić Dušan

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Abstract: *Winter tourism represents a typical form of 'active rest'. As a selective type of tourism, it has taken root and become a significant part of the tourist offer in Serbia. Its rapid development began during the 80s when we, as Former Yugoslavia, became the hosts of the Winter Olympics in Sarajevo. Simultaneously, the mountain of Kopaonik, which nowadays ranks among the world's famous winter sports and recreation centers according to what it offers on snow tracks and facilities, started its fast-growing development. Everything that had happened in many ski resorts of Serbia until the early 80's could be characterized as winter holidays organized by mountain lovers themselves - mountaineers, ski clubs, holidaymakers, faculties of physical culture, individuals or the YPA. A huge credit for the rapid development of recreational skiing belongs to the association "HEALTHY AND ABLE". The program was formed by the State of Serbia in 1972 as a national program of the highest priority and it was to be supported by all sports organizations. Association for Physical Education and Recreation 'Partizan' had the obligation to coordinate the work of all sports organizations. One of its main tasks was the development of a seasonal program called EVERYONE OUT IN THE SNOW, which took place all over Serbia in the form of one-day events, weekend tours and the organization of winter holidays, placing a strong focus on ski trainings. As promotional programs, EXPO-ZIM, Beli bal and YU SKI Festival were launched and gathered a large number of winter sports fans. The cause of this expansion can be found in the improvement of the overall standards, improvement of both spatial and technical conditions of the stay on the mountain, preparation and maintenance of ski tracks and increasingly complex ecological situation during the winter. According to Mitic et al. 2010., 19.1% of citizens in Serbia have their own equipment for alpine skiing, i.e. recreational skiing. As a typical winter adrenaline sport, it is a serious impetus for further development of tourist facilities of wider regional importance, with the projection of further expansion of ski tracks, ski lifts, accommodation, catering, various outdoor activities and accompanying development of wellness contents.*

SPORT, GAMES AND CHIVALRY IN MEDIEVAL SERBIA

Zarković Božidar

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Abstract: Sports games held during the ancient times were an important factor that influenced the entire social life of the era. During the greatest sport events such as the Olympic Games, all hostilities and war conflicts ceased and the winners of the games were considered to be equal to gods. Although developed on the foundations of the Greek culture and Roman state, the Middle Ages, under the influence of Christianity, banned the Olympics considering them a pagan relic, making most sports undesirable. The invasion of barbarians, which destroyed the remnants of the old society, accelerated this process. Yet, not all sports activities died out. The ones related to everyday activities, fighting and warfare continued to live. Serbian medieval state originated in the area between Byzantium and Western Europe and was exposed to influences from both sides, both the East and West. These influences were also manifested in sports, games and chivalry. The influences' paths varied, though, and were connected to population's travelling and mixing. Thus, the Eastern influence came from the Byzantine neighboring cities, and the Western from the Westerners – the Sas (Saxon) miners who worked and lived in Serbia, merchants and craftsmen from the coastal region, as well as mercenary military squads hired by the rulers. Sports activities, games and knightly competitions in medieval Serbia were connected with other social events and could be found in mixed environment such as urban settlements, as well as at gatherings at certain religious buildings. Gatherings in the cities were connected with organization of trade fairs and trade shows, and at monasteries and churches with religious festivals held almost every day. Preserved onomastic materials testify about sports activities: igrište (arena), potecište (starting point), strelište (shooting range) and others. Sports activities and knightly competitions were of a competitive nature, whereas the games were for fun. The paper discusses the presence of sports activities, games and chivalry in medieval Serbia, their origin, venues and social significance.

Keywords: Serbia, Middle Ages, sports, games, chivalry, influences, fairs, festivals, cities.

THE ROLE OF VITAMIN D ON SPORT PERFORMANCE IN ATHLETES

Pešić Srđan

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Abstract: Vitamin D deficiency is pandemic across the world. It has well known impacts on calcium metabolism and bone health, but increasingly recognized associations with chronic health problems such as bowel and colonic cancer, arthritis, diabetes and cardiovascular disease. The last decade has seen a dramatic increase in general interest in and research into vitamin D, with many athletes now taking vitamin D supplements as part of their everyday dietary regimen. Athletes have the same predisposition to low levels of vitamin D, the majority of its concentrations being below 20 ng/mL in a wide range of sports, especially in the winter months. In recent years in the Sports Medicine literature, there has been an increased focus on the potential impact that inadequate Vitamin D levels may have on athletic performance. The most recognized role of vitamin D is its regulation of calcium homeostasis; there is a strong relationship between vitamin D and bone health in non-athletic individuals. In contrast, data have consistently failed to demonstrate any relationship between serum 25[OH]D and bone health, which may in part be due to the osteogenic stimulus of exercise. Muscle structure and function is recognised to play a key role in athletic performance, and both cross-sectional and longitudinal studies allude to a functional role for Vitamin D in muscle. The identification of the Vitamin D receptor in muscle tissue provides a direct pathway for Vitamin D to impact upon Skeletal Muscle structure and function. Vitamin D may interact with extra-skeletal tissues such as muscle and the immune system to modulate recovery from damaging exercise and infection risk. Vitamin D is important in bone health, but recent research also points out its essential role in extraskeletal functions, including skeletal muscle growth, immune and cardiopulmonary functions and inflammatory modulation, which influence athletic performance. Vitamin D can also interact with extraskeletal tissues to modulate injury recovery and also influence the risk of infection. Given that many athletes now engage in supplementation, often consuming extreme doses of vitamin D, it is important to assess whether excessive vitamin D can be detrimental to health. It has been argued that toxic effects only occur when serum 25[OH]D concentrations are greater than 180 nmol/L. There is a paradoxical relationship between serum 25[OH]D concentration, ethnicity, and markers of bone health: Black athletes often present with low serum 25[OH]D without physiological consequences. One explanation for this could be genetic differences in vitamin D binding protein due to ethnicity, resulting in greater concentrations of bioavailable (or free) vitamin D in some ethnic groups. The purpose of this review is to describe the latest research conducted on the epidemiology of vitamin D deficiency and its effects on sports performance and musculoskeletal health.

Keywords: vitamin D, sport performance, 25(OH)D, supplementation, athletes

ANALYSIS OF PARTICIPATION OF PRIMARY SCHOOL CHILDREN IN SPORTS SYSTEM IN R SERBIA

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Abstract: Competitive sport today is recognized by the strength of the organization and by the achieved results. It confirms a nation's cultural wealth, personate general national interest and represent a particular country in the world. That is the main reason why the Serbian Constitution defines sport as category of special social interest. Modern life style, with all modern technologies, is the basic reason why kids and youth are physically inactive. It is the scientific evidence base fact that physical inactivity of youth has negative influence on physical health, social and spiritual development and generally negatively influences biological potential of a nation. Engaging kids and youth in the system of sport could be one of the basic models of prevention against sedentary growing up style, i.e. physical inactivity. Because that one of the goals of the strategy of development of sport in the Republic of Serbia is to make sport generally accepted and desirable model of social behaviour, especially for schoolchildren. The aim of this research was to analyse the current quantitative characteristics of primary school children's engagement in sports system in Serbia. This research has been realized as systematic non-experimental survey. The sample consisted of 7787 elementary school pupils from 1st to 8th grade from five different regions in Serbia (Vojvodina, Belgrade, two central and one South regions of R Serbian, 3929 boys and 3858 girls). The results were analysed by the method of descriptive and regression statistic. The results of the participants have revealed that pupils generally attain actively 41 different sport, which means that they participate in 40.17% of all sports. The boys were active in 38 and girls in 37 of all sports recognized by the law of Republic of Serbia (117). The overall prevalence of children not participating in the sport system was 45.67%, as follows: 38.85% with boys and even 52.62% with girls. The majority of boys from the analysed sample are engaged in football (25.71%), swimming (5.55%), and karate (3.87%), whereas the highest number of girls choose volleyball (14.69%), swimming (5.63%) and folklore (5.22%). Unfortunately, it was established that in the course of elementary school education there is no statistically significant trend of change of prevalence of participation of the elementary school pupils in sports system of the Republic of Serbia (Boys - $R^2 = 0.0125$, $p = 0.798$; Girls - $R^2 = 0.0003$, $p = 0.984$), i.e., the value of the regression coefficient of the change trend of prevalence of participation in sports system with schoolchildren in 1st to 8th grade per year was -0.322 with the boys, whereas it was 0.0342 with the girls. The results of this research showed elementary school children initial quantitative date about involvement in the system of sport in R Serbia. Based on the results it can be concluded that more than a half of them are engaged in the sports system and that the prevalence of non-participation is higher in girls compared to boys. The regression analysis results showed that during the elementary education period (8 yrs.), the physical education system, the overall education system at school, and competitive sport system, absolutely do not affect in any way the change of prevalence of participation of the observed elementary school children population in the sports system in the Republic of Serbia.

ANALYSIS OF THE IMPACT OF THE HEALTHY LIFESTYLE ONLINE PROGRAM FOR MAINTAINING PHYSICAL FITNESS AND HEALTH DURING THE COVID 19

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Abstract: *The purpose of the paper was to present the analysis of the impact of the healthy lifestyle online program for maintaining physical fitness and health during the COVID 19. The sample represented 200 male and female students, who were in the school year 2020-21 regularly enrolled in the five grammar schools in Ljubljana. Program lasted 12-weeks. Before and after the program we performed measurements of standardized anthropomorphic and fitness tests. A questionnaire was used to check the effect of the program on lifestyle components and the health-related behaviour (Majerič, 2015). Data was processed using the SPSS for Windows program. We found that the 12-week program had a positive effect on anthropometric variables, and that the results in fitness tests which measure strength, flexibility and overall endurance were improved. The program also had a positive effect on the evaluation of lifestyle components and on health-related lifestyle attitudes. We checked all this at the level of 5% of statistical significance ($p \leq 0,05$). Due to the positive effect of this program, we suggest also to other teachers and experts to implement such and similar programmes to students. This is especially recommended, because with such programs we can ensure adequate physical activity even during the implementation of measures, such as restricting physical activity during COVID19.*

Key words: *analysis healthy lifestyle, online program, effect, fitness, health, students.*

EFFICIENCY OF THE SHOCKWAVE THERAPY IN REDUCING PAIN OF CERVICALGIA

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Abstract: *The increasing frequency of people with cervical pain, irradiation at the level of the neck, upper limb, shoulder blade and often accompanied by paresthesia in the arm, forearm, hand and even motor deficit, determine us to use the most efficient techniques, methods and therapeutic means for relaxing the contracted muscle groups, restoring cervical lordosis restoring the muscular balance and implicitly for reducing the pain. Table tennis players by their specific position, by their displacements and the high number of executions in the time frame spent at the playing table, are predisposed to early appearance or after they finish their performance activity, to cervical pain. The hypothesis from which we left was to investigate to what extent shockwave therapy applied to the contracted muscles of the neck can contribute to the reduction and disappearance of cervical pain. Shockwave is a new technology that uses shock waves for the treatment of chronic pain in the musculoskeletal system. Shockwave is based on generating very intense energy in a very short time (10 milliseconds), the shock wave streaming the tissues at a speed higher than the speed of sound. The study was conducted on 18 subjects, former table tennis players aged 35-60 years, diagnosed with cervicalgia of various causes: rectitude, cervical spine, cervical arthritis, etc. Subjects were divided into 2 groups; an experimental group of 9 patients using shockwave therapy to relaxing tense and painful muscles from the scruff (upper trapezium, middle trapezium, rhomboid, paravertebral) and a control group to which classical therapy was applied using the TENS current and ultrasound. The study was conducted over a period of 4 months at a private physiotherapy clinic and each patient received 10 therapy sessions. For evaluation we use, the visual assessment of the spine (frontal and sagittal), VAS scale for measuring pain intensity (values 0-10, where 0 = absence of pain and 10 = maximum pain) palpation for detection of muscle contractions and pain irradiation, presence of paresthesias, cervical spine radiograph (sagittal and front open mouth) as well as scanning the cervical area using the hand-scanner. The results show a pain decrease on the the subjects who used shockwave therapy at values of 2 and 3, which is a reduction of pain until mild discomfort, while in the control group where the TENS current and ultrasound were applied, pain stagnated at values of 4 and 5. That represents a decrease of pain intensity by 20% higher in the experimental group compared to the control group. In conclusion, shockwave therapy has a high efficiency in reducing muscle contractions, restoring agonist/antagonist muscular balance, significant pain relief as well as cervical lordosis recovery. By reducing muscle contractions, cervical rectal correction is improved, posture improves and irreducible hernias are prevented.*

Key words: *recovery, cervical spine, muscle contraction, mobility, muscle balance*

САОПШТЕЊА
ANNOUNCEMENTS

МОРФОЛОШКИ И МОТОРИЧКИ ПРОФИЛ СПЕЦИФИЧАН ЗА ОДБОЈКУ: РАЗЛИКЕ У АНТРОПОМЕТРИЈСКИМ И МОТОРИЧКИМ КАРАКТЕРИСТИКАМА ИЗМЕЂУ ЕЛИТНИХ ОДБОЈКАША И ФИЗИЧКИ АКТИВНИХ МУШКАРАЦА

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Сажетак: Због великих обавеза које се свакодневно намеђу елитним спортистима, веома је тешко доћи у ситуацију да они издвоје одређено време, како би се са њима обавиле одговарајуће батерије тестова. Управо зато је свако истраживање, које се спроведе са њима од великог значаја за саму науку. Циљ истраживања подразумева утврђивање и профилисање морфолошких карактеристика и моторичких способности елитних одбојкаша у односу на физички активне мушкарце. У студију је укључено 10 елитних одбојкаша, који су у просеку били стари 23,20 ($\pm 3,82$) година у сезони 2019/2020, као и 10 студената Факултета спорта и физичког васпитања, Универзитета у Београду, просечног узраста 20 ($\pm 1,25$) година. Од варијабли за процену морфолошких карактеристика, праћене су висина тела (VT), маса тела (MT), као и количина мишићног (KMT) и поткожног масног ткива (KPMT). Моторичке способности испитиване су тестом за процену максималне концентричне мишићне сile (F), снаге (P), брзине (V) и брзине развоја сile (RFD) и тестом за процену максималне висине скока (SKOK). Резултатима је utvrđena statistički značajna razlika код свих посматраних варијабли између елитних одбојкаша и физички активних мушкараца ($p < 0.05$). Недвосмислено је утврђено да је селектирање одбојкаша на основу антропометријских карактеристика предуслов за бављење одбојком на врхунском нивоу, као и да технологија тренирања и сам тренажни процес значајно доприносе порасту моторичких способности у домену сile, снаге и брзине мишићног рада, а самим тим и до оптимизације и ефекаснијег коришћења потенцијала спортиста, како би се могли бавити овим спортом на највећем могућем нивоу.

Кључне речи: одбојка, утицај тренинга, типологија.

VOLLEYBALL-SPECIFIC MORPHOLOGY AND MOTOR PROFILE: DIFFERENCES IN ANTHROPOMETRIC AND MOTOR CHARACTERISTICS AMONG ELITE VOLLEYBALL PLAYERS AND PHYSICALLY ACTIVE MALES

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Abstract: Due to the great responsibilities that are imposed on elite athletes on a daily basis, it is very difficult for them to take the time to perform the appropriate batteries of tests with them. That is why any research that is conducted with them is of great importance for science. The aim of the research was to determine and profile the morphological characteristics and motor abilities of elite volleyball players in relation to physically active men. The study included 10 elite volleyball players, who were on average 23.20 (± 3.82) years old in the 2019/2020 season, as well as 10 students of the Faculty of Sports and Physical Education, University of Belgrade, with an average age of 20 (± 1.25) years. Among the variables for the assessment of morphological characteristics, body height (VT), body weight (MT), as well as the amount of muscle (KMT) and subcutaneous adipose tissue (KPMT) were monitored. Estimated motor abilities were: maximal concentric muscle force (F), power (P), speed (V) and rate of force development (RFD) as well as maximum jump height (SKOK). The results showed a statistically significant difference in all observed variables between elite volleyball players and physically active men ($p < 0.05$). It has been unequivocally established that the selection of volleyball players based on anthropometric characteristics is a prerequisite for playing volleyball at the highest level. Consequently, training technologies as well as the training process itself further contribute to a more effective use of athlete's potentials, in order for them to perform at the highest possible level.

Key words: volleyball, training effects, typology.

СПОРТСКИ МЕНАЏМЕНТ КАО ВЕШТИНА И ИСКУСТВО ТАЛЕНТОВАНИХ МЕНАЏЕРА

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Сажетак: С обзиром да се појам менаџмента у савременој литератури употребљава у значењу управљања организацијом, онда се појам менаџмента у спорту може одредити као концепт управљања спортском организацијом. Спортски менаџмент је свака комбинација вештина које се односе на планирање, организовање, управљање, контролу, буџетирање, вођење и праћење у контексту једне организације или њеног дела чији се примарни производ или услуга односи на спорт и/или физичку активност. Спортски менаџмент, као и у свим другим областима, представља скуп знања и вештина потребних за развој свих релевантних сфера, укључујући и људски ресурс као најбитнији, у циљу постизања постављених циљева у спорту. У том смислу, спортски менаџмент носи и највећу одговорност не само за постигнуте резултате и позиционираност саме спортске организације, већ и за спортску стабилност, функционалност, рејтинг, али и за профит и усаглашеност трошкова са оствареним профитом. Циљ рада је да укаже на улогу и значај талентованих и искусних менаџера на спортски менаџмент у целини.

Кључне речи: менаџмент, спорт, спортски менаџмент, менаџери

SPORTS MANAGEMENT AS A SKILL AND EXPERIENCE TALENTED MANAGERS

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Abstract: Since the term management is used in the contemporary literature in the sense management of the organization, then the concept of management in sports can be defined as the concept of management sports organization. Sports management can be any combination of skills related to planning, organizing, managing, controlling, budgeting, leading and monitoring in the context of one the organization or its part whose primary product or service relates to sports and / or physical activity. Sports management, as in all other areas, is a set of knowledge and skills necessary for the development of all relevant spheres, including human resources as the most important, in the goal achieving set goals in sports. In that sense, sports management carries the biggest responsibility not only for the achieved results and positioning of the sports organization itself, but also for sports stability, functionality, rating, but also for profit and cost compliance with realized profit. The aim of the paper is to point out the role and importance of talented and experienced managers sports management as a whole.

Key words: management, sports, sports management, managers

KARATE CLUB TROUGH THE SCOPE OF UNPROFITABLE SPORTS ORGANISATION

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Сажетак: Савремено организовани карате клубови могу се представити као комплексан систем који егзистира у законски одређеној и правно уобличеној организационој форми. Они су код нас, по свом формално-правном карактеру, формирани као спортска удружења (систем груписања лица која су се организовала ради физичког вежбања, тренирања и такмичења, као заједничке сврхе, односно циља). Даље, као удружења грађана и непрофитне спортивске организације. То значи да оваква спортивска организација доминантно подразумева уређивање, координацију и вођење свих делова целине (функције, процесе и односе у њима) ради остваривања постављених спортивских циљева. Управљање било којом организацијом (профитном и/или непрофитном) представља захтеван и сложен менаџерски процес, у којем људски ресурси (пре свега), делегирани у различитим хијерархијским нивоима организације, настоје да обезбеде све услове за функционисање неопходних процеса ради достизања постављених циљева организације. У раду ће се управо и сагледати сва проблематика везана за карате клубове, посматрана из угла непрофитних спортивских организација.

Кључне речи: карате, карате клубови, организација, управљање

KARATE CLUB TROUGH THE SCOPE OF UNPROFITABLE ORGANISATION

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Abstracts: Karate clubs organized in a modern way can be presented as a complex system that exists in a legal decision and a legally formed organizational form. In our country, according to their formal-legal character, they are formed as sports associations (a system of grouping people who are organized for the purpose of physical exercise, training and competition, as a common purpose, ie goal). Hence, as association of citizens and non-profit sports organizations. This means that such a sports organization predominantly implies editing, coordination and management of all parts of the unit (functions, processes and relations in them) in order to achieve the goals set regarding this sport. Management of any organization (for-profit and / or non-profit) is a demanding and complex managerialprocess, in which human resources (primarily), delegated in different hierarchical levels of the organization, seek to provide all conditions for functioning of the necessary processes in order to achieve the goals set by the organization. The paper will explore all the issues related to karate clubs, viewed from the angle of non-profit sports organizations.

Key words: karate, karate clubs, organizations, management

ФИЗИЧКА АКТИВНОСТ КОД ПАЦИЈЕНТКИЊА СА КАРЦИНОМОМ ДОЈКЕ

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Сажетак: Према статистикама, жене на почетку 21. века најчешће оболевају од рака дојке. То је један од најчешћих малигнома савременог човека уопште. Последице карцинома су вишеслојне и вишеструке с друштвеног аспекта, те се сматрају и глобалним проблемом заједнице. Рак дојке се испољава у више клиничких облика и у вишеструко различитим клиничким токовима, тако да је прогноза тешка и неизвесна, а самим тим и исход. Савременим методима лечења карцинома дојке у свету, а и код нас, остварују се жељено добри резултати. Чињеница је да ипак није могуће апсолутно предвидети исход болести. Бројна истраживања показују да је потпуно излечење везано за рано откривање карцинома дојке и да у таквим случајевима болеснице током целог живота немају рецидиве болести, и отприлике 25% до 30% укупних случајева рака дојке треба спречити само животним стилом. У том контексту, физичка активност представља одличан приступ не само за превенцију, већ и као потенцијална подршка у лечењу рака дојке. За анализу овог односа спроведен је широк спектар студија, и имају за циљ да пронађу најбоље рутине и употребу вежбања у лечењу рака дојке. Због системских предности вежбања код ових жена смањује се ризик од компликација повезаних са раком дојке. Такође ћемо резимирати различите ефекте физичке активности као помоћну терапију код жена које се лече на различите начине како би се решиле његове штетне последице. На крају ћемо открити утицај физичке активности на побољшање квалитета живота ових пацијената, да закључимо централну улогу коју вежбање мора да заузима у управљању раком дојке, у одговарајућем контексту Здрав начин живота.

Кључне речи: Карцином дојке, физичка активност, квалитет живота

PHYSICAL ACTIVITY IN WOMEN WITH BREAST CANCER

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Abstract: At the beginning of the XXI century, according to the statistics, women are most commonly affected by breast cancer. Overall, it is one of the most prevalent malignancies in modern humans. The consequences of cancer are multilayered and multiple from the societal aspects and are considered a global problem of the community as well. Breast cancer manifests in a variety of clinical forms and may have different clinical courses, so that the prognosis and possible outcomes are usually serious and uncertain. Modern treatment approaches in breast cancer are able to provide good results worldwide and in our country as well. Nevertheless, the fact is that at this moment we cannot predict the disease outcome with absolute certainty. Numerous studies suggest that a complete disease cure is associated with early detection of breast cancer and that in such cases the patients do not experience recurrences for the rest of their lives. In about 25-30% of all cases, breast cancer should be prevented by lifestyle changes alone. In that context, physical activity is an excellent approach not only in prevention, but as a potential supportive intervention in breast cancer treatment. A broad spectrum of studies have been conducted aiming to establish the most appropriate routines and physical exercises to complement breast cancer treatment. Due to systemic advantages of physical exercise, the risk of complications associated with breast cancer is reduced in these women. We will also sum the various effects of physical activity as a supportive therapy in women treated with different modalities in order to eliminate their harmful consequences. Finally, we will discuss the impact of physical activity on the improvement of quality of life in these patients and describe the central role of physical activity in breast cancer management in the context of Healthy Lifestyles.

Key words: breast cancer, physical activity, quality of life

МОТИВАЦИЈА ЗА УЧЕШЋЕ У СПОРТСКО – РЕКРЕАТИВНИМ АКТИВНОСТИМА МЛАДИХ У РУРАЛНИМ ПОДРУЧЈИМА РС

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Сажетак: Циљ овог рада био је да се испита мотивација младих за учешће у спортско – рекреативним активностима у руралним подручјима Републике Србије. У истраживању је учествовало укупно 539 испитаника, од тога 265 испитаника женског пола и 274 испитаника мушких пола, узраста од 15 до 30 година. Сви учесници пројекта су били непосредно укључени у процес анкетирања помоћу упитника који је садржао једанаест питања. Резултати истраживања су показали да је за 38.9% младих особа мушких пола и 51.9% особа женског пола најважнији мотив и разлог за учествовање у спортско – рекреативним активностима пријатност и задовољство. За преко 40% младих особа оба пола најважнији мотив и разлог за учествовање у спортско – рекреативним активностима је побољшање здравља и кондиције. 92.5% младих особа женског пола и 92.6% особа мушких пола у сеоским срединама сматра да упражњавање одговарајућих спортско – рекреативних активности значајно доприноси очувању и унапређењу здравља. С обзиром на добијене резултате овог и претходних истраживања нема сумње да испољена позитивна гледишта треба да представљају подстrek за покретање одговарајућих акција на пољу укључивања већег броја младих у руралним подручјима у спортско – рекреативне активности.

Кључне речи: мотиви, спортско-рекреативне активности, млади, село

MOTIVATION OF YOUNG PEOPLE ABOUT PARTICIPATION IN SPORTS AND RECREATIONAL ACTIVITIES IN RURAL AREAS OF THE REPUBLIC OF SERBIA

Ivanović Jelena, Gajević Aco, Parčina Ivana

Abstract: The aim of this paper was to examine the motivation of young people about participation in sports and recreational activities in rural areas of the Republic of Serbia. A total of 539 respondents participated in the study, of which 265 were female and 274 were male, aged 15 to 30 years. All the participants were directly involved in the survey process, by using a questionnaire which contain eleven questions. The results of the research showed that for 38.9% of young men and 51.9% of women, the most important motive and reason for participating in sports and recreational activities is pleasure and smugness. For over 40% of young people of both gender, the most important motive and reason for participating in sports and recreational activities is the improvement of health and fitness level. 92.5% of young females and 92.6% of males in rural areas believe that the exercising of appropriate sports and recreational activities significantly contributes to the preservation and improvement of health. According to the results of this and previous research, there is no doubt that the positive views expressed should be an incentive to initiate appropriate actions in the field of involving more young people in rural areas in sports and recreational activities.

Key words: motives, sports and recreational activities, youth, countryside

PRIMENA POLARA U FUBALU - PREGLEDNO ISTRAŽIVANJE

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Sažetak: Danas savremeni fudbaler mora da odgovori postavljenim zadacima kako u fazi odbrane tako i u fazi napada, pa je zbog toga od izuzetne važnosti da se u pripremnom periodu, svaka za fudbal bitna motorička sposobnost, podigne na što veći nivo. Da bi se to postiglo neophodan je pravilan odabir metoda i sredstava treninga kao i pravilno dozirano opterećenje. Samo na taj način možemo doći do pravilnog razvoja i poboljšanja pojedinih motoričkih sposobnosti fudbalera kao što su aerobna i anaerobna izdržljivost, brzina, snaga, fleksibilnost itd. Jedan od najsavremenijih načina praćenja frekvencije srca je Polar system. Polar monitor meri frekvenciju srčanih otkucaja koristeći senzor za merenje mehaničkog pulsa prilikom protoka krvi kroz kapilare, a koji se na kraju očitava na monitoru kao broj otkucaja u minuti. Obradom izravnih radova za ovo pregledno istraživanje, gde su istraživanja bila bazirana na populaciju koja se bavi fudbalom, bez obzira na pol, stepen takmičenja i uzrast može se zaključiti sledeće: Primena Polar-a nije ujednačena kada je u pitanju muški i ženski pol, ali jeste kada je u pitanju stepen takmičenja i starosna dob ispitanika; Najčešći interval merenja srčane frekvencije je 5 sekundi; Polar se mnogo češće koristi tokom terenskih nego tokom laboratorijskih testova; Polar se najčešće koristi prilikom izvođenja testa YoYo intermittent recovery test level 1; Moguće je korišćenjem Polar-a pratiti srčanu frekvenciju više igrača istovremeno. Značaj ovog istraživanja je u tome što pokazuje u kojoj meri je zastupljena upotreba Polar-a u fudbalu tokom treninga, utakmica ili testiranja igrača.

Key words: Fudbal, Motoričke sposobnosti, Polar i srčana frekvencija.

APPLICATION OF POLAR IN FOOTBALL - SYSTEMATIC REVIEW

Stanković Mima, Nejić Katarina, Đorđević Dušan, Hadžović Miljan, Lilić Ana, Stamenković Aleksandar, Manić Mila

Abstract: Today, a modern football player must respond to the set tasks both in the defense phase and in the attack phase, so it is extremely important that in the preparatory period, every motor skill important for football is raised to the highest possible level. In order to achieve this, it is necessary to choose the right methods and means of training as well as the correct dosed load. Only in that way can we reach the proper development and improvement of certain motor abilities of football players, such as aerobic and anaerobic endurance, speed, strength, flexibility, etc. One of the most modern ways of monitoring heart rate is the Polar system. The Polar monitor measures the heart rate using a mechanical pulse sensor when blood flows through the capillaries, which is ultimately read on the monitor as the number of beats per minute. By processing the selected papers for this review study, where the research was based on the population playing football, regardless of gender, level of competition and age, the following can be concluded: The application of Polar is not uniform when it comes to males and females, but it is when it comes to the degree of competition and the age of the respondents; The most common heart rate measurement interval is 5 seconds; Polar is used much more often during field tests than during laboratory tests; Polar is most commonly used when performing the YoYo intermittent recovery test level 1; It is possible to use Polar to monitor the heart rate of several players at the same time. The significance of this research is that it shows the extent to which the use of Polar is represented in football during training, matches or testing of players.

Key words: Football, Motor ability, Polar and Heart rates.

ФАКТОРИ ОПРЕДЕЉЕЊА СТУДЕНТА УЧИТЕЉСКОГ ФАКУЛТЕТА ЗА АКТИВНО БАВЉЕЊЕ СПОРТОМ

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Сажетак: Аутор у раду проучава најчешће разлоге опредељења студената учитељског факултета за активно бављење спортом у спортским клубовима. Истраживању се пошло од опште претпоставке да се студенти учитељског факултета из различитих разлога недовољно активно баве спортом у спортским клубовима. Пошло се и од посебних претпоставки да ће истраживањем бити издвојени фактори који указују на најчешће разлоге недовољног активног бављења студената учитељског факултета спортом и да се студенти мушких више баве спортом у спортским клубовима. Да би се то утврдило, у првој половини школске 2020/21. на узорку од 102 студента Учитељског факултета у Призрену - Лепосавић, спроведено је истраживање приказано у овом раду. Подаци прикупљени Скалером – СУФ-БССК ($\alpha = 0,089$) обрађени су факторском анализом и t-тестом. Факторском анализом су издвојена три фактора која указују на најчешће разлоге због којих се студенти учитељског факултета недовољно активно баве спортом: претходно искуство, непостојање спортских клубова у домацијиној средини и недостатак времена, док је t-тестом утврђено да студенти мушких пола имају позитивније процене о значају и потреби активном бављењу спортом у спортским клубовима. Најзначајнији резултати истраживања приказани су у форми закључка и дате су педагошке импликације.

Кључне речи: спортски клуб, ритмичка гимнастика, тенис, кошарка, рукомет, одбојка, фудбал

FACTORS THAT IMPACT STUDENTS AT THE FACULTY OF TEACHER EDUCATION TO BE ACTIVE IN SPORTS

Milenović M. Živorad

Abstract: In this paper the author studies the most common reasons that impact students of the Faculty of Teacher Education to actively engage in sports in sports clubs. The research started from the general assumption that students at the Faculty of Teacher Education are insufficiently actively involved in sports in sports clubs for various reasons. Special assumptions have also been made that this research will single out the factors that indicate the most common reasons for insufficient active participation of students at the Faculty of Teacher Education in sports activities and that male students are more involved in sports in sports clubs. In order to determine that, the research presented in this paper was conducted on a sample of 102 students of the Faculty of Teacher Education in Prizren-Leposavic in the first half of the 2020/2021 school year. Data collected by the Scaler - STF-ESSC ($\alpha = .089$) were analysed with factor analysis and t-test. Factor analysis singled out three factors that point to the most common reasons why the Teacher Education Faculty students do not play enough sports: previous experience, lack of sports clubs in the domicile environment and lack of time, while t-test found that male students gave more positive assessments of importance and the need to actively engage in sports in sports clubs. The most significant research results are presented in the form of conclusion, and pedagogical implications are given as well.

Key words: sports club, rhythmic gymnastics, tennis, basketball, handball, volleyball, football

NAPHER-SD AND NATIONAL SECURITY CHALLENGES

Okafor Augustine Somtochukwu, Ilokwe Chimezie Samuel, Abulu Sarah, Adagha Isaiah Ebieju
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Abstract: *The Nigeria Association for Physical & Health Education, Recreation, Sports and Dance (NAPHER-SD) is a National Association in Nigeria, like its counterpart in the developed world, the likes of Society for Health and Physical Education (SHAPE) formerly American Association of Physical Health Education, Recreation & Dance (AAPHERD); North American Society for Sports Management (NASSM); European Society for Sports Management (EASM) and Sports Management Association of Australia and New Zealand (SMAANZ) to mention but a few. This paper will examine, the functions, aims and objectives of (NAPHER-SD) and see the linkages and strategies this professional association would provide for adoption in meeting the following security challenges of corruption, militancy, kidnapping, terrorism and insurgency Presently engulfing the country.*

Key words: Security, Challenges & NAPHER-SD

PHYSICAL EDUCATION TEACHERS AND SPORTS DEVELOPMENT IN NIGERIA: CHALLENGES AND PROSPECT

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Onyechukwu**

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Abstract: Sport is a “school for life” which can contribute to personality - development and the acquisition of fundamental social skills. The practice of well-organized sporting activities is widely accepted as beneficial to children and adolescents and has a positive impact on their physical, mental, psychological and social development. This paper reviewed the problems affecting physical education teachers in teaching physical education and sports in schools worldwide and in Nigeria which includes, statutory requirements for physical education, status of the subject, curriculum time allocation, teacher training and resources. Others are corruption, use of non-professionals, monopoly of sports by the government and attitude of physical education teacher. The paper also highlighted the benefits of participation in sports; Approaches to reduce and manage these problems were suggested to physical education teachers and the government. It is envisaged that if these approaches are adopted, it will enhance sports development in our schools.

RAZLIKE U MOTORIČKIM SPOSOBNOSTIMA UČENIKA URBANIH I RURALNIH SREDINA

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Sažetak: Osnovni cilj istraživanja je da se utvrde razlike u motoričkim sposobnostima dece/učenika urbane i ruralne sredine na teritoriji Novog Pazara. Primjeno je empirijsko neekperimentalno istraživanje, evaluacionog tipa. U istraživanju je učestvovalo 60 dečaka starosti 14 godina ± šest meseci koji redovno pohađaju osmi razred osnovne škole. Uzorak varijabli se sastoji od varijabli za procenu motoričkih sposobnosti - skok u dalj iz mesta, ležanje-sed za 30 sek, izdržaj u zgibu na vratilu, taping rukom, pretklon na klupici i čunasto trčanje 10x4 m. Podaci su održeni primenom deskriptivne i komparativne statističke analize, a za utvrđivanje odnosa između rezultata korišćen je t-test za male nezavisne uzorce. Konstantovano je da na uzorku od 60 ispitanika uzrasta 14 godina, rezultatima t-testa za nezavisne uzorce utvrđeno da postoji razlika u prostoru motoričkih sposobnosti kod dečaka iz urbane i ruralne sredine. Na osnovu prikazanih rezultata može se doneti zaključak u vezi postavljene hipoteze istraživanja. Postavljena hipoteza se potvrdila kod dve varijable a to su: snaga i brzina, procenjene testovima skok udalj iz mesta i čunasto trčanje 10x4. Takođe, treba naglasiti da je ovo istraživanje sprovedeno na malom uzorku ispitanika, pa se dobijeni rezultati ne mogu generalizovati.

Ključne reči: fizičko vaspitanje, motoričke sposobnosti, urbana i ruralna sredina, učenici uzrasta 14 godina.

DIFFERENCES IN MOTOR SKILLS OF URBAN AND RURAL ENVIRONMENT STUDENTS

Kuratnović Admir, Čaprić Ilma, Mekić Raid, Hačković Samir

Abstract: The main goal of the research is to determine the differences in the motor abilities of children/students of urban and rural areas in the territory of Novi Pazar. Empirical non-experimental research of evaluation type was applied. The study involved 60 boys aged 14 years ± six months who regularly attend the eighth grade of primary school. The sample of variables consists of variables for assessing motor abilities - long jump from a place, lying-sitting for 30 sec, endurance in a fold on the shaft, hand taping, bench press and conical running 10x4 m. Data were performed using descriptive and comparative statistical analysis, and a t-test for small independent samples was used to determine the relationship between the results. It was stated that on a sample of 60 respondents aged 14 years, the results of the t-test for independent samples determined that there is a difference in the space of motor abilities in boys from urban and rural areas. Based on the presented results, a conclusion can be made regarding the set research hypothesis. The hypothesis was confirmed in two variables, namely: strength and speed, estimated by tests of jumping away from the place and conical running 10x4. Also, it should be emphasized that this research was conducted on a small sample of respondents, so the obtained results cannot be generalized.

Keywords: physical education, motor skills, urban and rural areas, pupils aged 14 years.

PRISUSTVO DEFORMITETA RAVNOG STOPALA KOD DECE ŠKOLSKOG UZRASTA U SRBIJI

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Sažetak: *Donji ekstremiteti služe za preuzimanje težine tela preko karličnog pojasa na kosti donjih ekstremiteta a pre svega na stopalo. Stopalo predstavlja neophodni deo našeg tela kako pri statickom, tako pri dinamičkom opterećenju. Staticka funkcija –preko talusa (gležanske kosti) preuzima težinu. Dinamička funkcija –elastični regulator. Osobe sa dijagnostikovanim deformitetom ravnih stopala su osobe čija sprega mišnog, ligamentnog i koštanog sistema nisu u stanju da se usled dejstva spoljašnjih sila održe normalan izgled stopala. Cilj ovog naučnog rada je utvrditi prisustvo deformiteta ravnog stopala kod dece školskog uzrasta u Srbiji. Za prikupljanje dosadašnjih naučnih radova pretraživane su sledeće elektronske baze podataka: PubMed, PEDro, SCIndeks, DOAJ. Pretraživani su naučni radovi u vremenskom periodu od 2008. do 2014. godine. Da bi se naučni rad prihvatio za konačnu analizu, potrebno je zadovoljiti dva kriterijuma: da u naučnom radu postoje ispitanici kojima je vršena procena deformiteta ravnog stopala i da su ispitanici školskog uzrasta u Srbiji. Brojni naučni radovi (367) su isključeni na osnovu unapred preciziranih kriterijuma, preostalih 8 radova ispunili su postavljene kriterijume. U naučnim radovima koje je obuhvatilo ovo istraživanje izmereno je 4317 dece. Deformitet ravnog stopala dijagnostikovan je kod 2355 deteta odnosno procentualna zastupljenost je 46,95%. Na osnovu rezultata, može se predložiti plantograf kao sredstvo za procenu deformiteta stopala, kao i Thomsonov i Čižinov metod za obradu dobijenih rezultata. Naučni radovi transverzalnog karaktera ukazuju je da je stanje prisustva deformiteta ravnog stopala kod dece školskog uzrasta u Srbiji alarmantno veliki odnosno da skoro svako drugo dete u Srbiji ima deformitet ravno stopalo.*

Ključne reči: *deca, deformacija, deformacije stopala, bolest stopala, ravno stopalo.*

PRESENCE OF FLAT FOOT DEFORMITY IN SCHOOL-AGED CHILDREN IN SERBIA

Mekić Raid, Mavrić Adem, Čaprić Ilma, Zećirović Armin, Koničanin Admira, Biševac Emir

Abstract: *The lower extremities are used to take the weight of the body over the pelvic girdle on the bones of the lower extremities and above all on the foot. The foot is a necessary part of our body under both static and dynamic load. Static function - takes over weight through the talus (ankle bone). Dynamic function - elastic regulator. People with diagnosed deformity of flat feet are people whose connection of the muscular, ligament and skeletal system is not able to maintain the normal appearance of the feet due to the action of external forces. The aim of this scientific paper is to determine the presence of flat foot deformities in school - age children in Serbia. The following electronic databases were searched for collecting previous scientific papers: PubMed, PEDro, SCIndeks, DOAJ. Scientific papers in the period from 2008 to 2014 were searched. In order for the scientific paper to be accepted for the final analysis, it is necessary to meet two criteria: that in the scientific paper there are examinees who were assessed for flat foot deformity and that they are school-age examinees in Serbia. Numerous scientific papers (367) were excluded on the basis of pre-specified criteria, the remaining 8 papers met the set criteria. In the scientific papers included in this research, 4317 children were measured. Flat foot deformity was diagnosed in 2355 children, ie the percentage is 46.95%. Based on the results, a plantograph can be proposed as a means of assessing foot deformities, as well as Thomson's and Chizhin's method for processing the obtained results. Scientific papers of a transversal character indicate that the condition of the presence of flat foot deformity in school-age children in Serbia is alarmingly high, ie that almost every other child in Serbia has a flat foot deformity.*

Key words: *children, deformity, foot deformities, foot disease, flatfoot.*

UNUTRAŠNJA ORGANIZACIJA ČASA PRIMENOM MOTIVACIJE KAO MEHANIZMA

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Sažetak: *Cilj ovog istraživanja bila je motivacija, kao mehanizam unutrašnje organizacije časa u nastavi fizičkog vaspitanja i prikazom rezultata uzorka empirijskih istraživanja. Takođe, cilj je i da se ukaže na značaj prisustva motivacije kod učenika u nastavi fizičkog vaspitanja i kako nastavnik može uticati na njeno povećanje. Uzorak je sačinjavalo 212 učenika osnovnih škola, uzrasta 11 godina. Svi ispitanici su dobrovoljno učestvovali u studiji. U radu je primenjena teorijska analiza relevantne literature u oblasti motivacije za nastavu fizičkog vaspitanja. Osnovna metoda koja je primenjena u ovom radu je deskriptivna metoda i korišćena je tokom prikupljanja podataka, kao i prilikom obrade i interpretacije rezultata i izvođenja zaključaka. Ovim radom se potvrđuje koliko je motivacija važan faktor u okviru unutrašnje organizacije časa fizičkog vaspitanja. Ona dovodi do unapređenja kvaliteta nastave. Veoma važnu ulogu predstavlja podsticanje motivacije kod učenika i nastavnik fizičkog vaspitanja igra značajnu ulogu. Rezultati su pokazali da se njih 71% bavi određenom fizičkom aktivnošću, odnosno sportom, a 29% nikakvom aktivnošću. Dobrom unutrašnjom organizacijom časa, aktiviraće se transformacioni mehanizmi usmereni ka poboljšanju antropološkog statusa učenika, što je i generalni cilj nastave fizičkog vaspitanja.*

Ključne reči: *unutrašnja organizacija, motivacija, fizičko vaspitanje, učenici, nastavnik.*

INTERNAL ORGANIZATION OF THE CLASS USING MOTIVATION AS A MECHANISM

Hačković Samir, Hamzić Ajla, Čaprić Ilma

Abstract: *The aim of this research was motivation, as a mechanism of internal organization of classes in physical education classes and presentation of an empirical research sample. Also, the aim is to point out the importance of motivation presence in students in the teaching of physical education and how the teacher can influence its increase. Sample consisted of 212 elementary school students, aged 11 years. All the participants volunteered to take part in the study. The paper applies a theoretical analysis of relevant literature in the field of motivation for physical education classes. The basic method used in this paper is the descriptive method and it was used during data collection, as well as during processing and interpretation of results and drawing conclusions. This paper confirms how important motivation is within the internal organization of physical education classes. It leads to the improvement of the quality of teaching. Encouraging motivation in students is a very important role, and the physical education teacher plays a significant role. The results showed that 71% of respondents engage in certain physical activity, ie sports, and 29% of respondents do not engage in any physical activity. With a good internal class organization, transformational mechanisms will be activated aimed at improving the anthropological status of students, which is the general aim of physical education classes.*

Key words: *internal organization, motivation, physical education, students, teacher.*

УДЕО СЕГМЕНТА У УКУПНОМ РЕЗУЛТАТУ ТРИАТЛОНА НА ПРВЕНСТВИМА СРБИЈЕ НА ОЛИМПИЈСКОЈ ДИСТАНЦИ

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Сажетак: Циљ рада је утврдити да ли постоје разлике између процентуалног удела сегмената триатлон трке (пливање / прва транзиција / вожња бицикла / друга транзиција / трчање), у односу на укупно време трајања трке, између такмичара различите успешности, на Првенствима Србије на олимпијској дистанци, у периоду од 2016-20. године ($n=220$). Такмичари су подељени у квартиле према пласману на такмичењу: Q1 (пласирани у првој четвртини), Q2, Q3 и Q4 (пласирани у последњој четвртини). Резултати по сегментима показују да: 1. На пливачком сегменту најбољи такмичари проводе значајно мање времена (18,95%), у односу на остале такмичаре који се међусобно не разликују значајно. 2. На бициклистичком сегменту најбоље пласирани такмичари, процентуално проводе значајно више времена (47,91%), а најлошије пласирани такмичари значајно мање времена (44,07%), у односу на све остале такмичаре. 3. На тркачком сегменту такмичари пласирани у првој половини, проводе нешто мање времена ($\approx 31,8\%$), него такмичари пласирани у другој половини ($\approx 32,6\%$), али разлике нису статистички значајне. 4. У обе транзиције најбољи такмичари проводе значајно мање времена од осталих такмичара, који се међусобно не разликују значајно. Може се закључити да су најбољи такмичари нарочито надмоћни у пливању и транзицијама, нешто мање у трчању и најмање у вожњи бицикла. Савет за остале такмичаре је да више пажње посвете тренингу пливања и трчања, као и обема транзицијама.

Кључне речи: аеробна издржљивост, пливање, вожња бицикла, трчање на дуге стазе, тренинг

SHARE OF SEGMENTS IN THE TOTAL RESULT OF THE TRIATHLON RACE AT THE SERBIAN CHAMPIONSHIPS AT THE OLYMPIC DISTANCE

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Abstract: The aim of this study is to analyse the differences between the percentage of segments of the triathlon race (swimming / first transition / cycling / second transition / running), in relation to the total duration of the race, between competitors of different performance levels, at the Serbian Championships at the Olympic distance, in period 2016-2020. ($n=220$). Competitors are divided into quartiles according to the placement in the competition: Q1 (first quarter), Q2, Q3 and Q4 (last quarter). The results show that: 1. In the swimming segment, the best competitors spend significantly less time (18.95%), compared to other competitors who do not differ significantly from each other. 2. In the cycling segment, the best competitors spend significantly more time (47.91%), and the worst placed competitors, significantly less time (44.07%), compared to all other competitors. 3. In the running segment, competitors placed in the first half, spend slightly less time ($\approx 31.8\%$), than competitors placed in the second half ($\approx 32.6\%$), but the differences are not significant. 4. In both transitions, the best competitors spend significantly less time than other competitors, who generally do not differ significantly from each other. It can be concluded that the best competitors are superior in swimming and transitions, somewhat less in running and the least in cycling. The advice for other competitors is to pay more attention to swimming and running training, as well as both transitions.

Key words: aerobic endurance, swimming, cycling, long-distance running, training

ФУНКЦИОНАЛНЕ СПОСОБНОСТИ И ТЕЛЕСНИ САСТАВ РЕКРЕАТИВАЦА У КРОС ФИТУ

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Сажетак: Циљ рада је анализирати разлике у функционалним способностима и телесном саставу, у односу на дужину вежбања по програму Крос фит. Испитаници, чланови Крос фит клуба ($n=65$, 45 мушкираца и 20 жена), су подељени у три групе према вежбачком стажу: почетна (они који вежбају краће од 6 месеци, $n=23$, 13 мушкираца и 10 жена), средња (они који вежбају 6-12 месеци, $n=21$, 15 мушкираца и 6 жена) и напредна (они који вежбају дуже од 12 месеци, $n=21$, 17 мушкираца и 4 жене). Резултати: 1. На целокупном узорку, просечна старост испитанника је 28 година, телесна маса – $TM=78,9\text{kg}$, телесна висина – $TB=177,6\text{cm}$, индекс телесне масе – $ITM=24,8\text{kg/m}^2$, количина масног ткива – $MT=22,2\%$. Нема значајних разлика између група у односу на наведене варијабле. Једина значајна разлика је забележена у максималној потрошњи кисеоника - $VO_{2\text{max}}$, у корист напредне групе ($42,9\text{mlO}_2/\text{kg/min}$), у односу на почетнике ($37,3\text{mlO}_2/\text{kg/min}$). 2. На узорку мушкираца нема значајних разлика између група у односу на анализиране варијабле. 3. На узорку жена, једина значајна разлика је забележена код варијабле ITM , између средње ($24,1\text{kg/m}^2$) и напредне групе ($20,7\text{kg/m}^2$).
Закључак: У анализираном узорку углавном нису пронађене значајне разлике у варијаблама телесног састава и функционалних способности, код вежбача са различитим вежбачким стажом, што имплицира да се Крос фит програмом не утиче значајно на анализиране варијабле.

Кључне речи: максимална потрошња кисеоника, индекс телесне масе, проценат масног ткива

FUNCTIONAL ABILITIES AND BODY COMPOSITION OF RECREATIONAL EXERCISERS IN CROSS FIT

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Abstract: The aim of this study is to analyze the differences in functional abilities and body composition, in relation to how long exercisers train Cross Fit. The sample of subjects were members of the Cross Fit Club ($n=65$, 45 men and 20 women), divided into three groups according to training experience: beginners (less than 6 months of training experience, $n=23$, 13 men and 10 women), intermediate (6-12 months experience, $n=21$, 15 men and 6 women) and advanced (more than 12 months, $n=21$, 17 men and 4 women). Results: 1. In the entire sample, the average age of the respondents is 28 years, body weight - $BW=78.9\text{kg}$, body height - $BH=177.6\text{cm}$, body mass index - $BMI=24.8\text{kg/m}^2$, body fat - $BF=22.2\%$. There are no significant differences between the groups in relation to the stated variables. The only significant difference was noted in the maximum oxygen consumption - $VO_{2\text{max}}$, in favor of the advanced group ($42.9\text{mlO}_2/\text{kg/min}$), compared to beginners ($37.3\text{mlO}_2/\text{kg/min}$). 2. In the sample of men, there are no significant differences between the groups with respect to any of the analyzed variables. 3. In the sample of women, the only significant difference was observed in the variable BMI , between the middle (24.1kg/m^2) and advanced group (20.7kg/m^2). Conclusion: Within the analyzed sample, no significant differences were observed in most variables of body composition and functional abilities, between exercisers with different training experience, which implies that the Cross fit program does not significantly affect the analyzed variables.

Key words: maximum oxygen consumption, body mass index, body fat percent

COMPARATIVE ANALYSIS BETWEEN UNIVERSITY ACHIEVEMENTS IN ATTENDANCE AND DISTANCE LEARNING

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Abstract: *The article makes a comparative analysis between the educational achievements of students from pedagogical specialties of the Trakia University – Stara Zagora, Bulgaria. Data by knowledge criterion have been analysed as part of the professional-pedagogical competence obtained as a result of training in attendance and distance learning forms, the last imposed by the authorities in the Republic of Bulgaria in order to limit the spread of COVID-19. The empirical method used is the didactic test to assess the degree of knowledge acquired as a result of the training in the learning discipline "Sports games in primary school age". Statistical methods for analyzing the results obtained are "stem-leaf" for inquiry analysis of age, relative values of the structure – an absolute sum of structural differences and an integral coefficient of structural differences, ranking of achievements, variation and comparative analyses.*

Key words: *students, knowledge, sports games, attendance and distance learning*

TRETMAN KIFOTIČNOG DRŽANJA TELA KOREKTIVNIM VEŽBAMA KOD DECE PREDŠKOLSKOG I ŠKOLSKOG UZRASTA

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Sažetak: *Uvod: Kifotično loše držanje tela se karakteriše zakriviljenosti gornjeg dela kičmenog stuba prema nazad, povijenošću ramena prema napred i izbačenim trbuhom. Cilj: Ispitati da li redovnim izvođenjem korektivnih vežbi kojima se isteže skraćena, a jača oslabljena muskulatura može da se popravi držanje tela. Ispitanici i metode: Prospektivna studija je obuhvatila 110 dece predškolskog i osnovnoškolskog uzrasta od 6 do 12 godina (prosečne starosti 6.6 ± 2.4). Korektivne vežbe su izvođene četiri puta nedeljno u trajanju od 90 minuta. Za procenu kifotičnog držanja primenjene su metode somatoskopije i somatometrije. Prilikom ispitivanja su korišćeni lenjir, dermograf i visak. Rezultati: Od 110 ispitane dece utvrđeno je da njih 6 (5.5%) na prvom pregledu ima kifotično držanje. Na prvom kontrolnom pregledu koji je izvršen nakon 3 meseca, ukupno 3 dece (2,7%) je imalo kifotično držanje, dok je na drugom kontrolnom pregledu koji je izvršen nakon 6 meseci, 2 dece (1,8%) je imalo kifotično držanje tela. Zaključak: Wilcoxonov test ranga je otkrio da postoji statistički značajna razlika između prvog i drugog pregleda ($p=.024$) i između prvog i trećeg ($p=.046$). Na osnovu toga možemo zaključiti da jačanje mišića korektivnim vežbama ima pozitivan efekat kada je u pitanju nepravilno kifotično držanje tela.*

Ključne reči: kifozna, korektivne vežbe, jačanje mišića

TREATMENT OF KYPHOTIC BODY POSTURE WITH CORRECTIVE EXERCISES IN PRESCHOOL AND SCHOOL AGE CHILDREN

Biševac Emir, Mahmutović Elvis, Mekić Raid, Zećirović Armin, Doličanin Zana

Abstract: *Introduction: Kyphotic poor posture is characterized as having the upper part of the spine curved backwards, shoulders bent forward, as well as having a protruding abdomen. The aim: To examine whether by performing corrective exercises which stretch shortened, and strengthen weakened muscles on a regular basis can improve body posture. Subjects and methods: The prospective study included 110 children (the average age 6.6 ± 2.4). Corrective exercises were performed four times a week, for periods of 90 minutes. To assess the body posture we used somatoscopy and somatometry methods. A ruler, a dermatograph, and a pendulum were used during the examination. Results: Out of 110 children examined during the initial checkup, it was found that 6 (5.5%) had kyphotic posture. On the first follow-up checkup, which was performed 3 months later, 3 children (2.7%) had kyphotic posture, while on the second follow-up checkup, which was repeated 6 months later, 2 children (1.8%) had kyphotic body posture. Conclusion: The Wilcoxon rank test showed that there was a statistically significant difference between the first and the second checkups ($p=.038$), as well as between the first and the third checkups ($p=.046$). Based on that, it can be concluded that regular exercise for six months improves kyphotic body posture in children.*

Key words: kyphosis, corrective exercises, muscle strengthening

PERCEIVED QUALITY OF USERS OF SPORTING ACTIVITIES IN ANDALUSIA ACCORDING TO GENDER

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Abstract: Quality can be seen as the satisfaction of users' expectations, which places the customer at the heart of the service. Identifying the key points to be kept in mind in order to get the most out of the services from the users' point of view improves the quality perceived by the customers of a service. The aim of the present study was to determine the perceived quality that users have in relation to the different sports activities, establishing differentiating elements according to gender. A total of 2,707 subjects participated in the study (66.10% men, 33.90% women; Age = 25.29±12.83). The Spanish validated scale, EPOD2, was used to carry out the survey, carrying out an inferential analysis, T-test, and factorial analysis, Anova, with a significance of 95%. The results show that there were significant differences ($p < .001$) in the factors Trainers, Communication, Equipment and Facilities, with Women generally giving the best evaluation of the service received. In conclusion, the assessment of perceived quality was positive for users of sports organisations in Andalusia, with staff being the most highly rated factor and communication the worst. This information can help sports managers to ensure the competitiveness and viability of their organisation.

Key words: Perceived Quality, Customers, Gender, Sports services.

MENTAL TOUGHNESS OF ATHLETES

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Abstract: The aim of this research was to analyze the relations between mental toughness of athletes and their's gender, age and type of sports. The Sports Mental Toughness Questionnaire measured total mental toughness ($\alpha = 0,92$) and three dimensions: consistency ($\alpha = ,77$), control ($\alpha = 0,79$), self-confidence ($\alpha = 0,85$). The sample consisted of 64 athletes, 57,84 % men, 62,50 % athletes of individual sports, 71,9% athletes who are younger than 30 years. Men ($M=3,46$, $SD=0,47$) have higher consistency ($p=0,00$) than woman ($M=3,01$, $SD=0,79$). Also, men ($M=2,93$, $SD=0,66$) have higher control ($p=0,00$) than women ($M=2,32$, $SD=0,84$). Results show that men ($M=2,99$, $SD=0,66$) have higher self-confidence ($p=0,02$) than women ($M=2,54$, $SD=0,84$). Lastly, men ($M=3,11$, $SD=0,53$) are mentally tougher ($p=0,00$) than women ($M=2,61$, $SD=0,77$). There are not differences between athletes who are younger than 30 years and athletes who are older than 30 years in consistency ($p=0,68$), control ($p=0,50$), self-confidence ($p=0,90$) and mental toughness ($p=0,94$). Athletes of team sports ($M=3,44$, $SD=0,52$) have higher consistency ($p=0,00$) than athletes of individual sports ($M=3,17$, $SD=0,71$). Also, athletes of team sports ($M=3,01$, $SD=0,76$) have higher control ($p=0,00$) than athletes of individual sports ($M=2,48$, $SD=0,76$). Results show that athletes of team sports ($M=3,11$, $SD=0,64$) have higher self-confidence ($p=0,02$) than athletes of individual sports ($M=2,61$, $SD=0,79$). Finally, athletes of team sports ($M=3,18$, $SD=0,64$) are mentally tougher ($p=0,01$) than athletes of individual sports ($M=2,73$, $SD=0,69$). The practical implication is great importance of systemic work with women and athletes of individual sports to strengthen mental toughness.

Key words: mental toughness, athletes

MENTALNA JAČINA SPORTISTA

Zubić Ivana

Sažetak: Cilj istraživanja je analiza relacija mentalne jačine sportista i njihovog pola, starosti i vrste sporta. Upitnikom The Sports Mental Toughness Questionnaire je merena mentalna jačina sportista ($\alpha = 0,92$) i tri dimenzije: konzistentnost ($\alpha = ,77$), kontrola ($\alpha = 0,79$), samopouzdanje ($\alpha = 0,85$). Uzorak se sastojao od 64 sportista, 57,84 % muškaraca, 62,50 % sportista individualnih sportova, 71,9% sportista koji su mlađi od 30 godina. Muškarci ($M=3,46$, $SD=0,47$) imaju veću konzistentnost ($p=0,00$) od žena ($M=3,01$, $SD=0,79$). Takođe muškarci ($M=2,93$, $SD=0,66$) imaju veću kontrolu ($p=0,00$) od žena ($M=2,32$, $SD=0,84$). Rezultati pokazuju da su muškarci ($M=2,99$, $SD=0,66$) samopouzdaniji ($p=0,02$) od žena ($M=2,54$, $SD=0,84$). Na kraju, muškarci ($M=3,11$, $SD=0,53$) su mentalno jači ($p=0,00$) od žena ($M=2,61$, $SD=0,77$). Ne postoje statistički značajne razlike između sportista koji su mlađi i onih koji su stariji od 30 godina u konzistentnosti ($p=0,68$), kontroli ($p=0,50$), samopouzdanju ($p=0,90$) i mentalnoj jačini ($p=0,94$). Sportisti kolektivnih sportova ($M=3,44$, $SD=0,52$) imaju veću konzistentnost ($p=0,00$) od sportista individualnih ($M=3,17$, $SD=0,71$). Takođe, sportisti kolektivnih sportova ($M=3,01$, $SD=0,76$) imaju veću kontrolu ($p=0,00$) od sportista individualnih ($M=2,48$, $SD=0,76$). Rezultati pokazuju da sportisti kolektivnih sportova ($M=3,11$, $SD=0,64$) imaju veće samopouzdanje ($p=0,02$) od sportista individualnih ($M=2,61$, $SD=0,79$). Na kraju, sportisti kolektivnih sportova ($M=3,18$, $SD=0,64$) su mentalno jači ($p=0,01$) od sportista individualnih sportova ($M=2,73$, $SD=0,69$). Ovaj rad ukazuje na značaj sistematskog rada na osnaživanju mentalne jačine sportistkinja i sportista individualnih sportova.

Ključne reči: mentalna jačina, sportisti

UTICAJ PLIOMETRIJSKOG TRENINGA NA EKSPLOZIVNU SNAGU KOŠARKAŠA

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Sažetak: Do sada je poznato da efekat pliometrijskog treninga utiče na razvijanje i poboljšanje eksplozivne snage košarkaša. Cilj istraživanja je bio da se kritičkom analizom dosadašnjih istraživanja i generalizacijom rezultata svih analiziranih istraživanja koja su proučavala eksplozivnu snagu košarkaša, prikažu efekti pliometrijskog treninga. Literatura je sakupljena pretraživanjem interneta i sledećih baza podataka: Medline, Google Scholar i Kobson. U prvoj fazi skriniga, proverena je relevantnost naslova i apstrakata identifikovanih radova. U drugoj fazi pretrage, kompletni radovi su preuzeti i razmatrani za inkluziju. Reference iz svih sakupljenih radova su pregledane da bi se dobilo više istraživanja koja su proučavala ovu problematiku. Programi pliometrijskog treninga koji su trajali četiri nedelje pokazali najveće poboljšanje u testovima za procenu eksplozivne snage za 16,1% grupe koja je izvodila pliometrijski trening sa dinamičkim istežanjem značajno je došlo do povećanja visine skoka za 7,6 cm. Istraživanje je potvrdilo cilj istraživanja o značajnom uticaju pliometrijskog treninga na eksplozivnu snagu.

Ključne reči: pliometrija, snaga, eksplozivna snaga, košarka

EFFECTS OF PLYOMETRIC TRAINING PROGRAM ON EXPLOSIVE POWER IN BASKETBALL PLAYERS

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Abstract: So far, it is known that the effect of plyometric training is used to develop and improve the explosive power in basketball players. The aim of the research was to show the effects of plyometric training by critical analysis of previous research and generalization of the results of all analyzed research that studied the explosive power in basketball players. The literature was collected by searching the following databases: Medline, Google Scholar and Cobson. In the first phase of the screening, the relevance of the titles and abstracts was checked. In the second phase of the search, the complete papers were taken over and considered for inclusion. References from all collected papers were reviewed in order to obtain more research that studied this issue. Four weeks plyometrics programs showed the greatest improvement in explosive power assessment tests for 16.1% of the group performing plyometric training with dynamic stretching. There was a significant increase in jump height by 7.6 cm. The research confirmed the aim of the research on the significant impact of plyometric training on explosive power.

Key words: pliometry, power, explosive power, basketball

ИНТРО ЗАРОН, НОВА ДИМЕНЗИЈА ПОГЛЕДА У ПОДВОДНИ СВЕТ

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Сажетак: Брза и ефикасна обука испољава се позитивно у одређеним активностима које захтевају специфичан исход. Један од таквих специфичних приступа у обуци активности у природи је апликација "интроверона". Интроверон представља минимум основних информативних часова роњења који поред едукативног имају и мотивациони значај. После ових уводних и демонстрационих часова, нови ронилац треба да се одлучи да ли ће наставити обуку у ширем обиму. Употребује са невероватним "мизансценом", као детаљем који зависи од личног избора руководиоца наставног процеса, као и његовим педагошким приступом, затвара се "чаробни педагошки круг" од кога зависи успех у преношењу знања. Сам по себи овај тип увођења у активност представља "рекламу" уласка у јединствени свет под водом. Досадашња пракса је показала да је низ предузетих предрадњи из састава "интроверона", сасвим доволно да створи интересовање код учесника у процесу обуке. Амбијентално окружење игра веома значајну улогу у процесу прихватања активности, која се подучава. Данашњи животни стил, уопште динамика модерног живота је за све његове сегменте таква да је потребно да се изложе само они од круцијалног значаја у што краћем времену, због преоптерећености информацијама. Према овоме, овакав вид обуке уклопљен је у модерни животни стил и треба да буде кратак, садржајан и да остави јак утисак на популацију на којој се врши обука. Не треба занемарити чињеницу да је настава и аплицирана активност након кратке и садржајне обуке усмерена у циљу повратка природи са главним задатком враћања у првобитни систем нормалних вредности и жеље продуженог времена проведеног у природном амбијенту.

Кључне речи: подводне активности, роњење, обука, реклами, "трейлер"

INTRO DIVE, A NEW DIMENSION OF LOOKING AT THE UNDERWATER WORLD

Tomić Luka, Miletić Vladimir, Rajković Željko

Abstract: Fast and efficient training is manifested positively in certain activities that require a specific outcome. One of such specific approaches in training activities in nature is the application of "intro dive". Intro diving is a minimum of basic informative diving lessons which, in addition to educational, also have motivational significance. After these introductory and demonstration classes, the new diver should decide whether to continue training on a wider scale. Completed with an incredible "mise-en-scène", as a detail that depends on the personal choice of the head of the teaching process, as well as his pedagogical approach, the "magic pedagogical circle" closes from which success in knowledge transfer depends. In itself, this type of introduction to the activity is an "advertisement" of entering the unique world under water. The practice so far has shown that through the undertaken preliminaries from the composition of the "intro dive", it is quite enough to create interest among the participants in the training process. The ambient environment plays a very important role in the process of accepting activities, which is taught. Today's lifestyle, in general, the dynamics of modern life is for all its segments such that it is necessary to expose only those of crucial importance in the shortest possible time, due to the overload of information. According to this, this type of training is integrated into the modern lifestyle and should be short, meaningful and leave a strong impression on the population where the training is conducted. It should not be overlooked that the teaching and applied activity after a short and meaningful training is aimed at returning to nature with the main task of returning to the original system of normal values and the desire for extended time spent in a natural environment.

Key words: underwater activities, diving, training, advertising, "trailer"

ПОМОЋНА СРЕДСТВА У ОБУЧАВАЊУ КАЈАКАШКЕ ТЕХНИКЕ

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Сажетак: У раду су дефинисана помоћна средства у обучавању кајакаша, и то за поједине методичке целине, у којима се најчешће јављају потешкоће и платоу у учењу. Коришћена помоћна средства садрже: детаљније разрађене старе, као и нове методе за одређене делове процеса обуке, различите средине и медије у којима се овабља процес обуке, као и различите справе, опрему и реквизите. У овом раду помоћна средства су подељена по задацима које решавају и груписана су на помоћна средства за развој стабилности, за савладавање већих фреквенција покрета, за обучавање технике веслања као складно повезане и сливене целине, за наглашавање појединачних техничких детаља, за стварање специфичног осећаја за воду, као и за циљани развој специфичних моторичких способности и мишићних група. Предности коришћења наведених средстава су циљани утицај, бржа и квалитетнија обука, али и навођење почетника да поједине делове покрета и целу технику изведу прецизно и тачно, са планираним мишићним групама укљученим у складан кинетички ланац.

Кључне речи: плато у учењу, равнотежа, методика

AUXILIARY MEANS IN TEACHING KAYAK TECHNIQUE

Rajković Željko, Mitrović Darko, Miletić Vladimir, Rajković Jovan

Abstract: In this article additional means for teaching kayak technique are defined, specially for some method parts in which problems and plateaus of motor learning accures most often. Mentioned additional means consist of old methods analysed with more details, and new one for certain parts of teaching process, different medias for kayak activities, and different apparatus, equipment and accesories. In this article additional means are devided, regarding specific tasks and grouped on additional means for rasing stability, achieving higher frequencies of movement, teaching whole technique through connecting and continous movements, emphasysing specific technique details, creating specific fealing for water, and for targeted development of specific motor abilities and muscle groups. Benefits of using mentioned means are targeted influence, faster and better training, as well as guidance to beginners to practice certain parts of the movement and technique perform precisely and accurately, with the planned muscle groups involved in the harmonious kinetic chain.

Key words: learning plateau, balance, methodology

УЧЕСТАЛОСТ ДИСТРИБУЦИЈЕ ЛОПТЕ РУКАМА КОД ВРХУНСКИХ ГОЛМАНА У ФУДБАЛУ

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Сажетак: Овај рад има за циљ да представи учесталост дистрибуције лопте рукама код фудбалских голмана који бране на врхунском нивоу. У овом раду су посматрана три голмана која бране у клубовима највећег светског нивоа. Подаци за овај рад добијени су на основу 30 утакмица који су голмани одиграли. Свака контакт са лоптом голмана бележен је у посебно направљен посматрачки лист. За потребе овог рада дистрибуција лопте рукама је подељена према структури на кратка, средња и дугачка додавања. Резултати овог истраживања су показали да између посматраних голмана постоји статистички значајна разлика код посматраних показатеља дистрибуције лопте рукама и то код: средњих додавања на нивоу $\chi^2=11.333$, $p=0.010$ и код дугих додавања на нивоу $\chi^2=26.600$, $p=0.000$. Поред тога, код Голмана 1 и 3 утврђено је постојање статистички значајне разлике код Дугих додавања у односу на посматрани субузорак утакмица на нивоу $\chi^2=6.400$, $p=0.011$ и $\chi^2=9.800$, $p=0.007$, респективно. Анализирајући резултате добијене овим истраживањем и резултате претходних истраживања, приметно је да се активности голмана у односу на дистрибуцију лопте рукама додатно смањују. У овом тренутку може се претпоставити да добијени резултати могу указати на све доминантнију улогу игре ногама код врхунских голмана, што се будућим истраживањима треба додатно истражити и анализирати.

Кључне речи: фудбал, голман, дистрибуција лопте, техника, тактика

FREQUENCY OF BALL DISTRIBUTION BY HANDS WITH TOP GOALKEEPERS IN FOOTBALL

Bažalac Veljko, Jovanović Srećko, Koprivica Vladimir, Ivanović Jelena

Abstract: This paper aims to present the frequency of ball distribution by hands in football goalkeepers defending at the top level. In this paper, three goalkeepers defending in clubs of the highest world level are observed. Data for this work were obtained on the basis of 30 matches played by goalkeepers. Each contact with the goalkeeper's ball is recorded in a specially made observation sheet. For the purposes of this paper, the ball distribution by hands is divided according to the structure into short, medium and long passes. The results of this research showed that there is a statistically significant difference between the observed goalkeepers in the observed indicators of ball distribution by hand, namely: medium passes at the level $\chi^2=11.333$, $p=0.010$ and long passes at the level $\chi^2=26.600$, $p=0.000$. In addition, Goalkeepers 1 and 3 were found to have a statistically significant difference in Long Passings in relation to the observed subsample of matches at the level of $\chi^2=6.400$, $p=0.011$ and $\chi^2=9.800$, $p=0.007$, respectively. Analyzing the results obtained by this research and the results of previous research, it is noticeable that the activities of the goalkeeper in relation to the ball distribution by hand are further reduced. At this point, it can be assumed that the results obtained may indicate an increasingly dominant role that ball distribution by foot play in top level goalkeepers, which should be further investigated and analyzed in future research.

Key words: football, goalkeepers, ball distribution, technique, tactic

STAVOVI STUDENATA O RELIGIJI I POTREBI VERE U SAVREMENOM DRUŠTVU – SISTEMATSKO PREGLEDNO ISTRAŽIVANJE

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Sažetak: Cilj ovog istraživanja bio je sumiranje relevantne literature o smerovima i kvalitetu stavova studenata o religioznim osećanjima i potrebi vere u savremenom društvu. Za prikupljanje odgovarajuće literature pretraživane su sledeće baze podataka: Google Scholar, PubMed, Kobson, Mendeley, Science Direct i Scopus. Studije su morale da ispunе sledeće kriterijume: godina publikovanja, da je upitnik koji je primenjivan baziran na stavovima i da je uzorak ispitanika bila studentska populacija. Za analizu ciljanih studija je primenjena deskriptivna metoda, a ukupno je 15 studija zadovoljila zadate kriterijume i ušla u kvantitativnu analizu. Rezultati ovog istraživanja pokazuju da studenti veoma duboko razmišljaju o pitanjima religije, o smislu života i da pokazuju potrebu da odgovore traže u religiji i potrebi vere, a sam značaj religije se može prepoznati kroz forme tradicionalnih oblika i oblika postmodernističke religioznosti.

Ključne reči: religija, mladi, verske vođe, slika o Bogu

STUDENTS' ATTITUDES TOWARDS RELIGION AND THE NEED FOR RELIGION IN CONTEMPORARY SOCIETY – SISTEMATIC REVIEW

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Abstract: The aim of this research was summing the literature of students' attitudes towards religion and the need for religion in contemporary society. The following databases were searched to collect the relevant literature: Google Scholar, PubMed, Kobson, Mendeley, Science Direct and Scopus. All studies had to meet the following criteria: year of publication, the questionnaire that was used was based on attitudes and the sample of participants had to be a students population. The analysis of target studies was determined by descriptive method. A total of 15 studies met the given criteria and entered into a quantitative analysis. The results are showing that students are thinking about religion very deeply, the meaning of life and the need for faith too, so the importance of religion can be recognized through forms of traditional and postmodern religiosity.

Key words: religion, youth, religious leaders, image of God

PRIMENA KETO DIJETE U SPORTU

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Sažetak: Iako se zbog visokih energetskih zahteva, sportistima generalno savetuje visok unos ugljenih hidrata (>60%) danas se često eksperimentiše sa ketogenom ishranom koja oganičava njihov unos. Nakon restrikcije ugljenih hidrata dolazi do značajnih hormonskih promena, kao i do smanjenog korišćenja glukoze, a povećanog korišćenja ketona i slobodnih masnih kiselina (SMK), kao energetskih izvora. Cilj ovog preglednog rada je da ispita kako ovakve metaboličke promene utiču na performanse sportista. U radu su korišćeni deskriptivni i analitički metod, dok su za prikupljanje literature korišćene sledeće elektronske baze podataka: KobSON, Google Scholar i PubMed. Ključne reči koje su korišćene za pretragu su: keto dijeta, telesna kompozicija, sportske performanse. Ketogena ishrana dovodi do brze redukcije telesne mase, koja se najčešće delom odnosi na gubitak glikogena i vode iz organizma, a zbog njenih kataboličkih efekata može da dođe i do degradacije mišićne mase. Adaptacija na ketozi povećava stopu oksidacije SMK i ketona, što obezbeđuje dovoljno energije za dugotrajne aerobne aktivnosti umerenog intenziteta (<70% VO₂ max). Sa druge strane dolazi do smanjene dosupnosti glukoze, pada glikolitičkih enzima i metaboličke neefikasnosti (veća potrošnja kiseonika za oksidaciju masti u poređenju sa oksidacijom glukoze) što može dovesti do pada anaerobnih laktatnih sposobnosti (>70% VO₂ max). Nema naročitih efekata na ispoljavanje snage i jačine, kao ni na anaerobne alaktatne sposobnosti (skokovi i kratki sprintevi), jer se one dominantno oslanjaju na fosfageni energetski sistem. Ketogena ishrana nema naročit uticaj na aerobni kapacitet, snagu i anaerobnu alaktatnu moć, ali može delovati negativno na anaerobne laktatne sposobnosti.

Ključne reči: keto dijeta, telesna kompozicija, sportske performanse

IMPLEMENTATION OF KETO DIET IN SPORT

Rebić Nemanja

Abstract: Although is high carbohydrate intake (>60%) generally recommended for athletes, nowadays are often experiment with a ketogenic diet that limits they intake. Carbohydrate restriction leads to significant hormonal changes as well as to reduction of glucose utilization and increased utilization of free fatty acid (FFA) and ketone body as energy sources. The aim of this work is to investigate how such metabolic changes affect athletic performance. The paper used a descriptive and analytical method, while the following electronic databases were used to collect literature: KobSON, Google Scholar and PubMed. The key words used for the search are: keto diet, body composition, sports performance. Ketogenic diet leads to rapid reduction in body weight, which is mostly related to loss of glycogen and water from the body, and due to its catabolic effects can lead to muscle mass degradation. Adaptation to ketosis increases oxidation of FFA and ketones, which provides enough energy for aerobic long-distance moderate intensity activities (<70% VO₂ max). On the other hand, there is a reduced availability of glucose, decreased glycolytic enzymes and metabolic inefficiency (higher oxygen consumption for fat oxidation compared to glucose oxidation) which can impair anaerobic lactate capacity (>70% VO₂ max). There are no effects on strength and power, as well as on anaerobic alactic abilities (jumps and short sprints), because they predominantly rely on phosphagen energy system. Ketogenic diet does not have effect on aerobic capacity, strength and anaerobic lactate power, but can have negative effect on anaerobic lactate capacity.

Key words: keto diet, body composition, sports performance

ПОВЕЗАНОСТ МОРФОЛОШКИХ КАРАКТЕРИСТИКА И СПРИНТА НА 60М КОД УЧЕНИКА И УЧЕНИЦА РАЗЛИЧИТИХ УЗРАСНИХ КАТЕГОРИЈА

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Сажетак: У оквиру истраживања повезаности морфолошких карактеристика ученика и ученица различитих узрасних категорија и спринта на 60 метара обухваћено је 12 морфолошких варијабли. Узорак испитаника чинио је 281 ученика и ученица узраста 8-15 година, подељених у четири субузорка. У овом раду, примењена је метода дескриптивне статистике и корелационе анализа (Пирсонов кофицијент корелације) задатих предикторских морфолошких варијабли и зависне критеријумске варијабле спринг на 60 метара. Анализом полних разлика у дескриптивној статистици морфолошких карактеристика уочена је акцелерација вредности морфолошких варијабли која је у складу са годинама, где деца од узраста од 14. година већ показују веће вредности у складу са уласком у доба пубертета, осим морфолошких варијабли ширине карлице, обима потколенице и свих мерених кожних набора који су просечно већи код ученица. Корелационом анализом утврђена је статистички значајна повезаност телесне висине (ТВ), телесне тежине (ТТ), дужине ноге (ДН), ширине рамена (ШР), обима потколенице (ОП) и дијаметра скочног зглоба (ДСЗ) са изабраном критеријумском варијаблом спринга на 60м код оба пола и код различитих узрасних категорија. Стални мониторинг морфолошких чиниоца је свакако важна одредница успешности спрингерског трчања.

Кључне речи: спринг, морфолошке карактеристике, корелационе анализа

RELATIONSHIP BETWEEN MORPHOLOGICAL CHARACTERISTICS AND 60M SPRINT IN STUDENTS OF DIFFERENT AGE CATEGORIES

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Abstract: Within the research of the connection between the morphological characteristics of students of different age categories and sprint at 60 meters, 12 morphological variables were included. The sample consisted of 281 male and female students aged 8-15, divided into four subsamples. In this paper, the method of descriptive statistics and correlation analysis (Pearson's correlation coefficient) of given predictor morphological variables and the dependent criterion variable sprint at 60 meters were applied. The analysis of gender differences in the descriptive statistics of morphological characteristics showed an acceleration of the values of morphological variables which is in accordance with age, where boys from the age of 14 already show higher values in accordance with puberty, except for morphological variables of pelvic width, lower leg circumference and of all measured skin folds that are on average higher in female students. Using correlation analysis, a statistically significant correlation was found between body height (TV), body weight (TT), leg length (DN), shoulder width (SR), lower leg circumference (OP) and ankle diameter (DSZ) with the selected sprint criterion on 60m for both sexes and for different age categories. Constant monitoring of morphological factors is certainly an important determinant of the success of sprint running.

Key words: sprint, morphological characteristics, correlation analysis

THE ATTENTION CHARACTERISTICS IN WOMEN SOCCER PLAYERS

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Abstract: *The purpose of this study was to determine the level of concentration and the degree of the attention distributivity at women soccer players. In order to investigate these aspects, two types of tests were used, the Praga Test for distributive attention and the Tolouse Test for the attention concentration. The research included a number of 75 subjects, 25 members of the National Team (the experimental group) and 50 members of various sportive clubs (the control group), all women and football players. The after attention tests results of the experimental group ($p < 0,01$) are superior than those obtained by the control group, regarding both the concentration intensity and the attention level of distributivity. The level of the attention qualities condition the efficiency of the perception, of the thinking process and of the motric actions and delivers precision and clarity for this type of activities.*

Key words: *attention distributivity, attention concentration, women's soccer*

THE EFFICIENCY IMPROVEMENT OF THE PRIMARY CYCLE PHYSICAL EDUCATION LESSON FROM THE PHYSICAL EDUCATION TEACHERS VIEW

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Abstract: *The purpose of this study was to highlight the measure in which the motion games contribute at the socialization process of the primary cycle children, like the physical education teachers sustain. In order to get at a conclusion regarding this statement, a number of 28 physical education teachers had answered at a questionnaire with (CATE ?) questions upon the means and techniques used for teaching physical education at the primary cycle and the rate of the children socialization level due to the classrooms participation. A 91,33% percentage of the questioned teachers had considered that the motion games have a considerable contribution in the process of primary cycle children socialization and interactivity.*

Key words: *socialization, motion games, primary cycle children*

OPINIONS OF PHYSICAL EDUCATION TEACHERS ON SOME CURRENT PROBLEMS OF SCHOOL PHYSICAL AND SPORTS EDUCATION IN SLOVAKIA

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Abstract: *The purpose of this study is to evaluate the opinions of physical education teachers on selected problems of physical education teaching such as curriculum time allocation, subject evaluation issues, but also teachers' views on co-education. This was a cross-sectional intraindividual ex post facto research. Research sample consisted of 312 physical education teachers. To get the empirical data, the method of questionnaire was used. Physical education teachers believe that the current scope time allocation of physical education in curricula is insufficient in primary and secondary schools and have clearly spoken out in favor of increasing the hourly allowance. Likewise, most physical education teachers are of the opinion that pupils should be classified in the subject of physical education, both in primary and secondary schools. On the issue of coeducational physical education, teachers spoke in favor of separate teaching.*

Key words: *physical education, opinions, teachers, classification, curriculum time allocation*

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ODNOS BIOLOŠKE I HRONOLOŠKE STAROSTI KOD MLADIH SPORTISTA UZRASTA 10-12 GODINA

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Sažetak: Cilj ovog rada je bio da utvrdi da li postoji razlika u biološkoj i hronološkoj starosti kod teniserki uzrasta 10-12 godina. Uzorak ispitanika činilo je 30 devojčica (15 devojčica u svakoj uzrastnoj kategoriji) uzrasta od 10-12 godina, koje treniraju tenis u dva beogradska kluba, teniskom klubu "Crvena Zvezda" i teniskom klubu "Privilege". Uzorak varijabli bio je podeljen je u dva bloka i to: 1. blok: direktno merene antropometrijske varijable (visina tela, masa tela, dužina nogu i sedeća visina trupa) i 2. blok: indirektnim putem određena je biološka starost ispitanica uz korišćenje formula za izračunavanje. Rezultati istraživanja pokazuju da kod devojčica uzrasta 10 i 12 godina postoje razlike kod biološke i hronološke starosti, a da kod devojčica uzrasta 11 godina nisu dobijene statistički značajne razlike.

Ključne reči: biološka starost, hronološka starost, razlike, teniserke

RELATIONSHIP BETWEEN BIOLOGICAL AND CHRONOLOGICAL AGE AMONG YOUNG ATHLETES 10-12 YEARS

Milić Vladan, Janković Ana, Radenković Oliver, Murić Benin, Špirtović Omer, Kahrović Izet

Abstract: The aim of this study was to determine whether there is a difference in biological and chronological age in tennis players aged 10-12 years. The sample of respondents consisted of 30 girls (15 girls in each age category) aged 10-12, who train tennis in two Belgrade clubs, the tennis club "Red Star" and the tennis club "Privilege". The sample of variables was divided into two blocks: block 1: directly measured anthropometric variables (body height, body weight, leg length and sitting torso height) and block 2: the biological age of the subjects was determined indirectly using formulas for calculation. The results of the research show that in girls aged 10 and 12 there are differences in biological and chronological age, and that in girls aged 11 there are no statistically significant differences.

Key words: biological age, chronological age, differences, tennis players

DIFFERENCES IN RECREATION-MOVEMENT ACTIVITIES BETWEEN MITROVICA AND PRISTINA FEMALES

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Abstract: *The main purpose of this paper is to present the level of participation in recreational-sport activities, types of activities and the most preferred time to participate in these activities for the women of the cities of Prishtina and Mitrovica aged between 20 to 30 and 40 to 50 years. The research sample is composed of a group of women from these two cities in Kosovo and includes the sample of respondents of 200 women who were randomly selected. In terms of age, the sample was divided into six subgroups. The research instrument was a questionnaire designed and modified specifically for the purposes of this research having 15 questions. From a comparative statistical area applied to the independent sample groups, the discriminant procedure will be used, first of all, discriminant analysis between all group's ANOVA and between each group according to the Post-Hoc LSD analysis. The difference between the groups will be analyzed thereafter and Nonparametric Hi-Quadrant Test applied. The obtained results showed that the application of the techniques (parametric and nonparametric) revealed that the nonparametric technique is a form of more accurate result processing for group identification. The results obtained also revealed that there is a statistically significant difference between the ages 20 to 50 years of age from Prishtina and from Mitrovica. We can therefore stress that the finding emphasizes that women of different ages have different approaches to physical activity. They adapt to their living conditions, financial situation and time they have at their disposal.*

Key words: ANOVA, Female, Recreation, Parametric, Non-Parametric

RAZLIKE U REKREACIONIM AKTIVNOSTIMA ŽENA MITROVICE I PRIŠTINE

Hasani H.Lirona, Stankovska Zorica

Sažetak: *Glavni cilj ovog članka je da prezentira nivo učestvovanja u rekreaciono-sportskim aktivnostima, vrste aktivnosti i najboljeg tajminga za učestovanje u ovim aktivnostima za žene u gradovima Mitrovica i Priština starosti između 20 do 30 i 40 do 50 godina. Istraživanje se sastoji od grupe žena iz ova dva grada i obuhvata modele respondenata od 200 žena koje su izabrane randomizacijom. U smislu starosti, primerci su podeljeni u šest subgrupa. Za istraživački instrument je preuzet upitnik koji je izrađen i modifikovan tako da se uklopi specifično za ciljeve ovog istraživanja, imajući 15 pitanja, kako će se videti u tekstu koji sledi. Iz uporednog statističkog polja istraživanja aplikovan u nezavisne modelirane grupe, procedura diskriminisanja će se upotrebiti, u prvom redu će se ići na diskriminisano analiziranje prema celoj grupi ANOVA i između svake grupe prema analizi Post-Hoc LSD. Razlika između grupa će se analizirati odande prema testu Nonparametric Hi-Quadrant. Dobijeni rezultati upućuju na to da se aplikacija tehnika (parametric i ne parametric) ukazuje da ne parametrička tehnika je forma više tačnosti u smislu procesuiranja rezultata za grupnu identifikaciju. Dobijeni rezultati takođe ukazuju da je statistički značajna razlika između starosne grupe od 20 do 50 iz Prištine i 20-50 godina starosti iz Mitrovice. Prema tome, mi možemo reći da nalazi pokazuju da žene različite starosti imaju različite pristupe prema fizičkoj aktivnosti. One se adaptiraju životnim uslovima, finansijskoj situaciji i tajmingu što imaju na raspolaganju.*

Ključne reči: ANOVA, žene, rekreacija, Parametric, Ne – Parametric

ANALYSIS OF THE IMMUNE RESPONSE IN PADEL

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Abstract: High intensity exercise and sports activities are closely related to a general state of inflammation that can lead to immunosuppression. This physiological response could decrease sports performance and even compromise the athlete's health. The objective of this study was to investigate the acute inflammatory response of a padel match. 15 elite players (28.2 ± 7.9 years) participated voluntarily in the study. Different pro-inflammatory (IL-1 β , IL-2, IL-6, IL-7, IL-8, IL-12 and TNF α) and anti-inflammatory cytokines (IL-5, IL-10 and IL-13) were analyzed before and after a match. The results showed a decrease in IL-7 ($p=0.007$) and IL-8 ($p<0.03$) and increases in IL-10 ($p<0.04$). The results obtained suggest that the practice of high-level padel induces an anti-inflammatory response.

Key words: racket sports, inflammation, cytokines, interleukins, immunoassay.

EFEKTI TRENINGA SNAGE NA MLAĐE UZRASNE KATEGORIJE

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Sažetak: Cilj ovog istraživanja je bio utvrđivanje promjena kod motoričkih sposobnosti snage učenika mlađeg školskog uzrasta 11-14 godina, nakon primjene vježbi snage u trajanju od deset nedelja trenažnog procesa. Na uzorku od 43 učenika JU Osnovne škole „Drinić“ Petrovac podeljene u dve paralelne grupe eksperimentalnu (22 učenika) i kontrolnu (21 učenik). Eksperimentalna grupa je provodila novi model vježbi snage iz atletike, a kontrolna grupa je počinjala redovne časove fizičkog vaspitanja iz atletike. Za procjenu motoričkih sposobnosti koristili su se sledeći testovi: skok udalj s mjesta, dizanje trupa na tlu zgrčenih nogu, izdržaj u zgibu i bacanje medicinke. Na osnovu obrade i analize rezultata pokazalo se da je program vježbi snage iz atletike imao statistički značajno veći uticaj na rezultate u odnosu na kontrolnu grupu koja je primjenjivala redovnu nastavu fizičkog vaspitanja.

Ključne riječi: atletika, fizičko vaspitanje, vježbe snage, eksperiment.

EFFECTS OF STRENGTH TRAINING ON YOUTH

Bošnjak Goran, Tešanović Gorana, Jakovljević Vladimir, Pašić Goran, Dujaković Danijel

Abstract: This study aimed to determine changes in the strength of youth pupils (11-14 years old) after the application of strength exercises for ten weeks of the teaching (training) process. The research is conducted on the sample of 43 pupils of the 'Drinic' Elementary School (Petrovac), divided into the experimental (22) and control (21) group. The former group implements the model of strength exercises, whereas the latter one attends regular physical education classes featuring athletics. The following tests are used for the assessment of motoric skills: jump off the ground, lift your torso on the ground with your legs, stand in the ankle and throw the medicine. The results suggest that the experimental group has scored statistically significantly better than the control one, which proves that the model of strength exercises can be applied on lessons of physical education.

Key words: athletics, physical education, strength exercises, experiment.

EFFECTS OF JUDO PROGRAMS ON IMPROVING THE EXPLOSIVE POWER OF ATHLETES: SYSTEMATIC REVIEW

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Abstract: *The aim of this research was to determine the effects of judo programs on the explosive power of athletes. To develop this study we considered original articles using all available papers until 28.02.2021 indexed from the following electronic databases: Google scholar and PubMed. After analyzing the articles deemed eligible, we selected studies that considered all criteria: a) Standing long jump and b) CMJ. Studies showed increased difference after experimental treatment in pre and post test results and shows that program duration of 4, 8, 36 and 56 weeks can improve explosive power, and one study proved that judo program can not influence CMJ results. The most of treatments had two to three trainings a week for 45-50 minutes. In almost all studies reviewed for the purposes of this paper we found positive outcomes but still more original studies should be considered to prove the increase of explosive power with the experimental program.*

EFEKTI JUDO PROGRAMA NA POBOLJŠANJE EKSPLOZIVNE SNAGE SPORTISTA: SISTEMSKI PREGLED

Majdov Nemanja, Aleksić Andrea, Majkić Branislav

Sažetak: *Cilj ovog istraživanja bio je da se utvrde efekti džudo programa na eksplozivnu snagu sportista. Da bismo razvili ovu studiju, uzeli smo u obzir originalne članke koristeći sve dostupne radove do 28.02.2021 indeksirane iz sledećih elektronskih baza podataka: Google Scholar i PubMed. Nakon analize članaka koji se smatraju prihvatljivim, odabrali smo studije koje su procenjivale: a) Skok u dalj iz mesta i b) CMJ. Studije su pokazale povećanu razliku nakon eksperimentalnog tretmana u rezultatima pre i posle testa i pokazuju da trajanje programa od 4, 8, 36 i 56 nedelja može poboljšati eksplozivnu snagu, a jedna studija je dokazala da program džudoa ne može uticati na rezultate CMJ. Većina tretmana imala je dva do tri treninga nedeljno po 45-50 minuta. U skoro svim studijama koje smo pregledali za potrebe ovog rada pronašli smo pozitivne ishode, ali ipak treba razmotriti još originalnijih studija koje bi eksperimentalnim programom dokazale povećanje eksplozivne snage.*

TERMINILOŠKA ANALIZA KRETNIH STRUKTURA U SPORTSKOM PLESU

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Sažetak: *Sportski ples je najljepši dvoranski sport koji nema jasno definisanu terminologiju na srpskom jeziku. To je, relativno, mlada sportska grana, koja podrazumjeva standardne i latino-američke plesove koji spadaju u kompleksne sportske discipline. Sportski plesovi zahtjevaju preciznu sintezu kretnih sposobnosti, pa je shodno tome, cilj ovog rada terminološki opis osnovnih i izvedenih elemenata standardnih i latino-američkih plesova na maternjem jeziku. Karakteristični plesni elementi koji se koriste u sportskim plesovima su terminološki prevedeni na srpski jezik, korišćenjem strane stručne literature, kao i primjenom stručne terminologije iz srodnih sportskih grana. Analizom i primjenom sakupljenih pojmova, elemenata plesa i plesnog iskustva, detaljno je prikazana terminološka analiza kretnih struktura u sportskom plesu. Zaključak je da je kroz terminološku analizu kretnih struktura neophodno korišćenje tuđica u cilju očuvanja autentičnih plesnih elemenata, ali da je njihov terminološki opis na maternji jezik moguć.*

Ključne riječi: *sportski ples, kretne strukture, terminologija, anglicizmi, latino-američki plesovi, standardni plesovi, analiza.*

IMPACT OF LOCAL KNEE HEATING AND THE USE OF A NEOPRENE KNEE SLEEVE ON STATIC AND DYNAMIC BALANCE AMONG YOUNG MALE ATHLETES

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Abstract: *Introduction. Our study aimed to determine whether the application of local passive knee surface heating combined with the use of orthopaedic support helps improving static and dynamic balance. Methods. To heat the subjects surface area of the knee we used a custom made knee cap with an installed spirally silicone tube system connected to a circulator which was kept for 10 min. Neoprene knee braces made from a sock-like elastic material that provides compression and warmth to the targeted area to improve functional performance were used in three different sizes: small, medium and large. Lower Quadrant Y-Balance Test (YBT) was performed by each subject to measure dynamic balance and Kistler force plate platform to measure static balance. Each test was performed three times: (1) Control (CON trial), (2) after Heating (HT trial), and (3) after Heating+Support (HTS trial). Results. Anova results showed statistically significant differences between HT and HTS trials compared to CON in postero-lateral reach distance only ($p=0.00$) in Lower Quarter Y Balance Test. In static balance, statistically significant differences between trials in antero-posterior ($p=0.03$), medio-lateral ($p=0.00$) and total sway velocity ($p=0.00$) were found. Conclusion. The static and dynamic balance after the application of local knee heating and the orthopaedic support was improved. These results indicated that local knee heating application combined with the use of orthopaedic support could contribute to enhancing posture, balance and gait in young healthy male athletes.*

Key words: *balance, passive heating, profilactic knee sleeve*

УТИЦАЈ ЛОКАЛНОГ ЗАГРЕВАЊА КОЛЕНА И КОРИШЋЕЊЕ СТЕЗНИКА ЗА КОЛЕНО ОД НЕОПРЕНА НА СТАТИЧКУ И ДИНАМИЧКУ РАВНОТЕЖУ КОД МЛАДИХ МУШКАРАЦА СПОРТИСТА

Mazniku Andia, Dubey Viney Prakash, Utvić Nikola, Trivedi Vishwajeet

Сажетак: Увод. Наша студија има за циљ да одреди да ли третман локалног пасивног загревања површине колена, комбинованог са коришћењем ортопедског помагала, помаже побољшању статичке и динамичке равнотеже. Методе. Да би се загрејало подручје површине колена испитаника, користили смо по мери израђени штитник за колено са инсталираним спиралним цевкастим системом силикона, који је повезан на циркулатор који се држи 10 мин. Користили су се стезници за колено од неопрена, израђени од еластичног материјала, налик оном за чарапе, који генерише компресију и топлину на циљану површину да би се побољшао функционални учинак, у три различите величине: мали, средњи и велики. Сваки испитаник је обавио тест Y равнотеже доњег квадранта да би измерио динамичку равнотежу и платформу плоче Кистлерове силе да би измерио статичку равнотежу. Сваки тест је извршен три пута: (1) Контрола (ЦОН испитивање), (2) после загревања (ХТ испитивање), и (3) после загревања + помагала (ХТС испитивање). Резултати. АНОВА резултати су показали статистички значајне разлике између ХТ и ХТС испитивања, у поређењу са ЦОН у постлатералним, достижују распојање само ($n = 0,00$) у тесту равнотеже доње четвртине Y. Код статичне равнотеже су пронађене статистички значајне разлике између испитивања код антеропостериорне ($n=0,03$), медиолатералне ($n=0,00$) и укупне брзине њихања ($n=0,00$). Закључак. Побољшана је статичка и динамичка равнотежа после третмана локалног загревања колена и ортопедског помагала. Резултати указују да би третман локалног загревања колена, комбинованог са коришћењем ортопедског помагала, могао допринети побољшању држана тела, равнотеже и хода код здравих мушких спортиста.

Кључне речи: *равнотежа, пасивно загревање, профилактички стезник колена*

UTICAJ PAUZA, TEHNIKA DISANJA I OBIMA TRENINGA NA PROCENU DOŽIVLJENOG NAPORA KOD VRHUNSKIH KARATISTA

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Sažetak: Ciljevi studije bili su: (a) da se istraži uticaj pauza, tehnika disanja i obima treninga na set procenu doživljenog napora (set PDN), i (b) da se utvrdi uticaj pauza, tehnika disanja na procenu doživljenog napora sesije (sPDN), kod vrhunskih karatista. Devet reprezentativaca Republike Srbije u karateu ($M=6$, $Ž=3$; godina: $20\pm3,57$), izvodili su šest sesija sa udarcem đako zuki (GZ). Svaka sesija imala je pet serija GZ-ja sa 40 udaraca (obim treninga), ali sa različitim pauzama (sa 30 i sa 90 sekundi između serija) i različitim tehnikama disanja (sesije sa kimeom, sa kimeom i kjajem, i bez ikakve tehnike disanja). U svakoj sesiji, prikupljan je između serija set PDN, i 15 minuta nakon svake sesije prikupljan je sPDN. Ritam udaraca kontrolisao je istraživač. Rezultati su pokazali da su pauze ($p=0,013$) i obim treninga ($p=0,007$) imali značajan uticaj na set PDN, ali da tehnike disanja ($p=0,866$) nisu imale značajan uticaj na set PDN. Kada je u pitanju uticaj na sPDN, pauze su bile značajne ($p=0,030$), a tehnike disanja nisu bile značajne ($p=0,648$), što je bio i slučaj kod prethodne zavisne varijable. Ovo je bila prva studija, do sada, koja je opisala i organizovala bilo kakav tip karate treninga, a rezultati pokazali su da set PDN i sPDN su senzitivni na intenzitet (pauze) i obim u karate treningu.

Ključne reči: Monitoring karate treninga, đako zuki, kime, kjaj

INFLUENCE OF REST PERIODS, TECHNIQUES OF BRETHING AND TRAINING VOLUME ON RAITING OF PERCEIVED EXERTION IN ELITE KARATEKA

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Abstract: The aims of this study were: (a) to explore the influence of rest periods, techniques of breathing and training volume on set rating of perceived exertion (set RPE), and (b) to determine the influence of rest periods, techniques of breathing on session rating of perceived exertion (srRPE), in elite karateka. Nine men and women ($M=6$, $W=3$; age: $20\pm3,57$), national Serbian team, performed six sessions with strike gyako zuki (GZ). Every session had five series of GZ with 40 strikes (training volume), but the sessions had different rest periods (with 30 and 90 seconds of pauses between series) and different techniques of breathing (sessions with kime, kiai and kime, and without any of breathing technique). In every session, set RPE between series were collected, and 15 minutes after every session srRPE was collected. The rhythm of strikes was controlled by experimenter. Results have showed that rest period ($p=0,013$) and training volume ($p=0,007$) had significant influence on set RPE, but techniques of breathing ($p=0,866$) did not make any significant influence on set RPE. When it comes to influence on srRPE, rest periods were significant ($p=0,030$), and techniques of breathing were not significant ($p=0,648$), like in previous depended variable. This was the first study, to this date, that have described and organized any kind of karate training, and the findings suggest that set RPE and srRPE are sensitive to intensity (rest periods) and volume in karate training.

Key words: Monitoring karate training, gyako zuki, kime, kiai

INJURIES INCIDENCE, PREVALENCE AND EPIDEMIOLOGY IN ELITE YOUTH FOOTBALL PLAYERS

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Abstract: To date, there are many epidemiologic studies indicating the importance and the increase of injuries in football. The risk factors have more relevance and how they impact on football players were some of the objectives in these studies. The aim of the present study was to follow the injuries incidence in youth football athletes during a season. Individual player exposure and time loss injuries were recorded by the team medical staff in one complete season. Design prospective cohort study where forty-one U-17 and U-19 youth football players from a Spanish second division team academy participated. A total of 92 injuries were registered. Defenders were the most injured players during the season, accumulating a total of 42 (36,8%) injuries. Eighteen injuries (15,80%) were overuse, six (6,5%) of them were located in the tight. Fourteen injuries (12,30%) were muscular/strain injuries, five (5,4%) of them were a hip/groin injury. On average, players spent 24,38 days injured, were thirty-two (28,1%) injuries were minimal. The injury incidence in natural surface was higher than in artificial surface (33 (28,9%) vs 29 (25,4%)). In training (37 (32,5%)), the injury incidence was higher than during matches (24 (21,1%)). During matches or training, the most part of the injuries happened in the last part of the second half (18 (15,8%)). Lower limbs muscle injuries, natural surface and minimal absence are some of the important information to consider when a season is carried out. The risk of injury increased with time during matches or training.

Key words: Injuries, incidence, risk factors, muscle injuries, injuries prevalence

DIFFERENCES BETWEEN STUDENTS WHO HAVE BEEN INCLUDED IN SPORTS PROGRAMS AND STUDENTS WHO HAVE NOT BEEN INCLUDED IN SPORTS PROGRAMS DURING THE COVID 19 PANDEMIC

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Abstract: Corona virus disease (COVID-19) affected virtually the entire world in 2020, in a way this is the "Third World War". A pandemic has been declared in most countries of the world, thousands of people have died as a result of the disease, and the governments of individual countries have taken a series of measures appropriate to the spread of the disease. All of this was largely known in sports on a global scale, and as a result, as expected, it also affected university sports. In the subject Physical Education at the Faculty of Chemistry and Chemical Technology of the University of Ljubljana, we responded accordingly and in accordance with the measures of the University of Ljubljana and consequently the management of the Faculty of Chemistry and Chemical Technology of the University of Ljubljana prepared a program in the mentioned circumstances or "remotely". The analysis of students' sports participation was supported by the results of the survey questionnaire and other available data. The survey questionnaire data showed (on March 2020 onwards - in the first and second wave of the pandemic) that sports activity was expected to be lower than in normal conditions before the start of the pandemic. On the other hand (published research) were students who completed the subject program of Physical education in the annual semester of the 2019/20 academic year (March - May) even more active in sports and also made very good suggestions how should be prepared the subject program of Physical Education in the future. For the purposes of interpreting the data, we presented two hypotheses, where we partially confirmed the first hypothesis (students' sports activity) and confirmed the second hypothesis (psychological state and suggestions for improving pedagogical work in the future). Therefore, it would be sensible to consider how to include the "hybrid" model in the program of the subject Physical Education and offer it as such to those students who will choose the subject of Physical Education at the Faculty of Chemistry and Chemical Technology, University of Ljubljana in the coming years.

Key words: COVID-19 and UNI sport at FKKT, Subject of Physical education at FKKT during COVID-19;

RAZLIKE MEĐU STUDENTIMA KOJI SU BILI UKLJUČENI U PROGRAME SPORATA I STUDENTIMA KOJI NISU BILI UKLJUČENI U PROGRAME SPORATA TIJEKOM PANDEMIJE COVID-19

Jamnik Matej

Sažetak: Korona virus bolest (COVID-19) pogodila je gotovo cijeli svijet 2020 godine, na neki način ovo je "Treći svjetski rat". Pandemija je proglašena u većini zemalja svijeta, tisuće ljudi poginulo je zbog bolesti, a vlade pojedinih zemalja poduzele su niz mjera zbog primjerenih širenju bolesti. Sve je to imalo posljedice i u sportu na globalnoj razini, a kao rezultat toga, očekivano utjecalo je i na sveučilišni sport. U okvirima predmeta Fizička nastava na Fakultetu za kemiju i kemijsku tehnologiju Sveučilišta u Ljubljani odgovorili smo u skladu s mjerama uprave Sveučilišta u Ljubljani i poslije i mjerama uprave Fakulteta za kemiju i kemijsku tehnologiju Sveučilišta u Ljubljani da pripremimo programe u tim okolnostima - program vježbanja elektroničkim putem ili „na daljinu“. Analiza sportskog sudjelovanja studenata podržana je rezultatima anketnog upitnika (od marta 2020 dalje – u prvom i u drugom valu pandemije) i ostalim dostupnim podacima. Podaci anketnog upitnika pokazali prema očekivanju da će sportska aktivnost biti niža nego u normalnim uvjetima prije početka pandemije. Po drugoj strani (objavljeno istraživanje) bili su studenti koji su završili program predmeta Fizička nastava u godišnjem semestru akademske godine 2019/20 (mart - maj) još aktivniji u sportu i također su dali vrlo dobre prijedloge o tome kako bi trebalo program predmeta Fizička nastava pripremiti u budućnosti. Za potrebu interpretacije podataka postavili smo dvije hipoteze, gdje smo djelomično potvrdili prvu hipotezu (sportska aktivnost studenata) i potvrdili drugu hipotezu (psihološko stanje i prijedlozi za poboljšanje pedagoškog rada u budućnosti). Stoga će biti vrijedno razmisiliti kako bi „hibridni“ model uključili u program predmeta Fizička nastava i ponuditi ga kao takvog onim studentima koji će odabrati predmet Fizička nastava na Fakultetu za kemiju i kemijsku tehnologiju Sveučilišta u Ljubljani u narednih godina.

Ključne riječi: COVID-19 i UNI šport, Predmet fizička nastava na FKKT tijekom COVID-19;

DIFFERENCES BETWEEN STUDENTS SENIOR YEARS COMPARED TO FIRST YEAR OF STUDY WHO WERE NOT INCLUDED IN SPORTS PROGRAMS DURING THE COVID-19 PANDEMIC

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Abstract: A pandemic of the new corona virus disease (COVID-19) broke out in December 2019 in China. In Europe, the disease spread fairly quickly in February and March 2020. The Government of the Republic of Slovenia had to respond accordingly with a number of measures. The measures did not bypass the University of Ljubljana (including the Faculty of Chemistry and Chemical Technology of the University of Ljubljana) and consequently also university sports. The results during the first wave of the pandemic (March - May 2020) showed a significant decline in motor skills and weight gain in the primary school population in the Republic of Slovenia. For this reason, we were interested on the "condition" of students during the first and second waves of the pandemic (from March 2020 onwards - in the first and second waves of the pandemic). Data on the "condition" of students were obtained with the survey questionnaire. We compared sports activity, current physical fitness, weight status, and psychological status of students. To ensure that the criteria were equivalent, we compared the data among students who were not included in sports programs at the Faculty of Chemistry and Chemical Technology of the University of Ljubljana during the first and second waves of the pandemic. For the purposes of data interpretation, we set up four hypotheses. We compared the opinions of second to fifth-year students and postgraduate students with first-year students during the first and second waves of pandemics. We also fully confirmed all four hypotheses, namely that second to fifth-year students and postgraduate students are more active in sports, that their current physical fitness is better, that their body weight is more favorable and that their mental condition is also more favorable compared to first-year students.

Key words: COVID-19 and UNI sport at FKKT

RAZLIKE MEĐU STUDENTIMA VIŠIH GODINA U ODNOSU NA PRVU GODINU STUDIJA KOJI NISU BILI UKLJUČENI U SPOTRSKE PROGRAME TIJEKOM PANDEMIJE COVID-19

Jamnik Eva

Sažetak: Pandemija nove korona virusne bolesti (COVID-19) izbila je u prosincu 2019 u Kini. U Europi se bolest prilično brzo proširila u februaru i martu 2020. Vlada Republike Slovenije morala je u skladu s tim reagirati nizom mјera. Mjere nisu zaobišle Sveučilište u Ljubljani (uključujući Fakultet za kemiju i kemijsku tehnologiju Sveučilišta u Ljubljani), a time ni sveučilišni sport. Rezultati tijekom prvog vala pandemije (mart - maj 2020.) pokazali su značajan pad motoričkih vještina i debljanja u osnovnoškolskoj populaciji u Republici Sloveniji. Iz tog razloga zanimalo nas je "stanje" studenata tijekom prvog i drugog vala pandemije (od marta 2020 nadalje - u prvom i drugom valu pandemije). Podaci o "stanju" studenata dobiveni su potom anketnog upitnikom. Usprendili smo sportsku aktivnost, trenutnu tjelesnu spremnost, stanje težine i psihološki status studenata. Kako bismo osigurali da su kriteriji jednaki, usprendili smo podatke među studentima koji nisu bili uključeni u sportske programe na Fakultetu za kemiju i kemijsku tehnologiju Sveučilišta u Ljubljani tijekom prvog i drugog vala pandemije. U svrhu interpretacije podataka postavili smo četiri hipoteze. Usprendili smo mišljenja studenata druge do pete godine i poslijediplomskog studija sa studentima prve godine studija tijekom prvog i drugog vala pandemije. Sve su četiri hipoteze u potpunosti smo potvrdili, naime da su studenti druge do pete godine i poslijediplomskog studija aktivniji u sportu, da je njihova trenutna tjelesna spremnost bolja, da je tjelesna težina povoljnija i da je njihovo mentalno stanje također povoljnije u odnosu na studente prve godine studija.

Ključne riječi: COVID-19 i UNI sport na FKKT

MOTOR SKILLS OF FOOTBALLERS AND HANDBALL PLAYERS - SYSTEMATIC REVIEW

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Abstract: *Each sport or sport discipline carries with it specific tasks characteristic only for it, which require a high level of motor knowledge and functional abilities from the athlete. As such, sports in their diversity are always an interesting and inexhaustible topic for many researchers in order to apply the obtained conclusions in practice. The aim of this review was to analyze the works on a similar topic, to obtain reliable knowledge about the similarities and differences in motor skills, and their presence in football and handball. After searching electronic databases SCIndeks, PubMed, Google Scholar, ResearchGate, journals in the field of sports sciences, as well as relevant literature, and eliminating papers based on set criteria, 15 papers met the criteria for final inclusion in a systematic review. The main conclusion is reflected in the existence of differences in the motor abilities of football players and handball players, and that they themselves are a consequence of the specifics of sports. On the other hand, it is concluded that the training processes that are carried out in clubs, put certain motor skills in the background, and thus neglect their development.*

Key words: motor skills, handball, football, soccer

МОТОРИЧКЕ СПОСОБНОСТИ ФУДБАЛЕРА И РУКОМЕТАША; СИСТЕМАТСКО ПРЕГЛЕДНО ИСТРАЖИВАЊЕ

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Сажетак: *Сваки спорт или спортска дисциплина са собом носи специфичне задатке карактеристичне само за њега, који од спортисте захтевају висок ниво моторичких знања и функционалних способности. Као такви, спортови у својој различитости су увијек интересантна и неисцрпна тема многих истраживача како би се добијени закључци примјенили у пракси. Циљ овог прегледног истраживања био је да се анализом радова на сличну тему, дође до сигурних сазнања о сличностима и различитостима о моторичким знањима, те присутности истих у фудбалу и рукомету. Након претраге електронских база података SCIndeks, PubMed, Google Scholar, ResearchGate, часописа из области спортских наука, као и релевантне литературем, те елиминације радова на основу постављених критеријума, 15 радова је задовољило критеријуме за коначно укључивање у систематско прегледно истраживање. Главни закључак се огледа у постојању различитости у моторичким способностима фудбалера и рукометаша, те да су оне саме последица специфичности спортува. С друге стране, долази се до закључка да тренажни процеси који се спроводе у клубовима, одређене моторичке способности стављају у други план, те на тај начин њихову развијеност и занемарују.*

Кључне ријечи: моторичке способности, рукомет, фудбал

ASSESSMENT OF FUNCTIONAL MOBILITY OF STUDENTS WITH THE USE OF FMS METHODS

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Abstract: Motion, especially movement symbolizes life. If every our action, motion and movement are not maximally economical and efficient in function of some specific activity, we can rightly say that the energy of the body is directed in the wrong direction. Economy and efficiency of movement are defined as functional movement. One way to estimate the functionality of movement is using the FMS™ technology. FMS™ (Functional Movement Screen) is a diagnostic method for evaluating the human beings locomotor system, that is, functional movement, where we mostly focus on assessment of stability, mobility and asymmetry of certain body parts. The aim of this research paper is to analyze functional movement of students ($N = 41$; $M = 29$ and $F = 12$, age = 19.71 ± 2.305) by using FMS method and to establish whether there is statistically significant difference between genders. The results indicate that there is no statistically significant difference between male (mean \pm SD, 15.34 ± 2.19) and female (mean \pm SD, 16.08 ± 2.53) students. Based on the analysis, it is possible to construct a plan of corrective strategies to improve functional movement among students.

Key words: functional movement, FMS™, stability, mobility

PROCJENA FUNKCIONALNE POKRETLJIVOSTI STUDENATA PRIMJENOM FMS METODE

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Sažetak: Pokret, a posebno kretanje simbolizuje život. Ukoliko svaki naš pokret i kretanje nisu maksimalno ekonomični i efikasni u funkciji neke specifične aktivnosti, s pravom možemo reći da je energija našeg tijela usmjerena u krivom smjeru. Ekonomičnost i efikasnost pokreta definišu se kao funkcionalno kretanje. Jedan od načina procjene funkcionalnosti pokreta je pomoću FMS™ tehnologije. FMS™ (eng. Functional Movement Screen) je dijagnostička metoda za procjenu lokomotornog sistema čovjeka, odnosno funkcionalnog pokreta, pri čemu se najviše stavlja fokus na procjenu stabilnosti i mobilnosti te asimetriju pojedinih dijelova tijela. Cilj ovog rada je analiza funkcionalnog pokreta, FMS™ metodom, studenata ($N=41$; $M=29$ i $F=12$, dob= 19.71 ± 2.305), te da se utvrdi da li postoji statistički značajna razlika između polova u pogledu FMS™ rezultata. Rezultati ukazuju da ne postoji statistički značajna razlika u pogledu rezultata između studenata muškog ($AS=15.34 \pm 2.19$) i ženskog pola ($AS=16.08 \pm 2.53$). Na osnovu analize stanja, moguće je konstruisati plan korektivne strategije radi poboljšanja funkcionalnog pokreta kod studenata.

Ključne riječi: funkcionalni pokret, FMS™, stabilnost, mobilnost

UTICAJ KOMPLEKSNOG SADRŽAJA VEŽBI NA BRZINU KOD UČENIKA I UČENICA OD 1. DO 4. RAZREDA OSNOVNIH ŠKOLA

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Sažetak: *Predmet ovog istraživanja je utvrđivanje uticaja kompleksnog sadržaja vežbi na brzinu kod učenika i učenica od 1. do 4. razreda osnovnih škola. Problem ovog istraživanja je ispitati kako kompleksni sadržaj vežbi utiče na brzinu kod dece u osnovnoj školi. Ovim istraživanjem treba ustanoviti da li ima uticaja kompleksnog sadržaja vežbi na rezultate u testovima brzine. Uzimajući dobijene rezultate određenih morfoloških i motoričkih osobina, može se pokazati put pronalaženja odgovarajućeg usmerenja ka sportu. Ispitati postoji li statistički i značajan uticaj kompleksnog sadržaja vežbi na brzinu trčanja kao i ispitivanje korelacija pojedinih motoričkih sposobnosti i morfoloških karakteristika sa brzinom trčanja. Obrada i proučavanje dosadašnje literature je jedan od početnih zadataka ovog istraživanja. Od posebnog značaja je planiranje časa fizičkog vaspitanja koje u određenom periodu obuhvata ponavljanje motoričkih sposobnosti koje će biti prikazane u tabelama. Način vođenja razreda kroz polugodište, standardizovanje varijabli sprovodenog merenja kao i analiza dobijenih rezultata su veoma bitne stavke ovog istraživanja. Ispravno i bez grešaka sprovesti sva merenja ispitanih u nekoliko varijabli morfološkog i specifično motoričkog prostora je takođe jedan od najbitnijih zadataka. Na osnovu ovog istraživačkog rada postavljene su sledeće hipoteze: H1 – Očekuje se značajan uticaj kompleksnog sadržaja vežbi na brzinu trčanja kod dece mlađeg školskog uzrasta i H2 – Očekuje se značajna korelacija morfoloških karakteristika sa brzinom trčanja kod dece mlađeg školskog uzrasta.*

Ključne reči: *motoričke sposobnosti, brzina, koordinacija, pokretljivost, gipkost, ravnoteža, serije i broj ponavljanja serija.*

INFLUENCE OF COMPLEX CONTENT EXERCISES ON SPEED OF 1ST TO THE 4TH GRADE PRIMARY SCHOOL PUPILS

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Abstract: *The subject matter of this research survey is to determine the influence of complex content exercises on speed of the first to the fourth grade primary school pupils. The research problem of this paper is to examine the way complex content exercises influence the speed of primary school children. This research is supposed to establish if there is the influence of a complex content of exercises on speed tests results. Taking into account the results of particular morphological and motor skills characteristics, a way to the appropriate direction towards sport can be found. The task of this research paper is to examine if there is statistically significant influence of a complex content of exercises on running speed as well as to examine correlation between particular motor skills abilities and morphological characteristics. Working on and studying the literature present so far is one of the initial tasks of this survey. Structuring and planning a physical education class which contains repetition of motor abilities during a specific period of time and which will be presented in the tables, is of particular importance. The way of taking a class through school terms, standardization of the conducted measurement variables, as well as the analysis of the obtained results are very important issues in this research survey. One of the most significant tasks also is proper and flawless measuring of examinees' skills in several variables of morphological and specific motor space. There are the following hypothesis set up on the basis of this research paper: H1 – Significant influence of complex content exercises on running speed of younger grades primary school pupils can be expected and H2 – Significant correlation between morphological characteristics and running speed of younger grades primary school pupils can be expected.*

Key words: *motor skills, speed, coordination, agility, flexibility, balance, series and number of repetition of series.*

ANALYSIS OF COUNTER-ATTACK, TRANSITIONAL AND POSITIONAL ATTACK IN BASKETBALL: A SYSTEMATIC REVIEW

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Abstract: There are different types of attack in basketball, depending on the successes of defence and time needed to perform a throw-in after conceded basketball. Will a basketball team immediately and quickly attack or will they slowly build an attack, it all depends on their tactical preparations. The objective of this review was to determine how often the transitional, positional and the counter-attack occur and to determine their start, efficiency and realization. Research was conducted in the following electronic databases: Google Scholar, PubMed, Web of Science and ResearchGate, using all the available studies published from February, 2002 to February, 2020. The key words used during the research were: offense attack, transition, analysis of offense tactics, set up position, together or separately. 712 studies were identified, of which 10 (8 of male, 2 of both gender's studies) were selected to be analyzed and reviewed. Results of the research, where 232 games were analyzed and 7174 attacks, show that positional attacks are most common (up to 89.6% according to some studies), then counter-attacks initiated by defensive rebound and lost possession and a transitional attack, in which winning and success depend of its realization percentage. According to recent studies we can say that counter-attack is one of the most important and fastest elements in a basketball game and that final results of the game depends on its volume and realisation, as well as completion and realisation of positional attack which is most common in analyzed matches.

Key words: basketball, offense attack, transition, analysis of offense tactics, set up position.

АНАЛИЗА КОНТРАНАПАДА, ТРАНЗИЦИОНОГ И ПОЗИЦИОНОГ НАПАДА У КОШАРЦИ: СИСТЕМАТСКО ПРЕГЛЕДНО ИСТРАЖИВАЊЕ

Zelenović Milan, Božić Danijel, Perović Tijana, Bjelica Bojan

Сажетак: У кошарци постоји више врста напада у зависности од успјеха одбране или од брзине извођења лопте из аута у случају примљеног коша. Да ли ће се лопта убаџавати у игру и кренути брзо на противнички кош, или ће припрема напада трајати дуже, све зависи од тактичке припреме екипе. Циљ овог прегледног рада био је, да се на основу анализираних истраживања, утврди у којој мјери су заступљени позициони, транзициони напади и контранапади, њихов почетак, ефикасност и реализација. Претраге су вршене у следећим електронским базама: Google Scholar, PubMed, Web of Science и ResearchGate, користећи све доступне радове од 2002. до фебруара 2020. године. Кључне ријечи које су биле кориштене приликом претраге су: offense attack, transition, analysis of offense tactics, set up position, појединачно и у комбинацији. Идентификовано 712 студија, где је изабрано 10 (8 мушких, 2 студије оба пола) систематски прегледано и анализирано. Резултати истраживања, где је анализирано 232 утакмице и 7174 напада, су показали да је позициони напад најзаступљенији (до 89.6% у неким студијама), затим контранапад који је инициран послије дефанзивног скока и украдене лопте и транзициони напад, где је успешност и побједа зависила од постотка реализације. Пергледом досадашњих истраживања може се закључити да је контранапад један од најважнијих, а и најбржих елемената на кошаркашкој утакмици и да од његове веће заступљености и ефикасности зависи исход утакмице, као и од ефикасности и успешности реализације позиционог напада, који је и најзаступљенији у анализираним мечевима.

Кључне ријечи: кошарка, офанзивни напад, транзиција, анализа тактике напада, постављени положај.

RAZLIKA U RELATIVNOJ SNAZI IZMEĐU AKTIVNIH SPORTISTA I REKREATIVNIH VEŽBAČA

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Sažetak: Cilj ovog istraživanja je bio da se utvrde razlike u relativnoj snazi između aktivnih sportista i rekreativnih vežbača. Uzorak ispitanika činilo je 26 ispitanika, 13 ispitanika su bili aktivni sportisti a 13 ispitanika rekreativci. Za procenu relativne snage korišćena su četiri merna instrumenata: potisak sa klupe, duboki čučanj, mrtvo dizanje i nabačaj. Za utvrđivanje razlika između grupa korišćen je T-test. Rezultati istraživanja su pokazali da su aktivni sportisti ostvarili statistički značajno bolje rezultate u svim primjenjenim testovima ($p<0.05$).

Ključne reči: relativna snaga, aktivni sportisti, rekreativni vežbači.

DIFFERENCES IN RELATIVE STRENGTH BETWEEN ACTIVE AND RECREATIONAL ATHLETES

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Abstract: The aim of this study was to determine the differences in relative strength between active and recreational athletes. The sample was consisted of 26 subjects, 13 subjects were active athletes, 13 subjects were recreational athletes. To estimate the relative strength four measuring instruments were used: bench press, squat, deadlift and snatch. A T-test was used to determine the differences between the groups. The results of the research showed that active athletes achieved statistically significantly better results in all applied tests ($p<0.05$).

Key words: relative strength, active athletes, recreative athletes.

RAZLIKA U AGILNOSTI IZMEĐU PROFESIONALNH FUDBALERA I REKREATIVACA

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Sažetak: Cilj ovog rada bio je da se utvrdi da li postoje razlike u agilnosti između profesionalnih fudbalera i fudbalera rekreativaca. Uzorak ispitanika činilo je 15 fudbalera fudbalskog kluba „Trstenik PPT“ i 15 rekreativaca. Fudbaleri fudbalskog kluba „Trstenik PPT“ se u sezoni 2020/2021 takmiče u „Srpskoj ligi Istok“. Za procenu agilnosti korišćeno je šest mernih instrumenata. Za utvrđivanje razlika između grupa korišćen je T-test. Rezultati istraživanja su pokazali da između profesionalnih fudbalera i rekreativaca postoji statistički značajna razlika u agilnosti između profesionalnih fudbalera i amatera.

Ključne reči: fudbal, agilnost, rekreativni fudbal

AGILITY DIFFERENCE BETWEEN PROFESSIONAL SOCCER PLAYERS AND AMATEURS

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Abstract: The aim of this research was to determine if there is a difference in agility between professional football players and amateurs. Sample was consisted of 15 professional footballers from Fc Trstenik PPT and 15 amateurs. During the 2020/2021 season, the footballers from Fc Trstenik PPT are competing in the Serbian league group East. Six instruments were used for measurement of agility. T-test was used for establishing the differences between the groups. Research results have shown that there is a significant statistical difference in agility between professional footballers and amateurs.

Key words: football, agility, recreational football

RAPID WEIGHT LOSS METHODS IN JUDO ATHLETES: A SYSTEMATIC REVIEW

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Abstract: Rapid weight loss (RWL) methods are widely used among combat sport athletes of all ages and gender. Therefore, the aim of this study was to synthesize the existing literature that examines RWL methods in judo athletes. The search for articles was conducted on electronic database PubMed. Out of 68 articles initially found, 12 studies, which met our inclusion criteria, were analyzed. A data about RWL methods was obtained from 1621 judokas, both male and female. Increased exercise, caloric restriction and fluid restriction were the most frequently used methods for RWL, while less commonly used methods were skipping meals, dehydration, training in heated rooms, reducing meal portion, fasting, sweat suits and sauna use. In the future, more studies are needed in order to determine which methods are most frequently used among judo athletes of a different age, gender and competition level. Furthermore, it is immensely important for judo coaches to carefully implement RWL methods, considering their harmful effects on judokas health, which are outlined in the existing literature.

Key words: *judo, judokas, weight loss, weight reduction, methods*

METODE BRZOG GUBITKA TEŽINE KOD DŽUDISTA: SISTEMSKO PREGLEDNO ISTRAŽIVANJE

Majdov Stefan, Hačković Samir, Lasković Marko

Sažetak: Metode za brzo gubljenje kilograma (BGK) su široko primenjivane u borilačkim sportovima, kod sportista oba pola i skoro svih uzrasnih kategorija. Stoga, cilj ove studije bio je da sintetiše postojeću literaturu koja je ispitivala metode za BGK među džudistima. Pretraga radova sprovedena je korišćenjem elektronske baze podataka PubMed. Od 68 studija prvo bitno pronađenih, 12 radova, koji su zadovoljili kriterijume za uključivanje, je bilo detaljno analizirano. Podaci o metodama za BGK dobijeni su od 1621 džudiste, uključujući oba pola. Povećanje fizičke aktivnosti, ograničenje kalorijskog unosa i ograničenje unosa tečnosti su bile najčešće korišćene metode za BGK, dok su ređe upotrebljivane metode bile preskanjanje obroka, dehidratacija, treniranje u zagrejanim prostorijama, smanjivanje porcija obroka, post, nošenje trenerki u cilju povećanog znojenja i korišćenje saune. U budućnosti, potrebno je još studija kako bi se utvrdilo koje su najčešće korišćene metode za BGK kod džudista različitog uzrasta, pola i takmičarskog nivoa. Osim toga, neizmerno je važno za trenere džudoa da pažljivo primenjuju metode za BGK, obzirom na njihove štetne efekte na zdravlje džudista, koji su istaknuti u postojećoj literaturi.

Ključne reči: *džudo, džudisti, gubitak kilaže, redukcija kilaže, metode*

DIFFERENCES AND SIMILARITIES IN MOTOR ABILITIES OF PRESCHOOL CHILDREN - SYSTEMATIC REVIEW

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Abstract: Motor abilities in preschool age are one of the most important factors for the development of children and their health. Consequently, the aim of the systematic review was to determine the similarities and differences between children at that age, based on the collected research on motor abilities of preschool children, and to draw final conclusions that can significantly improve the development of motor status of children. Electronic databases (SCIndeks, PubMed, Google Scholar, ResearchGate) were searched, as well as journals in the field of sports sciences, and relevant literature that could answer the set problem with the time limit from 2008 to April 2020. As a condition for inclusion in the study, two criteria are set: the study must be based on a study of motor skills and the examination must include the age of the preschool children. A total of 16 studies met the above criteria and were included for further analysis. The general analysis of the results concluded that there are statistically significant differences in the motor abilities of preschool children, which depends on many factors. Gender, age, sociological factors, involvement in programmed exercise within preschool education, as well as during free time play a big role in achieving better results. In this regard, this systematic review of published scientific research papers proves the differences between preschool children.

Key words: motor abilities, preschool children

РАЗЛИКЕ И СЛИЧНОСТИ У МОТОРИЧКИМ СПОСОБНОСТИ ДЈЕЦЕ ПРЕДШКОЛСКОГ УЗРАСТА - СИСТЕМАТСКО ПРЕГЛЕДНО ИСТРАЖИВАЊЕ

Božić Danijel, Zelenović Milan, Bjelica Bojan, Đorđević Dušan

Сажетак: Моторичке способности у предшколском узрасту представљају један од битнијих фактора за развој дјеце и њиховог здравља. Сходно томе, циљ систематског прегледног истраживања је био да се на основу прикупљених истраживања о моторичким способностима дјеце предшколског узрасла, те анализом резултата утврде сличности и разлике између дјеце у тој доби, те донесу коначни закључци који могу допринојети значајном побољшању развијености моторичког статуса дјеце. Извршена је претрага електронских база података (SCIndeks, PubMed, Google Scholar, ResearchGate) као и часописа из области спортивских наука, те релевантне литературе која је могла одговорити на постављени проблем са временским ограничењем од 2008. године до априла 2020. године. Као услов за укључење у прегледно истраживање, постављена су два критеријума: студија мора бити заснована на истраживању моторичких способности и испитивање мора обухватати узраст испитаника предшколске доби. Укупно 16 истраживања је задовољило наведене критеријуме и било уврштено за даљу анализу. Генералном анализом резултата дошло се до закључка да постоје статистички значајне разлике у моторичким способностима дјеце предшколског узрасла, што зависи од многоштва фактора. Велику улогу у остваривању бољих резултата играју пол, узраст, социолошки фактори, укљученост у програмирано вежбање у склопу предшколског образовања, као и у вријеме слободне активности. С тим у вези, ово систематско прегледно истраживање објављених научно-истраживачких радова доказује разлике између дјеце предшколске доби.

Кључне ријечи: motor abilities, preschool children

EFEKTI TRENAŽNOG PROGRAMA “STREET” PLESOVA NA MOTORNU KOORDINACIJU KOD STUDENTKINJA

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Sažetak: Cilj ovog istraživanje bio je da se utvrde efekti desetonedeljnog trenažnog programa "Street" plesova na motornu koordinaciju kod studentkinja. Uzorak je sačinjavalo 54 ispitanica uzrasta od 19 do 24 godine. Ispitanice su bile podeljene na eksperimentalnu grupu ($n=27$) koja je primenjivala trenažni program i kontrolnu grupu ($n=27$). Eksperimentalna grupa je primenjivala desetonedeljni plesni program "Street" plesova (Hip Hop i Dancehall) tri puta nedeljno po 90 min. Kontrolna grupa nije imala nikakve organizovane vidove fizičke aktivnosti osim svakodnevnih aktivnosti. Motorna koordinacija ispitanica je procenjena sledećim testovima pre i posle završetka trenažnog programa: Koraci u stranu, 20 iskoraka provlačenjem palice, Preskakanje horizontalne vijače, Okreti u šest kvadrata, Bubnjanje rukama i nogama i Test okretnosti sa palicom. Rezultati na kraju trenažnog programa su pokazali da postoji statistički značajna razlika na nivou ($p < 0,01$) u sledećim testovima: Koraci u stranu (.000), 20 iskoraka provlačenjem palice (.002), Okreti u šest kvadrata (.000), i Bubnjanje rukama i nogama (.000). Zaključuje se da je desetonedeljni trenažni program "Street" plesova efikasan model za poboljšanje motorne koordinacije kod studentkinja.

Ključne reči: *hip hop, dancehall, ples, koordinacija, studentkinje.*

THE EFFECT OF STREET DANCE TRAINING PROGRAM ON MOTOR COORDINATION OF STUDENTS

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Abstract: The aim of this research was to determine the effects of a ten-week Street dance training program on the motor coordination in female students. Total sample of examinees consisted of 54 female subjects aged from 19 to 24 years. The subjects were divided into an experiment group ($n=27$) where they applied Street dance training program for ten weeks and a control group ($n=27$). The subjects of experimental group participated in the ten-week Street dance training program (Hip Hop and Dancehall) three times a week for 90 min. The subjects of the control group had regular daily activities and were not involved in any form of organized physical activity. Motor coordination was assessed before and after the treatment using following tests: Side steps, 20 steps forward twirling a baton, Turning in 6 squares, Skipping the horizontal jump rope, Hand-Foot drumming and Agility test with baton. At the end of the treatment the results showed that there are significant differences at level ($p < 0,01$) in the following tests: Side steps (.000), 20 steps forward twirling a baton (.002), Turning in 6 squares (.000) and Hand-Foot drumming (.000). It is concluded that the ten-week Street dance training program is effective model for improving motor coordination in female students.

Keywords: *hip hop, dancehall, dance, coordination, students*

RELACIJE MOTORIČKE SPOSOBNOSTI RAVNOTEŽE I USPJEHA IZVOĐENJA NEKIH GIMNASTIČKIH ELEMENATA NA PARTERU

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Sažetak: Svoja prva znanja o savladavanju osnovnih dinamičkih i statičkih položaja tijela, mnoga djeca stiču na nastavi fizičkog vaspitanja prolazeći kroz osnovnu gimnastičku obuku. Utvrđivanje relacija ravnoteže i uspjeha u izvođenju gimnastičkih elemenata, u ovom istraživanju, služi u svrhu utvrđivanja pojedinačnih parametara putem kojih se mogu predvidjeti uspjeh i napredovanje u sportskoj gimnastici. Uzorak ispitanika činilo je 42 ispitanika starosti 7-8 godina, pri čemu su svi ispitanici bili bez zdravstvenih poteškoća te su redovno poхаđali nastavu fizičkog vaspitanja u periodu obuke gimnastičkih elemenata. Prediktorska varijabla testirana je pomoću četiri testa za procjenu motoričke sposobnosti ravnoteže, koji posjeduju potrebne metrijske karakteristike: stajanje na jednoj nozi poprečno otvorenih očiju na klupici za ravnotežu – MBAP, stajanje na dvije noge uzdužno na klupici za ravnotežu sa zatvorenim očima – MBAUZ, stajanje na dvije noge uzdužno na klupici za ravnotežu s otvorenim očima – MBAU i flamingo test – FLAM. Uspješnost izvođenja odabranih gimnastičkih elemenata ocijenjena je od strane komisije koja je bila sačinjena od pet licenciranih sudija Gimnastičkog saveza Republike Srpske, ocjenama od 0 do 10. Suprotno početnim očekivanjima korišteni testovi za motoričku sposobnost ravnoteže nisu pokazali visoku prediktivnu vrijednost za izvođenje sva tri korištena gimnastička elementa, kada su korišteni kao samostalni prediktorski set. Izuzetak čini predikcija uspjehnosti izvođenja stava uporom o lopaticama, odnosno testa flam koji je pokazao statistički značajnu prediktivnu vrijednost u izvođenju stava uporom o lopaticama kao i stava uporom o glavi.

Ključne riječi: ravnoteža, predikcija, uspjehnost, gimnastika, nastava fizičkog vaspitanja

RELATIONS OF MOTOR ABILITY OF BALANCE AND SUCCESS OF PERFORMANCE OF SOME GYMNASTIC ELEMENTS ON THE FLOOR ROUTINE

Jovanović Saša, Bijelić Snežana, Ljubojević Adriana, Zec Marko

Abstract: Many children acquire their first knowledge of mastering the basic dynamic and static positions of the body in physical education classes by going through basic gymnastic training. Determining the relationship between balance and success in performing gymnastic elements, in this research, serves the purpose of determining individual parameters through which success and progress in sports gymnastics can be predicted. The sample of respondents consisted of 42 respondents aged 7-8 years, where all respondents were without health problems and regularly attended physical education classes during the training of gymnastic elements. The predictor variable was tested using four tests to assess motor ability of balance, which have the necessary metric characteristics: standing on one leg with eyes open transversely on the balance bench - MBAP, standing on two legs longitudinally on the balance bench with closed eyes - MBAUZ, standing on two legs longitudinally on a balance bench with open eyes - MBAU and flamingo test - FLAM. The success of performing the selected gymnastic elements was evaluated by a commission composed of five licensed judges of the Gymnastics Association of Republic of Srpska, with scores from 0 to 10. Contrary to initial expectations, the used tests for motor ability did not show high predictive value for performing all three used gymnastic elements, when used as a stand-alone predictor set. The exception is the prediction of the success of the performance of the position with the resistance on the blades, i.e. the flam test, which showed a statistically significant predictive value in the performance of the position with the resistance on the blades as well as the position with the resistance on the head.

Key words: balance, prediction, performance, gymnastics, physical education classes

PRINCIP SOCIJALIZACIJE I INDIVIDUALIZACIJE U FIZIČKOM VASPITANJU DECE KROZ PRIZMU SVESTRANOG RAZVOJA

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Sažetak: *U svom suštinskom značenju vaspitanje predstavlja ukupnost intencionalnog uticaja na ličnost deteta, koji bi, između ostalog, vodio njegovom svestranom razvoju. Nadovezujući se na prethodni postulat, fizičko vaspitanje kao integralno i izuzetno značajno područje vaspitne delatnosti uopšte, u svetu savremenih interdisciplinarnih naučnih koncepcija, svojim zadacima bi trebalo da bude usmereno na potpuni, harmonični, svestrani i autentični razvoj ličnosti. Cilj ovog rada zasnovanog na teorijskoj analizi sadržaja relevantne literature, ogledao bi se u ukazivanju značaja, poželjnosti i neophodnosti obraćanja podjednake pažnje na poštovanje principa individualizacije i socijalizacije u fizičkom vaspitanju, kao univerzalnih principa u celokupnom vaspitno-obrazovnom procesu. Uzimajući u obzir činjenicu da je bavljenje sportom od izuzetne važnosti za normalan psihofizički razvoj svakog pojedinca, istakle bi se izvesne potencijalne pedagoške implikacije na selekciju kao bazično sportsko-pedagoški proces u pogledu kasnijeg opredeljivanja dece za individualni ili kolektivni sport. Akcenat uvažavanja ovih principa bi se takođe ogledao u tome da kod dece koja se bave kolektivnim sportom nikako ne bi trebalo da dođe do zapostavljanja individualnosti i gubljenja lične satisfakcije kroz ispunjenje kolektivnog cilja, i obrnuto kada je u pitanju individualni sport. Večita aktuelnost tematike u traganju za teorijskim potkrepljenjima pružila je mnoštvo izvora i solidnu naučnu građu na kojoj ovaj rad počiva. Istraživanje predstavlja doprinos rasvetljavanju srodnih tematika na polju fizičkog vaspitanja, ali se može sagledati i kao podsticaj za nova teorijska i empirijska istraživanja.*

Ključne reči: fizičko vaspitanje, svestrani razvoj, princip socijalizacije i individualizacije, sport.

THE PRINCIPLE OF SOCIALIZATION AND INDIVIDUALIZATION IN THE PHYSICAL EDUCATION OF CHILDREN THROUGH THE PRISM OF VERSATILE DEVELOPMENT

Simonović Nikola, Maksimović Jelena, Osmanović Zajić Jelena

Abstract: *In its essential meaning, education represents the totality of the intentional influence on the child's personality, which would, among other things, lead to his all-round development. Building on the previous postulate, physical education as an integral and extremely important area of educational activity in general, in the light of modern interdisciplinary scientific concepts, with its tasks should be focused on complete, harmonious, versatile and authentic personality development. The aim of this paper, based on a theoretical analysis of the content of relevant literature, would be to indicate the importance, desirability and even necessity of paying equal attention to respecting the principles of individualization and socialization in physical education, as universal principles in the entire educational process. Taking into account the fact that playing sports is extremely important for the normal psychophysical development of each individual, certain potential pedagogical implications for selection would be highlighted as a basic sports-pedagogical process in terms of later children's commitment to individual or team sports. The emphasis on respecting these principles would also be reflected in the fact that children who are engaged in collective sports should not neglect individuality and lose personal satisfaction through the fulfillment of the collective goal, and vice versa when it comes to individual sports. This topic which is always current in the search for theoretical support provided a multitude of sources and solid scientific material on which this paper is based. Research presents contribution to the elucidation of related topics in the field of physical education, but it can also be seen as an impetus for new theoretical and empirical research.*

Key words: physical education, versatile development, principle of socialization and individualization, sport.

EFFECTS OF JUDO ON THE ANTHROPOLOGICAL STATUS OF ATHLETES: SISTEMATIC REVIEW

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Abstract: *Judo is a weight – based sport that has an impact on all parts of the anthropological status. It appears that morphological, physiological and technique-related variables in competitive judo are in high correlation and means that improvement or deterioration of any of these variables have effects on other. The aim of this paper was to summarize the effects of judo on physical, morphological and cognitive abilities in professional athletes from young age to periods after professional career compared to non – judo population and to other martial arts athletes. The Scholar, PubMed, MEDLINE, ERIC, ResearchGate electronic databases were searched until 28.02.2021. A total of 12 studies were passed the criteria and analyzed. Judo athletes have a higher BMI compared to the non-sports population and to non – judo athletes. Gender differences show that men have more muscle mass and a lower percentage of fat. These changes occur during maturation combined with specific high intensity training. Male Judo Athletes has shown higher development of physical fitness abilities than females, Elite Judo Athletes higher level physical fitness than Sub – Elite athletes. Practicing judo has positive effects on cognition. Especially in decision making, spatial abilities, sense of direction and Dynamic Visual Activity (DVA). Differences in the effects of judo exist in relation to gender, categories, age. However, it is necessary to point out the negative effects of professional judo, especially in nutritional status. The knowledge about long – term judo effects are scarce and future investigations are needed.*

ЕФЕКТИ ЏУДОА НА АНТРОПОЛОШКИ СТАТУС СПОРТИСТА: СИСТЕМСКО ПРЕГЛЕДНО ИСТРАЖИВАЊЕ

Samouković Marko, Lazić Anja, Mladenović Kristina

Сажетак: Џудо је тежински спорт који има утицај на све делове антрополошког статуса. Морфолошке, психолошке и техничке варијабле су у високој колерацији, што значи да побољшање или погоршање једне варијабле има директне утицаје на другу варијаблу. Scholar, PubMed, MEDLINE, ERIC, ResearchGate електронске базе су претражене до 28.02.2021. Укупно 12 студија је прошло укључујуће критеријме и било анализирано. Џудисти имају већи проценат индекса телесне масе у односу на оне који не практикују спорт и на спортисте из других спортова. Са гледишта пола искоштника, мушкарци имају већи проценат мишићне масе и ниже вредности масти. Ове промене су последица матурације и специфичног тенинга високог интезитета. Мушкарци такође имају већи ниво физичког фитнеса у односу на жене. Елитни џудисти имају већи ниво физичког фитнеса у односу на суб – елитне такмичаре. Упражњавање яудоа има позитивне ефекте на когницију, посебно у доношењу одлука, просторној оријентацији, осећају за правац и динамичко визуелној активности. Ефекти яудоа су различити и зависе од пола, категорије и година тарости. Неопходно је такође, утврдити негативне ефекте професионалног яудоа, посебно у нутритивном статусу. Сазнања о дуготрајним ефектима тренинга яудоа су ретка и будућа истраживања су неопходна.

THE EFFECT OF TARGETED TRAINING REGIME ON EXPLOSIVE STRENGTH DEVELOPMENT IN YOUNG HANDBALL PLAYERS

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Abstract: Handball is a sport in which many factors contribute to the final success. Given the overall character of the game, one of the most important characteristic of handball players is explosive strength. The goal of this research was to evaluate the influence of the specific training regime on explosive strength development in young handball players. The subject sample consisted of 17 male handball players age 12-15 years old. The variable sample used to evaluate explosive strength consisted of jump from the standing position, 20 meter sprint and throwing the 1kg medicine ball from sitting position. The data was analysed using SPSS 20 software, by means of the ANOVA. The results show there was statistically significant increase in all observed variables. We can conclude that targeted training regime can significantly develop explosive strength in young handball players.

Key words: handball, explosive strength, young athletes, training.

UTICAJ TARGETIRANOG TRENAŽNOG REŽIMA NA RAZVOJ EKSPLOZIVNE SNAGE MLADIH RUKOMETAŠA

Ilić Igor

Sažetak: Rukomet je sport u kome mnogi faktori doprinose finalnom uspehu. Uzveši u obzir opšti karakter igre, jedna od glavnih karakteristika rukometnika je eksplozivna snaga. Cilj ovog rada je procena uticaja specifičnog trenažnog režima na razvoj eksplozivne snage kod mladih rukometnika. Uzorak ispitanika sastojao se od 17 rukometnika starosti 12-15 godina. Uzorak varijabli korišćenih za procenu eksplozivne snage sastojao se od skoka u dalj iz mesta, sprinta na 20 metara i bacanja medicinke težine 1kg iz sedećeg položaja. Podaci su analizirani upotrebom SPSS 20 statističkog paketa primenom ANOVA analize. Rezultati su pokazali da postoji statistički značajno povećanje u svim ispitivanim varijablama. Možemo da zaključimo da targetirani režim treninga može da dovede do značajnog razvoja eksplozivne snage kod mladih rukometnika,

Ključne reči: rukomet, eksplozivna snaga, mladi sportisti, trening.

THE EFFECT OF PRE-SEASON TRAINING REGIME ON SPEED DEVELOPMENT IN YOUNG HANDBALL PLAYERS

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Abstract: Short distance and medium distance speed is one of the key factors of success in handball. The goal of this research was to evaluate the influence of the pre-season training regime on speed development in young handball players. The subject sample consisted of 24 female handball players age 14-18 years old. The variable sample used to evaluate speed consisted of 30m, 100m and 400m dash. The data was analysed using SPSS 20 software, by means of dependent sample t-test. The results show there was statistically significant increase in all observed variables. We can conclude that pre-season training regime can significantly develop short distance and medium distance speed of young female handball players.

Key words: handball, speed, short distance, medium distance, training.

UTICAJ TRENAŽNOG REŽIMA U PRIPREMNOM PERIODU NA RAZVOJ BRZINE MLADIH RUKOMETAŠICA

Ilić Igor, Nedić Anica

Sažetak: Brzina na kratkim i srednjim distancama je jedan od ključnih faktora uspeha u rukometu. Cilj ovog istraživanja je procena uticaja trenažnog režima tokom pripremnog perioda na razvoj brzine kod mladih rukometnika. Uzorak ispitanika se sastojao od 24 rukometnika starosti 14-18 godina. Uzorak varijabli koje su korišćene za procenu brzine se sastojao od trka na 30m, 100m i 400m. Podaci su analizirani upotrebom SPSS 20 statističkog paketa primenom t-testa za zavisne uzorke. Rezultati su pokazali da postoji statistički značajno povećanje u svim ispitivanim varijablama. Možemo da zaključimo da trenažni režim tokom pripremnog perioda može da dovede do značajnog razvoja brzine kod mladih rukometnika.

Ključne reči: rukomet, brzina, kratke distance, srednje distance, trening.

PREPORUKE ZA SPORTSKE AKTIVNOSTI NAKON PRELEŽANE KORONA VIRUSNE BOLESTI

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Apstrakt: Novi koronavirus, nazvan virus teškog respiratornog sindroma (eng. Severe Acute Respiratory Syndrome Coronavirus-2, SARS-CoV-2), doveo je do pandemije bolesti nazvane korona virusna bolest (eng. Coronavirus disease 2019, COVID-19). COVID-19 često izaziva teške respiratorne i kardiovaskularne simptome i komplikacije, a kod osoba starijeg životnog doba i osoba sa komorbiditetima vodi ka zatajivnju rada unutrašnjih organa i često letalnom ishodu. Bez obzira što sportisti ne spadaju u rizičnu grupu za teži oblik obolevanja, činjenica je da su brojni vrhunski sportisti pa i čitave sportske ekipe bile zahvaćene infekcijom. Kod jednog broja sportista nakon preležane bolesti registrovani su dugotrajni rezidualni simptomi kao što su kašalj, tahikardijski i ekstremni umor. Veliki napor i velike kardiorespiratorne zahteve. Da bi se izbegle teže posledice i omogućio siguran povratak u igru elitnih sportista, članovi Američkog koledža za sportsku kardiologiju i Savet za kardiologiju vežbanja (American College of Cardiology's Sports & Exercise Cardiology Council), uz doprinos nacionalnih lidera u sportskoj kardiologiji, dali su prve praktične smernice lekarim sportske medicine u dijagnostičkim, terapeutskim i rehabilitacionim postupcima obolelih. Smernice u ponašanju date su i samim sportistima koji su podlegli infekciji virusom SARS-CoV-2. Postoji neophodnost daljeg praćenja epidemiološke situacije među sportistima.

Ključne reči: korona virus, COVID-19, kardiorespiratorni sistem, sportisti, preporuke.

RECOMMENDATIONS FOR ATHLETIC ACTIVITIES AFTER CORONARY HEART DISEASE

Popović Ilić Tatjana

Abstract: The new coronavirus, called the Severe Acute Respiratory Syndrome Coronavirus-2 (SARS-CoV-2) led to a pandemic called the Coronavirus Disease 2019 (COVID-19). COVID-19 is associated with severe respiratory and cardiovascular symptoms and complications. In the elderly and people with comorbidities it leads to multiple organ failure with lethal outcome. Regardless that athletes do not belong to the risk group for a more severe form of the disease, many elite athletes and even entire sports teams were affected by the infection. In a number of athletes, long-term residual symptoms such as cough, tachycardia, and extreme fatigue have been reported after the illness. Great efforts in elite sports place great cardiorespiratory demands. In order to avoid serious consequences and enable safe return to the game of elite athletes, members of the American College of Cardiology's Sports & Exercise Cardiology Council, with input from national leaders in sports cardiology, gave the first practical guidance to physicians in diagnostic, therapeutic and rehabilitation for affected athletes. They gave practical guidance for athletes themselves in behavior following COVID – 19 infection. Further monitoring of the epidemiological situation among athletes is necessary.

Key words: corona virus, COVID 19, cardiorespiratory system, athletes, recommendations.

КООПЕРАТИВНЕ ИГРЕ ДЕЦЕ ПРЕДШКОЛСКОГ УЗРАСТА

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Сажетак: Кретне активности, на најразличитије начине и у најразличитијим облицима, једна су од основних човекових потреба. Потребе деце на том пољу су неизмерене. На човекову кретну успешност утиче ниво моторичких способности и функционалне карактеристике. Снага, брзина, координација, флексибилност, равнотежа, прецизност и издржљивост су способности које омогућавају успешност при реализацији различитих кретних задатака. Природни облици кретања су урођени и испољавају се пре или касније (свако дете ће проходати, почети да трчи, пузи, скаче...). Деца упознају и доживљавају спортске активности пре свега преко игре. Кооперативне игре подразумевају учешће и сарадњу више учесника истовремено, где једни без помоћи и подршке и узајамне сарадње осталих, не би били у стању да реализују игру. Основно правило у раду са најмлађима је да: децу учимо кретању, а не технички.. Предложени су елементи спорова и спорчких игара кроз пар елементарних игара, које су описане у раду. Уколико предност дамо ангажовању деце у кооперативним играма различитог типа и карактера, уз све био-психо социјалне добробити које се поспешују и изграђују, веома се јако утиче на њиховој здравој социјализацији личности. Међусобно поверење које се гради посредством ових игара доприноси развијању позитивне атмосфере и омогућава одвијање кооперативних активности.

Кључне речи: кооперативне игре, моторичке активности, деца предшколског узраста

COOPERATIVE GAMES IN PRESCHOOL AGE CHILDREN

Projović Aleksandra, Jonić Zoran, Petrović Lana, Kocić Jadranka

Abstract: Mobile activities, in various ways and in various forms, are one of the basic human needs. The needs of children in this field are unmeasured. Human motor performance is influenced by the level of motor abilities and functional characteristics. Strength, speed, coordination, flexibility, balance, precision and endurance are the abilities that enable success in the realization of various moving tasks. Natural forms of movement are innate and manifest sooner or later (every child will walk, start running, crawling, jumping). Children get to know and experience sports activities primarily through play. Cooperative games imply the participation and cooperation of several participants at the same time, where some without the help and support and mutual cooperation of others, would not be able to realize the game. The basic rule in working with the youngest is to: teach children movement, and not technicians. We offer them some elements of sports and sports games through elementary games, which are described in the paper. If we give priority to the engagement of children in cooperative games of different types and characters, with all the bio-psychosocial benefits that are promoted and built, it has a very strong impact on their healthy socialization of personality. The mutual trust that is built through these games contributes to the development of a positive atmosphere and enables cooperative activities.

Key words: cooperative games, motor activities, preschool children

ЕФЕКТИ РЕКРЕАТИВНИХ АКТИВНОСТИ НА ФУНКЦИОНАЛНЕ СПОСОБНОСТИ - ПРЕГЛЕД

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Сажетак: Рекреативно вежбање укључује редовно слободно физичко вежбање у довољним и редовним временским интервалима. Планирана и програмирана рекреативна вежбања, поред утицаја на развој и стабилизацију антрополошких димензија, као и његов превентивни и корективни ефекат, доприноси адекватнијем обављању свакодневних задатака и болу припрему за изазове укључења у савремене друштвене токове. Предмет овог истраживања је анализа утицаја рекреативних активности на функционалне способности студентске популације и импликације на њихов даљи живот. Методе коришћене у овом раду су дескриптивна и компаративна, као и теоријска анализа које су коришћене у сврху прикупљања, класификације и анализе циљаних студија. У оквиру овог рада извршена је анализа три рада који су задовољили постављене критеријуме. Хипотеза која је постављена у овом раду, у потпуности је потврђена. Истраживање је обухватило радове који су објављени у периоду од 2006 до 2019. године. Аутори предлажу да је потребно да високошколске установе више обрате пажњу на добијене резултате низа радова и студија, и да омогуће својим студентима лакше и веће укључивање у рекреативне активности како би се функционалне способности студентске популације подигле на виши ниво.

Кључне речи: рекреација, рекреативне активности, функционалне способности, студенти.

EFFECTS OF RECREATIONAL ACTIVITIES ON FUNCTIONAL ABILITIES – OVERVIEW

Petrović Lana, Kocić Jadranka, Projović Aleksandra, Jonić Zoran

Abstract: Recreational exercise includes regular free physical exercise at sufficient and regular time intervals. Planned and programmed recreational exercises, in addition to influencing the development and stabilization of anthropological dimensions, as well as its preventive and corrective effect, contribute to more adequate daily tasks and better preparation for the challenges of inclusion in modern society. The subject of this research is the analysis of the impact of recreational activities on the functional abilities of the student population and the implications for their further life. Methods used in this paper are descriptive and comparative, as well as the theoretical analysis used for the purpose of collecting, classifying and analyzing target studies. Within this paper, an analysis of three papers that met the set criteria was performed. The hypothesis set in this paper, has been fully confirmed. The research included papers published in the period from 2006 to 2019. The authors suggest that higher education institutions need to pay more attention to the results of a series of papers and studies, and to enable their students easier and greater involvement in recreational activities to raise the functional abilities of the student population to a higher level.

Key words: recreation, recreational activities, functional abilities, students

PHYSICAL EDUCATION IN HIGH SCHOOL DURING PANDEMIC

Karče Tomaž

High school Ledina, Slovenia

Abstract: Due to the present situation, the teachers have been forced to adapt to the unprecedeted ways and methods of teaching. In this article I am going to present the so-called distant learning of Physical Education as taught at Ledina high school. The teacher-student communication channels are the e-mail, Zoom and Moodle e-classrooms. The basic goal of physical activities done in this way is to sustain the desire, will and interest in physical activity by means of different and varied contents. The task of a teacher is to encourage students to stay fit and flexible, at least to the minimum. After the exercise the students are given clear feedback; what is more, various type of evidence can enable the teacher to assess students as well, and all this is presented in this article. E-classrooms permit the teacher a simple and clear view into students' cooperation. It is of utter importance that we search for innovative ways of teaching and thus reach the set goals.

Key words: physical education, sport, e-classrooms.

A PHYSICAL EDUCATION QUIZ FOR INJURED OR SICK STUDENTS

Karče Tomaž

High school Ledina, Slovenia

Abstract: Students who are unable to perform physical activities present a special challenge for PE teachers. Besides the altered activities it is advisable to prepare interesting theoretical exercises, which would arise interest in students. The students seem to like the quizzes related to sports; what is more, the interest is also shown by the students with no health issues. In the Moodle quiz we can implement various types of activities: matching, gap fill, multiple choice answers. It is of utter importance that the number of questions is not too high, so they actually finish it. Upon handing it in the students can see the points achieved and also the table of correct or partially correct answers. The quiz allows many attempts, therefore the students can achieve 100% correct answers and consequently learn a lot. They can find correct answers in the library or online. The teacher can follow the students' progress at all times: they see the results, the number of attempts and the time spent on each task. Correct answers are marked in green, incorrect in red. With this method a PE teacher can check general sports-related knowledge, which serves as the basis to all students. In this way they can focus on the physically active students and at the same time keep busy the students with health issues, since they can do quizzes via mobile phones or tablets.

Key words: PE, sport, e-classrooms, Moodle quiz.

MUZIČKO-PLESNA TERAPIJA KOD OPŠTE POPULACIJE I GRUPA SA POSEBNIM POTREBAMA

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Sažetak: Ova studija procenjuje upotrebu programa zasnovanih na muzičkoj i plesnoj terapiji u različitim aspektima agresivnog ponašanja, kao i kod programa prevencije nasilja kod dece osnovne škole. Muzička terapija je klinička intervencija uz primenu muzike, zasnovana na praksi, radi postizanja individualnih ciljeva kroz uspostavljene relacije između profesionalnih terapeuti i odobrenih programi terapije. Muzički terapeuti procenjuju emocionalno blagostanje (duh), fizičko zdravlje (telo), i kognitivne veštine i procese individue (um) radi oporavka i integriranja socijalnog funkcionisanja i komunikacijskih sposobnosti putem muzičkih odgovora. Ritmičko-Plesna terapija je jedno psihoterapijska sredstvo kreativnih umetnosti koje primenom plesa i pokreta kao medija, doprinosi samo-aktualizaciji i ličnom napretku. Koristi od muzičke terapije mogu imati deca, adolescente, odrasli i starije osobe narušenog mentalnog zdravlja, oni sa poteškoćama u mentalnom razvoju i učenju, i drugim stanjima povezanim sa starenjem, problemima sa zloupotrebom supstanci, povredama mozga, fizičkim oštećenjima i akutnim i hroničnim bolovima, uključujući i porodilje.

Ključne reči: muzičko/plesna terapija, prevencija nasilja

MUSICAL-DANCE THERAPY IN GENERAL POPULATION AND GROUPS WITH SPECIAL NEEDS

Popović Ružena, Đorđević Ivana, Popović Jasna, Popović Miloš

Abstract: This study evaluated the use of a music and dance therapy-based programs in different aspects of aggressive behaviors, as well as violence prevention programs with elementary school children. Music Therapy is the clinical and evidence-based use of music interventions to accomplish individualized goals within a therapeutic relationship by a credentialed professionals and accredited therapeutic programs. Music therapists assess emotional well-being (Spirit), physical health (Body), and cognitive skills and processes of the person (Mind) in order to heal and integrate social functioning and communication abilities, through musical responses. Rhythm & Dance Therapy is one of the Creative Arts in Therapy using dance and movement as a medium for self-actualization and personal growth. Children, adolescents, adults, and the elderly with mental health needs, developmental and learning disabilities, and other aging related conditions, substance abuse problems, brain injuries, physical disabilities, and acute and chronic pain, including mothers in labor can benefit from music therapy.

Key words: music/dance therapy, violence prevention

OD INKLUIZIJE DO UKLJUČIVANJA U FIZIČKO VASPITANJE

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Sažetak: Kada školski sistem u nekoj zemlji, ili škole, kao vaspitno-obrazovne institucije, usvoje filozofiju inkluzije, onda to postaje primamljivo, kako za roditelje, tako i za studente sa invaliditetom, da se odmah uključe, u što je moguće većem broju, u redovne programa obučavanja. Jedno od prvih mesta, gde će učenici biti raspoređeni je redovno fizičko vaspitanje, jer se u mnogim manje razvijenim obrazovnim sistemima, fizičko vaspitanje posmatra kao neakademski program. Zbog toga, aktivni pedagozi fizičkog obrazovanja često imaju nedovoljnu i neadekvatnu obuku u pogledu rada sa učenicima sa smetnjama u razvoju, ili posebnim obrazovnim potrebama. To može da dovede do nedekvatnog stava prema učeniku sa invaliditetom (koji se brzo prenosi i preko studenata bez invaliditeta). Priprema nastavnika treba da podrazumeva formiranje posebnog tima saradnika, koji podrazumeva saradnju svih članova tima radi razvoju individualnih ciljeva za studenta, upoređujući ih u odnosu na zajedničke ciljeve koji se uspostavljaju u redovnom fizičkom vaspitanju. Tim saradnika sagledava individualne potrebe učenika za određenim modifikacijama i prilagođavanjima, pre sprovođenja programa i razvija odgovarajuće smještajne kapacitete, specifičnu opremu, i obučava aktuelne pedagoge koji sprovode redovnu nastavu fizičkog vaspitanja, zatim vršnjake i osobe koje pomažu. Mada pažljiva priprema za integraciju može potrajati nekoliko nedelja, ili čak meseci, krajnji rezultat je postepen i pozitivni prelaz (tranzicija) u redovnu nastavu fizičkog obrazovanja.

Ključne reči: Inkluzija, Ometenost u razvoju, Fizička onesposobljenost

FROM INCLUSION TO ENGAGEMENT IN PHYSICAL EDUCATION

Popović Miloš, Válková Hana, Đorđević Ivana

Abstract: Once the school system in some countries or schools as educational institutions adopt a philosophy of inclusion, it is tempting for parents, as well as for students with disabilities to involve immediately, in as many regular programs as possible. One of the first places students will be placed in regular physical education since physical education is in many less-developed educational systems, viewed as a non-academic program. Unfortunately, regular physical educators often have the least training in terms of working with students with disabilities or special educational needs. This may lead to poor attitudes toward the student with disabilities (which quickly transfer over to the students without disabilities). Preparation of teacher should include a forming of special collaborative team members developing individual goals for the student, comparing individual goals to what takes place in regular physical education, anticipating the need for certain modifications and adjustments prior to implementation and developing appropriate accommodations specific equipment, and finally, preparing regular physical educators, peers, and support persons. While carefully preparing for integration might take several weeks or even months, the end result is a smooth and positive transition into regular physical education.

Key-words: Inclusion, Developmental disorder, Physical disabilities

MERENJE PRECIZNOSTI PRIMENOM ORIGINALNE BATERIJE TESTOVA: STUDIJA SLUČAJA

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Sažetak: Ovaj rad je zasnovan na rezultatima eksperimenta transverzalnog karaktera koji je realizovan šk. 2011/12. godine sa studentkinjama treće godine osnovnih akademskih studija na Fakultetu sporta i fizičkog vaspitanja (FSFV), Univerziteta u Nišu. Studija je realizovana na obaveznom predmetu Ritmička gimnastika (VI semestar, fond časova 3+3/45+45), prvi put, primenom originalne baterije testova za ocenu preciznosti gađanjem i ciljanjem. Obavezno testiranje je realizovan u okviru Pedagoške prakse, kao predispitne obaveze, a finalizirano samostalnim Izveštajem studentkinja (individualne studije slučaja), o statusu pojedinih segmenata motorike. Ostale predispitne obaveze nisu obuhvaćene ovom studijom, kao ni ostali segmenti motoričkih sposobnosti. Uzorak ispitanica, koje su realizovale pedagošku praksu, čini ukupno 25 studentkinja FSFV, posebno selekcionisanih (u odnosu na prepostavljeni nadprosečni motorički status), uključenih u regularni nastavni plan i program (III. godine studija u skladu sa Bolonjskom deklaracijom). Za potrebe ove studije primjenjeni su originalni testovi, koji ranije nisu primenjivani na ovako definisanom uzorku ispitanica. Izbor testova, opis mernih instrumenata i protokol testiranja je bio sastavljen od strane studentkinje. Na bazi sprovedenog testiranja, rezultati studentkinja su prikazani u obliku Histograma, za svaki ispitivan test (ukupno osam), a analizirani kao pojedinačne studije slučaja.

Ključne reči: Preciznost, testovi, gađanje, ciljanje, studentkinje, pedagoška praksa

PRECISION MEASUREMENT USING ORIGINAL BATTERY TESTS: A CASE STUDY

Samailović Nevena, Popović Ružena

Abstract: This paper is based on the results of an trans-sectional experimental study, that was realized in school year 2011/2012, with third-year female students of basic academic studies at the Faculty of Sport and Physical Education (FSPE), University of Nis. The study was realized on the obligatory subject Rhythmic Gymnastics (VI semester, fund of classes 3 + 3/45 + 45), for the first time, by applying the original battery of tests for the assessment of accuracy by shooting and aiming. Compulsory testing was realized within the Pedagogical Practice, as a pre-examination obligation, and finalized by an independent report of female students (individual case studies) on the status of some segments of motor skills. Other pre-examination obligations are not covered by this study. The sample of respondents, who realized pedagogical practice, consists of a total of 25 FSPE students, specially selected (in relation to the assumed above-average motor status), included in the regular curriculum (III year of study in accordance with the Bologna Declaration). For the purposes of this study, eight original tests were applied, which were not previously applied to such a defined sample of respondents. The selection of tests, the description of measuring instruments and the testing protocol were compiled by the student. Based on the conducted testing, the results of female students were presented in the form of Histograms, for each examined test (a total of eight), and analyzed as individual case studies.

Key words: Accuracy, tests, shooting, targeting, female students, pedagogical practice

STRENGTH EXERCISE WITH ELASTIC BAND FOR WHEELCHAIR BASKETBALL PLAYERS

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Abstract: *Wheelchair basketball is intended for people with physical disabilities and can help them to rehabilitate and stay in good physical condition. Furthermore, it can fulfill people's personal goals and sport ambitions. High rate of motoric abilities and skills can help wheelchair basketball players to stay healthy and successful. Strength as motor ability has an important role to improve the player's athletic performance. With strength exercise, we can improve strength and endurance in muscles groups that are responsible for propulsion movement, thereby increasing an individual's performance. Furthermore, with strength exercise we can eliminate imbalances in muscle strength caused by repeated propulsion movement pattern. This article presents customized strength exercises with an elastic band designed for wheelchair basketball players. When selecting exercises, we focused on specific positions and physical abilities of wheelchair basketball players.*

Key words: *wheelchair basketball, exercise, elastic bands*

SPECIFIČNOSTI FUNKCIONALNOG I METABOLIČKOG ODGOVORA RVAČA

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Sažetak: Rvačka borba se dominantno odvijaju u zonama maksimalnog i submaksimalnog opterećenja. Na osnovu toga, može se pretpostaviti da je za uspeh u borbi vrlo bitan faktor fizička pripremljenost. S tim u vezi, predmet ovog rada su ispoljeni parametri pripremljenosti na Specific Wrestling Performance Test-u. Cilj rada je da se ispitaju specifičnosti funkcionalnog i metaboličkog odgovora rvača u odnosu na takmičarsku uspešnost i način oporavka, kao i utvrde određene zakonitosti. Uzorak čini 57 rvača, podeljenih u tri grupe u odnosu na rvačke sposobnosti čije su glavne karakteristike bile: Nacionalni tim, Prva liga i Druga liga Srbije. Na testu su praćene varijable: ukupan broj bacanja (Tn^{Throws}), funkcionalni odgovor organizma na zadati napor, praćen od završetka testa (HR_{0min}), kao i u periodu oporavka (ΔHR_{3min}), kao i koncentraciju laktata u trećem (La_{3min}) i petom (La_{5min}) minuti. Na osnovu rezultata došli smo do zaključka da je bez obzira na takmičarski nivo funkcionalni odgovor organizma (HR_{0min}) na Specific Wrestling Performance Test-u je isti, dok se razlike između grupa javljaju u procesu oporavka (ΔHR_{3min}), tj. reprezentativcima brže pada puls od druge dve takmičarske grupe ($p = 0.002$ i $p = 0.000$). Sa aspekta metaboličkog odgovora organizma nije utvrđena statistički značajna razlika postignutih vrednosti koncentracije laktata u oporavku (La_{3min}, La_{5min}) bez obzira na takmičarski nivo, i način oporavka. Najznačajnije razlike utvrđene su ukupnim brojem bacanja na testu ($Tn^{Throws}; p = 0.000$), pri čemu se jasno uočava dominantna pripremljenost reprezentativaca, kao i bolja pripremljenost prvoligaša u odnosu na drugoligaše, bez obzira na metabolički i funkcionalni odgovor.

Ključne reči: latktata vrednost, srčana frekvencija, testiranje, performansa

SPECIFICS OF THE FUNCTIONAL AND METABOLIC ANSWER OF THE WRESTLERS

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Abstract: *Wrestling takes place predominantly in the zones of maximum and submaximal intensity. Based on that, it can be assumed that physical preparedness is a very important factor for success in the fight. In this regard, the subject of this paper are manifested preparedness parameters on the Specific Wrestling Performance Test. The aim of this paper is to examine the specifics of the functional and metabolic response of wrestlers in relation to competitive performance and recovery, as well as to determine certain patterns. The sample consists of 57 male wrestlers, divided into three groups relative to wrestling proficiency whose main characteristics were: National team, First League, and Second League of Serbia. The variables on the test were: total number of throws (Tn^{Throws}), functional response of the organism to the given effort, followed by the end of the test (HR_{0min}), as well as in the recovery period (ΔHR_{3min}), as well as lactate concentration in the third (La_{3min}) and fifth (La_{5min}) minute. Based on the results, it can be concluded that regardless of the competitive level, the functional response of the organism (HR_{0min}) on the Specific Wrestling Performance Test is the same, while differences between groups occur in the recovery process (ΔHR_{3min}), ie. the national team's heart rate drops faster than the other two competition groups ($p = 0.002$ and $p = 0.000$). From the aspect of the metabolic response of the organism, no statistically significant difference was found in the achieved values of lactate concentration in recovery (La_{3min}, La_{5min}), regardless of the competitive level and the way of recovery. The most significant differences were determined by the total number of throws on the test ($Tn^{Throws}; p = 0.000$), where the dominant preparedness of the national team is clearly visible, as well as better preparedness of the first league compared to the second league, regardless of metabolic and functional response.*

Key words: lactate value, hear rate, testing, performance

РЕЗУЛТАТСКА УСПЈЕШНОСТ ПЛИВАЧА КЛУБА У ОДНОСУ НА НАЦИОНАЛНИ НИВО ТАКМИЧЕЊА 2020 ГОДИНЕ

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Сажетак: Резултатска успјешност пливача односила се на Међународном пливачком митингу „Младост куп“ који је одржан у мјесту Бања Лука 2020. године 22. фебруара. Резултати пливача до 12 година и млађи односили су се на резултатску успјешност пливачког клуба „Борац“ Бања Лука. Резултат пливача из пливачког клуба „Борац“ Бања Лука осим на 9. Међународном пливачком митингу „Младост куп“, поредили су се са резултатском успјешностима пливача из истог клуба на Зимском првенству Босне и Херцеговине који су заједнички организовали Бања Лука & Сарајево 2020 године 26. децембра мјесеца. Методом циљаног узорка издвојена су по три такмичара која су на 50 м слободно заузела мјесто у финалном дијелу такмичења 9. Међународног пливачког митинга „Младост куп“ и Зимског првенства Босне и Херцеговине у 2020 години. Резултатска успјешност се мјерила не само по пласману и временском резултату, него и укупном броју бодова пливача пливачког клуба „Борац“ Бања Лука. На 9. Међународном митингу „Младост куп“ такмичари из пливачког клуба Борац освојили су 455 бодова, а на Зимском првенству Босне и Херцеговине 537 бодова. Поређенjem резултата са Међународног митинга „Младост куп“ 2020 године 22. фебруара са резултатима Зиског првенства Босне и Херцеговине 2020 године 26. децембра да се закључити да су пливачи из пливачког клуба „Борац“ Бања Лука остварили знатан статистички резултат у пливању 50 м слободно.

Кључне речи: пливање, такмичење, митинг куп, компаративна анализа

RESULT PERFORMANCE OF CLUB SWIMMERS IN RELATION TO THE NATIONAL LEVEL OF COMPETITION IN 2020

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Abstract: The swimmers' performance refers to the International Swimming Rally "Mladost Cup", which was held in Banja Luka on February 22nd, 2020. The results of swimmers under the age of 12 referred to the results of the Swimming club "Borac" Banja Luka. The result of swimmers from the Swimming club "Borac" Banja Luka, except at the 9th International Swimming Rally "Mladost Cup", was compared with the performance of swimmers of the same Club at the Winter Championship of Bosnia and Herzegovina, which was jointly organized by Banja Luka and Sarajevo on the 26th December, 2020. Using the target sample method, three competitors were selected, who took a place in the final part of the competition of the 9th International Swimming Rally "Mladost Cup" and the Winter Championship of Bosnia and Herzegovina in 2020, in the discipline of 50 m freestyle. The result performance was measured not only by the placement and time result, but also by the total number of points of the swimmers of the Swimming club "Borac" Banja Luka. At the 9th International Rally "Mladost Cup", the competitors from the Swimming club Borac won 455 points, and at the Winter Championship of Bosnia and Herzegovina 537 points. Comparing the results from the International Rally "Mladost Cup" of February 22nd, 2020, with the results from the Winter Championship of Bosnia and Herzegovina of December 26th, 2020, it can be concluded that swimmers from the Swimming club "Borac" Banja Luka have achieved a significant statistical result in swimming in the discipline 50 m freestyle.

Key words: swimming, competition, rally cup, comparative analysis

THE EFFECT OF THE 8-WEEK FITNESS WORK OUT PROGRAM ON THE BODY CIRCUMFERENCE

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Abstract: *The purpose of the paper was to present the effect of the 8-week work out program on the body circumference. The sample represented 19 men and 22 women. Before and after the program we performed measurements of standardized anthropomorphic tests. Data was processed using the SPSS for Windows program. We found out that the 8-week fitness work out program had a positive effect on reducing the body's circumference in the abdomen and hips. We confirmed all this results at the level of 5% of statistical significance ($p \leq 0.05$). We found out that this type of program could be an effective mean for reducing the body's circumference in the abdomen and hips.*

Key words: *work out program, body circumference, effect, fitness.*

РАЗЛИКЕ У НЕКИМ МОТОРИЧКИМ СПОСОБНОСТИМА ВРХУНСКИХ ФУДБАЛЕРКИ СРБИЈЕ И СЛОВАЧКЕ

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Сажетак: Циљ рада је да утврди разлике у тестираним моторичким способностима фудбалерки два тима који играју у различитим националним првенствима Словачкој и Србији. Узорак је узет из сениорског узраста у фудбалским клубовима Слован из Братиславе (12) и Црвена Звезда из Београда (N=10). Узорак испитаника женског пола чини 22 фудбалерки. Узорак варијаби чиниле су дубоки предклон, лежање-сед, скок у даљ с места, трчање 8x10m, трчање на 20m, Т-тест, и Yo-Yo тест. Резултат у Т-тесту се огледа у виду малих разлика резултата Т теста тимова Слован Братислава и Црвене звезде. У нашим мерењима, добили смо мању снагу доњих екстремитета код играчица ЖФК Црвена Звезда, 176.70 цм у односу на Slovan Bratislava, 193.17. Код теста Yo-Yo у нашем тестирању играчице Слован Братислава имају резултат - 1635 м. а играчице ЖФК Црвена Звезда - 1178 м. Харшануовá (2013) је тестирала ФЦ Унион Новé Зámky. У поређењу са њеним резултатима тест лежање-сед је код ФЦ Унион Нове Зámky имао просечни резултат 50.3 понављања, док је тим Слован Братислава имао већу просечну снагу, наиме 57.33 (разлика 7.03) а тим ЖФК Црвена Звезда Београд је такође остварио већи просечан учинак - 58,20 понављања (разлика 7,9). У следећем тестиу скок у даљ, просечне резултат ФЦ Унион Нове Зámky су биле 185,05 цм. Играчи Слован Братислава у просеку бољи резултат - 193.17 см (разлика 7,67 цм) и играчи ЖФК Црвена звезда Београд - 176.70 см (разлика 8,35 цм) (Korytárova 2013). Просечни учинак на тести агилности (Т-тест) је 10,35с за играчице Слован Братислава и 10.94с за играчице ЖФК Црвена Звезда. На основу горе наведене литературе и на основу резултата нашег рада можемо закључити да је акценат на развој агилности (брзина промене правца) висок и има значајан утицај на такмичарске способности фудбалерки. Ако играч није у стању да овај услов пренесе у акцију током утакмице, сугерише се да је већа потребна пажња у обучавању брзине и убрзања са променама правца, јер је то комплексна вештина која је директно повезана са одређеним оптерећењем током утакмице и може да утиче на ток и исход меча.

Кључне речи: моторичке и ситуационе способности, супер лига, разлике, фудбалерке

DIFFERENCES IN SOME MOTOR ABILITIES OF THE TOP FEMALE FOOTBALLERS OF SERBIA AND SLOVAKIA

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Abstract: The aim of the research is to determine the differences in tested motor abilities of the footballers of two teams playing in two different national cups – Serbian and Slovakian. The sample was taken from two senior football teams: Slovan from Bratislava (12), and Red Star from Belgrade (N=10). The sample consisted of 22 female football players. The sample variables included the deep forward bend, sit-ups, long jump, 8x10m running, 20m running, T-test, and Yo-Yo test. The result of the T-test showed small differences between the two teams. According to our measurements, there was less strength in the lower extremities in the players of WFC Red Star: 176.70 cm versus 193.17 in players of Slovan, Bratislava. In the Yo-Yo test, Slovan Bratislava players had the result of 1635 m, and WFC Red Star players of 1178 m. Haršanyová (2013) tested the FC Union Nové Zámky. In her results in the sit-up test, the FC Union Nové Zámky had an average score of 50.3 repetitions. In comparison to these results, the team Slovan from Bratislava had a higher average strength of 57.33 (difference 7.03), whereas the team WFC Red Star from Belgrade also achieved a higher average performance - 58.20 repetitions (difference 7.9). In the long jump test, the average score of FC Union Nove Zámky was 185.05 cm. Slovan Bratislava players achieved a better result on average - 193.17 cm (difference 7.67 cm) and players of WFC Red Star Belgrade - 176.70 cm (difference 8.35 cm) (Korytárova 2013). The average performance in the agility test (T-test) is 10.35s for Slovan Bratislava players and 10.94s for WFC Red Star Belgrade players. Based on the above literature and based on the results of our work, we can conclude that the emphasis on the agility development (speed of direction change) is high and has a significant impact on the competitive abilities of female football players. If a player is unable to transfer this condition into action during the match, it is suggested that more attention is needed in training of speed and acceleration with changes of direction, due to the fact that this complex skill is directly related to a particular load during the match and can affect both its course and its outcome.

Key words: motor and situational abilities, super league, differences, football players

СПОРТ И КОВИД ЕПОХА

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Сажетак: Ковид епоха, која је сигурним кораком започела свој светски ход, већ сада се види, изазива структуралне промене у свим сферама живота. То се односи, наравно и на спорт, без обзира како га дефинисали и из ког угла посматрали. Оно што сада видимо на спортским тренима широм света, пре свега западног, граничи се са Орвеловим светом – где је све под апсолутном контролом. Нажалост, та граница између Орвеловог и садашњег времена убрзано се брише и може да се деси, врло брзо, да се та два света слију у један свет – свет апсурда где је све могуће. То могуће недавно је виђено у Аустралији, на првом великом тениском турниру када је публика удаљена (истерана) са трибина јер је, баш у току тениског меча, стартовало време када је забрањено присуство публике на трибинама. А да не говоримо о мукама тенисера и њиховом затварању у хотелске собе. Истовремено са овим тениским турниром, одражавало се и Светско клупско првенство, али у земљи која није у оквиру западне цивилизације. И, наравно, видела се сасвим друга слика. Ова два примера говоре, не само о две различите могућности, већ и о наставку постепеног „усаглашавања“ правила која ће се диктирати из једног светког центра. То ће довести, сасвим сигурно, до промене – не само у организацији спортских такмичења, већ и у постепеној селекцији спортова који ће наставити да живе у оквиру нових „ковид“ правила, и оних који ће се постепено гасити. У овим новим и наметнутим околностима победиће такозвани „телевизични“ спортови. А то значи и учвршћивање и умножавање „телевизичних“ гледалаца. И сходно томе – телевизијских навијача, једне потпуно нове врсте навијача, индивидуалаца.

Кључне речи: Спорт, телевизија, гледалац, навијач

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