

Book of Summaries



**9 MEĐUNARODNA
KONFERENCIJA
"SPORTSKE NAUKE I
ZDRAVLJE"**
*9th INTERNATIONAL
CONFERENCE ON "SPORTS
SCIENCE AND HEALTH"*

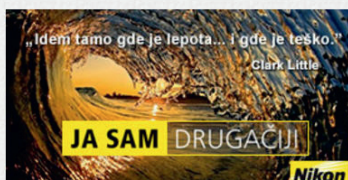
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FAKULTET ZA SPORT I TURIZAM





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SCIENCE AND HEALTH"

15. 03. 2019.

Zbornik Sažetaka Book of Summaries

organizatori:



pokrovitelji:



- MINISTARSTVO ZDRAVLJA I SOCIJALNE ZAŠTITE RS
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PREDIKTORSKE VRIJEDNOSTI MORFOLOŠKO-MOTORIČKIH OBILJEŽJA NA USPJEŠNOST IZVOĐENJA PRESKOKA U SPORTSKOJ GIMNASTICI

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SAŽETAK

Istraživanje je provedeno na uzorku od 94 ispitanika učenika prvih razreda Mješovite srednje tehničke škole Travnik u Travniku, s ciljem utvrđivanja značaja i veličine uticaja odabranih morfološko-motoričkih obilježja na realizaciju specifičnih motoričkih zadataka sportske gimnastike (preskok zgrčka i preskok raznoška) u okviru programskih sadržaja nastave tjelesnog i zdravstvenog odgoja. U istraživanju su primijenjene dvije varijable za procjenu morfoloških karakteristika i šest varijabli za procjenu motoričkih sposobnosti definisanih kao prediktorski skup varijabli. Kriterijske varijable uključivale su preskok zgrčno i preskok raznožno, koje su predstavljale specifične motoričke zadatke sportske gimnastike iz programa nastave tjelesnog i zdravstvenog odgoja.

Za utvrđivanje statističkih značajnosti i relativnih uticaja morfološko-motoričkih obilježja na realizaciju specifične motoričke zadatke sportske gimnastike (preskok zgrčka i preskok raznoška) primijenjen su dvije regresione analize.

Rezultati regresionih analiza ukazuju na statistički značajan uticaj primijenjenih morfološko-motoričkih obilježja na realizaciju specifičnih motoričkih zadataka sportske gimnastike kakvi su preskoci.

Dobijeni rezultati mogu biti od koristi nastavnicima tjelesnog i zdravstvenog odgoja u kvalitetnijem praćenju, vrednovanju i ocjenjivanju usvojenosti elemenata sportske gimnastike-preskoci, te kvalitetnijem programiranju nastavnih sadržaja tjelesnog i zdravstvenog odgoja.

Glavne riječi: morfološko-motorička obilježja, preskoci, regresiona analiza, specifični motorički zadaci.

THE PREDICTORY VALUE OF MORPHOLOGICAL AND MOTORIC CHARACTERISTICS TO THE SUCCESS OF VAULT PERFORMANCE IN SPORT GYMNASTICS

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SUMMARY

This research was conducted on a sample of 94 first grade pupils of the Travnik Secondary school with the aim of determining the significance and magnitude of the influence of selected morphological and motoric characteristics on the realization of specific motoric tasks of sport gymnastics (vault jumps and vault diversions) within the curriculum of Physical and Health education. Two variables for assessing morphological and six variables for assessing motoric characteristics defined as a predicate set of variables were applied in the study. Criterion variables included a vaulting jump with both legs together and a jump with widespread legs, which represented specific motoric tasks of sport gymnastics from the curriculum of Physical and Health education.

Two regression analyzes were applied to determine the statistical significance and relative effects of morphologic-motoric characteristics on the realization of specific motoric tasks of sports gymnastics.

The results of the regression analyzes indicate a statistically significant influence of the applied morphological and motoric characteristics on the realization of specific motoric tasks of sport gymnastics vaulting.

The obtained results can be of use to teachers of Physical and Health education in better monitoring and evaluation of the adaptation of sports gymnastics-vault, and as well as better programming of teaching content of Physical and Health education.

Key words: Morphological-motoric characteristics, vaulting, regression analysis, specific motor tasks.

RAZLIKE U VENTILACIJSKIM SPOSOBNOSTIMA DJEČAKA I DJEVOJČICA U UZRASNOM PERIODU OD 10 - 15 GODINE

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SAŽETAK

Cilj istraživanja bio je utvrđivanje razlika u ventilacijskim parametrima između dječaka i djevojčica u uzrasnom periodu od 10-15 godine. Ispitivanje je provedeno na uzorku od N=1857 ispitanika koji je podijeljen na 2 subuzorka uzeta iz populacije dječaka (n=968) i djevojčica (n=889) sa područja grada Mostara. Uzorak varijabli činile su 3 varijable za procjenu antropometrijskih mjera, za procjenu ventilacijskih parametara korištene su 24 varijable uzete pomoću spirometra marke Spirovit SP1 firme Schiller AG. Obrada rezultata izvršena je u programskom paketu SPSS 21.0. Za utvrđivanje kvantitativnih razlika između grupa, primjenjena je kanonička diskriminativna analiza. Diskriminativnom analizom utvrđeno je da postoje statistički značajne kvantitativne razlike između grupa dječaka i djevojčica na globalnom nivou. Izolovana je jedna funkcija koja objašnjava 100% ukupne varijance i ima statistički značajno visoku vrijednost (Can. Corr. = .948). Vrijednost Wilk'sove lambde je niska (.101) što ukazuje na visoku diskriminativnost između grupa. U kvantitativnom smislu na multivarijantnom nivou najveću diskriminaciju između grupa u izolovanoj funkciji čine varijable Tiffeneovog indeksa ($FEV1/FVC_{PRED}$), $FEF50_{PRED}$, $FEF75_{PRED}$ i varijabla procenta Tiffeneovog indeksa za ispitanike ($FEV1/FVC\%$). Ovome u prilog ide i vrijednost položaja centroida na izolovanoj diskriminativnoj funkciji, gdje vidimo veliku udaljenost između centroida koji predstavljaju grupe dječaka i djevojčica u prostoru.

Ključne riječi: ventilacija, spirometrija, djeca, diskriminativna analiza

DIFFERENCES IN VENTILATION ABILITIES BOYS AND GIRLS IN AGE FROM 10 - 15 YEARS

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ABSTRACT

The aim of the study was to determine the differences in ventilation parameters between boys and girls in the 10-15 year age group. The study was conducted on a sample of N = 1857 subjects divided into 2 subunits taken from the boys (n = 968) and girls (n = 889) from the area of the City of Mostar. The sample variables consisted of 3 variables for the assessment of anthropometric measures, 24 variables were used for the evaluation of the ventilation parameters using Spirovit SP1 of the company Schiller AG. Results processing was performed in SPSS 21.0. To determine quantitative differences between groups, a canonical discriminatory analysis was applied. A discriminatory analysis found that there are statistically significant quantitative differences between groups of boys and girls on a global level. One function is isolated which explains 100% of the total variance and has a statistically significant high value (Can. Corr. = .948). The value of Wilk's lambda is low (.101) indicating high discrimination between groups. In quantitative terms, at the multivariate level, the greatest discrimination between groups in an isolated function is the variables of the Tiffen index ($FEV1/FVC_{PRED}$), $FEF50_{PRED}$, $FEF75_{PRED}$ and the percentage of the Tiffene index for respondents ($FEV1/FVC\%$). This is also supported by the value of the centroid position in an isolated discriminatory function, where we can see the great distance between the centroid that is represented by groups of boys and girls in the space.

Key words: ventilation, spirometry, children, discriminatory analysis

MORFOLOŠKE KARAKTERISTIKE KAO PREDIKTOR REZULTATSKE USPJEŠNOSTI U TESTOVIMA AGILNOSTI KOD KADETA U FUDBALU

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SAŽETAK

Istraživanje je provedeno na uzorku 50 fudbalera kadetskog uzrasta s ciljem utvrđivanja prediktorskih vrijednosti odabranih morfoloških karakteristika na rezultatsku uspješnost u četiri testa za procjenu agilnosti. U istraživanju je primijenjeno 12 varijabli za procjenu morfoloških karakteristika definisanih kao prediktorski (ulazni) skup varijabli. Kriterijske varijable predstavljali su sljedeći testovi za procjenu agilnosti: Test agilnosti-trčanje naprijed-nazad sa okretom (93639OK), test 20 yardi (MAG 20Y), trčanje 4x5 metara (AG4X5M), T test (MAG T). Za utvrđivanje prediktivnih vrijednosti odabranih morfoloških karakteristika (mjera) na rezultatsku uspješnost u testovima za procjenu agilnosti pojedinačno na svaki test primijenjene su četiri multiple regresione analize. Rezultati regresionih analiza pokazuju da su morfološke karakteristike praćene u ovom istraživanju, relativno slabo povezane sa rezultatima u primijenjenim testovima za procjenu agilnosti kod kadeta u fudbalu. Statistički značajna regresiona povezanost dobijena je između odabranih morfoloških karakteristika i testa trčanje 4 x 5 metara sa promjenom smjera pod 90° i 180° (AG4X5M). Kod osatlih testova za procjenu agilnosti i odabranih morfoloških karakteristika nije utvrđena statistički značajna povezanost, iako se uočava parcijalna povezanost nekih morfoloških odlika.

Dobijeni rezultati mogu biti od koristi trenerima i drugim stručnjacima koji rade u fudbalu sa mlađim uzrasnim kategorijama kao smjernica za

svsishodnije planiranje i programiranje trenažnog rada, kao i izboru adekvatnih trenažnih operatora i trenažnih metoda.

Ključne riječi: agilnost, fudbaleri, morfološke karakteristike, regresiona naliza

MORPHOLOGICAL CHARACTERISTICS AS A PREDICTOR OF SUCCESSFUL RESULTS IN CADETS AGILITY TESTS IN FOOTBALL

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ABSTRACT

The study was conducted on a sample of 50 cadets for determination of predictive values of selected morphological characteristics in the four agility test resultant performance. In the study, 12 variables were used to evaluate the morphological characteristics defined as predictor (input) set of variables. Criterion variables presented the following agility assessment tests: agility-forward-backward run with rotation (93639OK), 20 yard test (MAG 20Y), 4x5 meters run (AG4X5M), T test (MAG T). For the determination of the predictive values of the selected morphological characteristics on the success result in the agility assessment tests, four multiple regression analysis were applied to each test. The results of regression analysis show that the morphological characteristics observed in this study are relatively poorly correlated with the results in the cadet's agility evaluation. Statistically significant regression correlation was obtained between selected morphological characteristics and the 4 x 5 meters run with a change of direction at 90° and 180° (AG4X5M). There was no statistically significant correlation in the other agility test es-

timation and the selected morphological characteristics although the partial association of some morphological characteristics was noticed.

The results obtained may be of benefit to coaches and other professionals working with younger age categories in football as guidance for more useful planning and programming of training work, as well in the choice of appropriate training methods.

Keywords: agility, football players, morphological characteristics, regression analysis

IZOKINETIČKA DIJAGNOSTIKA KAO METODA PROCJENE MIŠIĆNE SNAGE

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SAŽETAK

Izokinetičko testiranje jačine mišićnih grupa zgloba koljena oba ekstremiteta (desne i lijeve strane) provedeno je na uzorku profesionalnog fudbalera, reprezentativca BiH u Centru za Izo-kinetika ispitivanja i vježbe lokomotornog aparata u Banja Luci. Testiranje je provedeno na CON-TREX aparatu poštujući sve principe protokola pri izvođenju izokinetičkih testiranja. Osnovni cilj izokinetičkog testiranja mišićne jačine odnosio se na precizno utvrđivanje sile, tj. obrtnog momenta kojeg mišićne grupe koljena obje strane (ekstenzori i fleksori) mogu proizvesti u svim fazama koncentričnog i ekscentričnog pokreta pri konstantnoj brzini kretanja 60°/sek. i 240°/sek.

Rezultati testiranja pri konstantnoj brzini 60°/sek pokazuju da su obje grupe mišića desnog ekstremiteta slabiji u odnosu na obje grupe mišića lijevog ekstremiteta, što ukazuje na prisustvo

značajnog disbalansa jakosti mišićnih grupa desne i lijeve strane. Disbalans više je izražen kod fleksora i iznosi 27% u odnosu na očekivane vrijednosti, dok je kod ekstenzora disbalans 18% od očekivane normalne vrijednosti za konkretnog testiranog pojedinca – fudbalera. Zbog izraženog disbalansa ispitanik je podvrgnut tronedjeljnom izokinetičkom treningu nakon kojeg je izvršeno ponovno testiranje i utvrđeno povećanje snage ekstenzora (opružaća) za 23%, a fleksora (pregibača) 41%. Rezultati testiranja mišićne izdržljivosti pri konstantnoj brzini 240°/sek pokazuju da ne postoji značajan disbalans u mišićnoj izdržljivosti koljena desne i lijeve noge koji bi mogao uticati na povećani rizik nastanka povreda.

Ključne riječi: disbalans, ekstenzija, fleksija, izokinetika, obrtni moment

ISOKINETIC DIAGNOSTICS AS A METHOD OF MUSCULAR STRENGTH ASSESSMENT

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ABSTRACT

The isokinetic testing knee joint muscle groups strength of both extremities (right and left) was performed on a representative of BiH professional footballer at the Isokinetics Testing Center and the exercise of the locomotor apparatus in Banja Luka. Testing was carried out on the CON-TREX apparatus, respecting all protocol principles in performing isokinetic testing. The basic aim of the isokinetic testing of muscular strength was to precisely determine the force, ie the torque of the knee muscle group on the oppo-

site side (the extensor and flexori) can produce at all phases of concentric and eccentric motion, the velocity of movement of 60° / sec. and 240° / sec. Test results at a constant speed of 60° / sec show that both muscle right extremity groups are weaker than both left extremity muscle groups, indicating the presence of significant dysbalance of the muscular groups strengt. Disbalance is more pronounced in the flexor and is 27% compared to the expected values, while the extensor disbalance is 18% of the expected normal value for a particular tested footballer. Due to the pronounced disbalance, the subject was subjected to a three-weeks isokinetic training and after a re-test was performed the increase in extensor was 23%, and flexor 41%. The results of muscular endurance testing at a constant speed of 240° / sec show that there is no significant disbalance in the knee muscular endurance that could have an impact on the increased risk of injury.

Key words: disbalance, extension, flexion, isokinetics, rotational moment

CORRELATIONS BETWEEN MOTOR COMPETENCES AND HEALTH-RELATED QUALITY OF LIFE AT PRIMARY SCHOOL CHILDREN

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ABSTRACT

A child with a low level of motor comptences is often a child sitting and watching other children while they compete, run and play with a ball. This has a negative impact not only on motor competences, but also on self confidence, well being, family and friendship relations and academic achievement.

Given the importance of quality of life in the context of increasing hypokinesia and obesity among children and youth, a survey was conducted in

order to examine the health related quality of life (HRQOL) and its relation to motor competences of primary school children.

The study included 214 children (113 boys, 101 girls) aged 7-8 years from six elementary schools from Subotica. Relations between HRQOL (Kidscreen -27 questionnaire) such as dependent and independent variables were examined: physical growth and development and motor competences (TGMD-2 and motor abilities).

Boys who achieved better results on tests of motor development are more physically active, full of energy, feel better, spend more time with friends and enjoy the support of their peers.

Key words: motor competences, HRQOL, children.

UTICAJ STILA ŽIVOTA NA BMI OBIM STRUKA I OBIM KUKOVA

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APSTRAKT

Na indeks tjelesne mase utiču mnogi indikatori načina i stila života osobe, navika i ishrane. U ovom radu objašnjeni su pojmovi vezani za BMI i korelacije kao što su rizici nastanka, uticaj fizičke aktivnosti i samog životnog stila. Istraživanje je provedeno studijom poprečnog presjeka putem anonimnog upitnika i antropoloških mjerenja na uzorku od ukupno 100 učenika iz srednjih škola u Banjoj Luci. Cilj rada bio je istražiti uticaj stila života srednjoškolaca na BMI struka i obim kukova. Obradom i analizom podataka utvrđeno je da je 11% ispitanika pothranjeno, 76 % normalno uhranjeno i 13 % je imalo povećanu tjelesnu masu. Takođe, umjerena fizička aktivnost je zabilježena kod 68 % ispitanika. Način ishrane izražen je prema modifikovanoj HEI skali i uprkos prethodno spomenutim pokazateljima uhranjenosti i fizičke aktivnosti utvrđeno je da kod 75 % ispitanika kvalitet ishrane nezadovoljavajući i da se treba korigovati.

Ključne riječi: BMI, HEI skala, obim struka, obim kukova, stil života, ishrana

ABSTRACT

The body mass index is influenced by many indicators of lifestyle, habits and nutrition. This paper explains the concepts related to BMI and correlations such as the risks of occurrence, the impact of physical activity and the lifestyle itself. The research was carried out by a cross-section study using an anonymous questionnaire and anthropological measurements on a sample of a 100 students from high school in Banja Luka. The aim of this paper was to investigate the influence of high school students' lifestyle on BMI and waist and hip circumference. By analyzing the data, 11% of the subjects were undernourished, 76% were normally fed and 13% had an increased body mass. Also, moderate physical activity was observed in 68% of subjects. The diet was expressed according to the modified HEI scale and despite the aforementioned indicators of nutrition and physical activity, it was found that in 75% of the respondents the quality of the diet was unsatisfactory and should be corrected.

Key words: BMI, HEI scale, waist circumference, hip circumference, lifestyle, nutrition

FIZIOLOŠKO OPTEREĆENJE UČENIKA SPORTISTA I NESPORTISTA TOKOM SATA TJELESNOG I ZDRAVSTVENOG ODGOJA

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SAŽETAK

Cilj istraživanja je definisati i utvrditi razlike fiziološkog opterećenja učenika koji se aktivno bave sportom i učenika koji ne upražnjavaju programirani obik sportskih aktivnosti. Uzorak predstavljaju selekcionisani učenici sa prosječnim karakteristikama i sposobnostima, a istraživanjem je obuhvaćeno 10 učenika VII razreda osnovne škole, muškog spola. Za procjenu pojedinačnog i ukupnog fiziološkog opterećenja praćena je i izračunata srčana frekvencija te utvrđene razlike između sportista i nespportista tokom cijelog sata i razlike u svakom dijelu četverodjelne strukture sata tjelesnog i zdravstvenog odgoja.

Ključne riječi: učenici, fiziološko opterećenje, tjelesni i zdravstveni odgoj

PHYSIOLOGICAL PERSPECTIVE OF SPORTS TEACHERS AND NESPORTS BY SITUATION OF MEDICAL AND HEALTH EDUCATION

SUMMARY

The aim of the research is to define and determine the differences in the physiological load of students who are actively engaged in sports and students who do not use the programmed sports activities. The sample represents selected pupils with average characteristics and abilities, and the research involved 10 pupils of the 7th grade of elementary school, male sex. To estimate the individual and total physiological load, the calculated heart rate and the observed differences between athletes and non-sportspeople throughout the clock were monitored and differences in each section of the four-part structure of the physical and health education classes.

Key words: students, physiological load, physical and health education

MORFOLOŠKE KARAKTERISTIKE UČENIKA U ODNOSU NA REZIDENCIJALNI STATUS NA TERITORIJI OPŠTINE ZEMUN

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ABSTRAKT

Istraživanje je izvršeno na ukupnom uzorku od 249 ispitanika petih razreda podeljenih po rezidencijalnom statusu na tri subuzorka i to: 90 ispitanika od koji su predstavljali subuzorak urbane sredine, 81 ispitanika koji su činili subuzorak sredine koja je definisana kao predgrađe (prigradska sredina) i 78 ispitanika koji su reprezentovali subuzorak koji je definisan kao ruralna/seoska sredina. Procenjeno je pet varijabli za procenu morfoloških karakteristika koje su merile longitudinalnu dimenzionalnost tela, cirkularnu dimenzionalnost tela i telesnu masu, te potkožno masno tkivo. Cilj istraživanja bio je utvrđivanje razlika u morfološkim karakteristikama između učenika petih razreda osnovne škole, koji prelaze sa razredne na predmetnu nastavu, hronološke dobi 11 i 12 godina (-/+ 6 meseci) iz urbane, prigradske i ruralne sredine. Razlike po rezidencijalnom statusu u morfološkim karakteristikama za učenike utvrđene su između učenika urbane i ruralne sredine u varijablama: *telesna težina* i *srednji obim grudnog koša* u korist ispitanika iz urbane sredine. Za ženski pol razlike nisu utvrđene. Dobijeni rezultati u ovom istraživanju ukazuju da nema značajne akceleracije i deceleracije u morfološkim karakteristikama u testiranom uzorku ispitanika u ovom uzrasnom periodu. Može se konstatovati da njihov rast i razvoj u normalnim granicama za tu uzrasnu dob. Autori preporučuju stalno praćenje na svakih godinu dana.

Ključne reči: antropometrija, predmatna nastava, razredna nastava, učenici.

MORPHOLOGICAL CHARACTERISTICS OF STUDENTS WITH RESPECT TO RESIDENTIAL STATUS IN THE MUNICIPALITY OF ZEMUN

ABSTRACT

The survey was carried out on a total sample of 249 respondents of the five grades divided by residual status into three sub-assignments: 90 respondents representing a sub-urban urban area, 81 respondents who constituted a sub-center of the environment defined as suburban (suburban) and 78 respondents who represented a sub-jeal that is defined as a rural / rural environment. Five variables were evaluated for the assessment of morphological characteristics that measured the longitudinal dimensionality of the body, the circular dimensionality of the body and body mass, and the subcutaneous fat tissue. The aim of the research was to determine the differences in the morphological characteristics between pupils of the five grades of elementary school, who moved from class to subject teaching, chronological ages 11 and 12 years (-/+ 6 months) from urban, suburban and rural areas. Differences in residence status in morphological characteristics for pupils were determined between urban and rural learners in variables: body weight and middle volume of the chest in favor of the respondents from the urban environment. For female gender differences have not been determined. The results obtained in this study indicate that there is no significant acceleration and deceleration in morphological characteristics in the tested sample of subjects in this age. It can be noted that their growth and development are within normal limits for this age-old age. Authors recommend continuous monitoring for every year.

Keywords: anthropometry, pre-primary education, classroom teaching, students.

RAZLIKE U MOTORIČKIM SPOSOBNOSTIMA UČENIKA USLOVLJENE MESTOM STANOVANJA

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ABSTRAKT

Sprovedeno je transversalno istraživanje, uz korišćenje ex post facto korelacionog nacrtu. Bilo je zastupljeno samo jedno (inicijalno) merenje na uzorku učenika petih razreda osnovne škole oba pola (uzrast 11–12 godina) koji prelaze sa razredne nastave na predmetnu nastavu sa teritorije opštine Zemun. Ukupno uzork činilo je 249 ispitanika podeljenih po rezidencijalnom statusu na tri subuzorka i to: subuzorak urbane sredine, prigradske i ruralne sredine. Kao uzorak mernih instrumenata za potrebe istraživanja koristili su se motorički testovi po modelu „EUROFIT“ baterije testova propisane od strane Komiteta za razvoj sporta Saveta Evrope (Council of Europe, 1993). Cilj istraživanja bio je da se utvrdi da li postoje razlike u motoričkim sposobnostima kod učenika koji prelaze sa razredne na predmetnu nastavu u odnosu na njihovo mesto stanovanja. Rezultati ukazuju da su značajne razlike utvrđene između i unutar grupa ispitanika za oba pola po rezidencijalnom statusu kada su u pitanju motoričke sposobnosti. Kod učenika razlike su ispoljene u sledećim varijablama: *taping rukom*, *podizanje trupa iz ležanja* i *izdržaj u zgibu podhvatom*, a kod učenica ta razlika je takođe u varijablama: *taping rukom* i *izdržaj u zgibu podhvatom*. Serijom LSD Post Hoc testova utvrđeno je i između kojih grupa su te razlike ispoljene. Dobijeni rezultati ukazuju na zaključak da su učenici u ruralnoj sredini mnogo boljeg motoričkog statusa radi načina života, ishrane i upražnjavanja veće količine kretanja.

Ključne reči: motorika, predmatna nastava, razredna nastava, učenici.

DIFFERENCES IN MOTOR ABILITIES OF STUDENTS CONDITIONED RESIDENCE

ABSTRACT

Transversal study was conducted using an ex post facto correlation plan. There was only one (initial) measurement on the sample of pupils of the fifth grade primary school of both sexes (ages 11-12) who passed from class teaching at the subject teaching from the territory of the municipality of Zemun. The overall sample consisted of 249 respondents divided by residence status into three sub-assemblies: suburban urban environment, suburban and rural areas. As a sample of measuring instruments for the research, motor tests using the "EUROFIT" battery test models prescribed by the Council of Europe Council of Europe, (1993) were used. The aim of the research was to determine whether there are differences in motor skills in pupils who pass from class to subject teaching in relation to their place of residence. The results indicate that significant differences have been established between and among groups of subjects for both sexes by residence status when it comes to motor skills. In students, the differences are found in the following variables: tapping the hand, lifting the hull from the lying and holding in the grip of the grip, and in the students, this difference is also in variables: tapping the hand and holding in the grip of the grip. LSD Post Hoc series has been identified and among which groups these differences have been shown. The obtained results point to the conclusion that pupils in the rural environment have much better motor status for the way of life, nutrition and exercise of a larger amount of movement.

Keywords: motoring, pre-primary education, classroom teaching, pupils.

NIVO STRESA STUDENATA U ODNOSU NA NEKE POKAZATELJE ŽIVOTNOG STILA

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STUDENTS' LEVEL OF STRESS AS RELATED TO SOME INDICATORS OF LIFESTYLE

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APSTRAKT

Na uzorku od 332 studenta koji studiraju oblast sporta i turizma (starosti 19-27 godina, 184 muškog i 148 ženskog pola) konstruisan je 15-ajtemski upitnik za procenu stresa. Njegovom primenom utvrđeno je da preko 40% studenata ima povećan nivo stresa. Empirijski rezultati značajno su odstupali od normalne distribucije. Izdvojile su se dve grupe ispitanika od kojih je veća imala veoma visok nivo stresa, dok je manja imala veoma niske prosečne vrednosti. Prilikom rešavanja upitnika o stresu, ispitanici su izvršili samoprocenu tri elementa životnog stila: količinu i kvalitet dnevne fizičkih aktivnosti, subjektivni osećaja zdravlja i redovnost zdravstvene kontrole. Rezultati pokazuju da studenti nedovoljno učestvuju u doziranim fizičkim aktivnostima i da veoma retko kontrolišu svoje zdravlje. Analiza varijanse je pokazala da najviši nivo stresa imaju studenti koji su sebe označili kao pasivne ljubitelje sporta, dok su sportisti, rekreativci i neočekivano antisportisti ispoljili značajno niži nivo stresa. Signifikantno veći nivo stresa imali su i studenti koji su svoje opšte zdravlje ocenili kao slabo, dok su najniži stres imali ispitanici koji redovno kontrolišu svoje zdravlje. Muškarci su imali viši nivo stresa od svojih koleginica.

Ključne reči: studneti, stres, fizičke aktivnosti, životni stil, zdravlje

ABSTRACT

A 15-item questionnaire for assessment of stress was applied on a sample of 332 students (age from 19 to 27, 184 males and 148 females). It has been found that over 40% of students have elevated stress levels. The empirical results significantly deviated from the normal distribution. Two groups of participants stood out; the greater group had very elevated levels of stress, while the smaller group had very low average values. When answering questions related to stress, respondents evaluated three elements of lifestyle: the quantity and quality of everyday physical activity, subjective feeling of health and regularity of health checks. Results show that students are not active enough physically and that they rarely check their health. The analysis of variance showed that the highest level of stress is present in students who rated themselves as passive sports lovers, while athletes, amateurs and unexpectedly those who are anti-sports expressed significantly lower levels of stress. Significantly higher levels of stress were present in students who rated their health as poor, while respondents who regularly check their health had the lowest level of stress. Men had higher levels of stress than women.

Keywords: students, stress, physical activity, lifestyle, health.

UTVRĐIVANJE ZNAČAJNOSTI GLOBALNIH KVANTITATIVNIH PROMJENA MOTORIČKIH SPOSOBNOSTI UČENIKA NAKON EKSPERIMENTALNOG TRETMANA

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SAŽETAK

Cilj ovog istraživanja je utvrđivanje značajnosti globalnih kvantitativnih promjena motoričkih sposobnosti učenika pod uticajem dodatnog programa tjelesnih aktivnosti.

Ovo istraživanje je sprovedeno na 83 učenika V i VI razreda O.Š. "Tušanj" od 11-12 godina muškog spola, a koja nisu aktivno uključena u organizovanu vannastavnu tjelesnu aktivnost i sport te kojima je nastava tjelesnog i zdravstvenog odgoja jedina organizovana sportska aktivnost. Uzorak je bio podijeljen u dva subuzorka i to: prvi kontrolna grupa 43 ispitanika i drugi eksperimentalna grupa 40 ispitanika.

Za utvrđivanje globalnih kvantitativnih razlika motoričkih sposobnosti između dva subuzorka na inicijalnom te na finalnom mjerenju, nastalih pod uticajem dodatnog programa tjelesnog i zdravstvenog odgoja biće korištena **kanonička diskriminativna analiza**.

Analizom rezultata u prostoru motoričkih sposobnosti možemo konstatovati da na inicijalnom mjerenju nije bilo statistički značajnih razlika između kontrolne i eksperimentalne grupe. Na osnovu dobijenih rezultata možemo zaljučiti da je eksperimentalna grupa poslije provedenog dodatnog programa postigla bolje rezultate u skoro

svim motoričkim varijablama od kontrolne grupe. Dobijene razlike između grupa na finalnom mjerenju možemo pripisati provedenom programu tj. da kombinacijom redovne nastave tjelesnog izdavnstvenog odgoja i dodatnog programa odnosno dodatnih sportskih aktivnosti moguće poboljšati određene motoričke sposobnosti.

Ključne riječi: učenici, motoričke sposobnosti, dodatni program, promjene.

DEVELOPMENT OF THE IMPORTANCE OF GLOBAL QUANTITATIVE CHANGES OF MOTORCYCLE ABILITY OF STUDENTS AFTER EXPERIMENTAL TREATMENT

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SUMMARY

The aim of this research is to determine the significance of global quantitative changes in motor skills of students under the influence of an additional physical activity program. This research was conducted on 83 pupils of the V and VI grade of O.Š. "Tusanj" from 11-12 years of male sex, not actively involved in organized extracurricular physical activity and sports, and the teaching of physical and health education is the only organized sport activity. The sample was divided into two subunits: the first control group of 43 subjects and another experimental group of 40 subjects. A canonical discriminatory analysis will be used to determine the global quantitative differences in motor skills between the two subunits on the initial and final measurements resulting from the supple-

mentary physical and health education program. By analyzing the results in the area of motor abilities, we can conclude that on the initial measurement there were no statistically significant differences between the control and the experimental group. On the basis of the obtained results, we can assume that the experimental group after the implemented additional program achieved better results in almost all motor variables from the control group. The obtained differences between the groups on the final measurement can be attributed to the implemented program ie. that by combining regular teaching of physical education with additional program and additional sports activities it is possible to improve certain motor skills.

Keywords: pupils, motor skills, additional program, changes.

KONSTRUKCIJA I VALIDACIJA UPITNIKA ZA PROCJENU MODALITETA KOMUNIKACIJE NASTAVNIKA TZK

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SAŽETAK

U radu je prezentiran postupak konstrukcije i validacije upitnika za procjenu modaliteta komunikacije nastavnika u tjelesnoj i zdravstvenoj kulturi. Postupak validacije testa proveden je na uzorku od 120 ispitanika, a dobiveni rezultati potvrdili su dobre metrijske karakteristike upitnika. S obzirom na važnost interpersonalne komunikacije kao čimbenika kvalitete nastavnog procesa, prezentirani upitnik može poslužiti kao vrijedan instrument u razumijevanju procesa edukacije, ali i poboljšanja rada u tjelesnoj i zdravstvenoj kulturi. **Ključne riječi:** kineziološka edukacija, pedagoška komunikacija, mjerne karakteristike

CONSTRUCTION AND VALIDATION OF A QUESTIONNAIRE EVALUATING THE MODALITIES OF COMMUNICATION OF PHYSICAL EDUCATION TEACHERS

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ABSTRACT

This paper offers the procedure of construction and validation of a questionnaire evaluating the modalities of communication of physical education (PE) teachers. The procedure of test validation was implemented on a sample of 120 subjects, and the obtained results confirmed good metric characteristics of the questionnaire. Considering the importance of interpersonal communication as a factor of the teaching process quality, the presented questionnaire can be used as a valuable instrument for understanding the process of education or it could be used for further improvements in PE.

Key words: kinesiological education, pedagogical communication, measurement characteristics

IZOKINETIČKO TESTIRANJE SNAGE NATKOLENE MUSKULATURE MLADIH SPORTISTA

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APSTRAKT

Osnovni cilj ovog istraživanja je da se utvrde razlike maksimalnog obrtnog momenta sile natkolene muskulature džudista, fudbalera i rukometaša. Za potrebe istraživanja testirano je 30 ispitanika od kojih je 10 fudbalera, 10 rukometaša i 10 džudista. Testiranje je sprovedeno u kabinetu za izokinetičku dijagnostiku Pokrajinskog zavoda za sport i medicinu sporta u Novom Sadu na izokinetičkom dinamometru „Easytech prima DOC“. Signifikantne razlike su uočene u maksimalnom obrtnom momentu sile ekstenzora obe noge (PTQR, PTQL) između džudista i fudbalera, u korist džudista. Dobijeni rezultati između posmatranih grupa se mogu pripisati specifičnostima trenaznog procesa različitih sportskih grana, tj. izvođenja određenih tehnika u samom sportu.

ključne reči: izokinetička dijagnostika, fudbaleri, džudisti, rukometaši

YOUNG ATHLETES UPPER KNEE MUSCULAR STRENGTH ISOKINETIC TESTING

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ABSTRACT

This research main goal is to determine differences in maximum upper knee musculature torque moment of judo, football and handball players. For the needs of the research, 30 respondents were

tested, of which 10 were football, 10 handball players and 10 judo athletes. Testing was conducted in Isokinetic Diagnostic Cabinet of the Provincial Institute for Sports and Sports Medicine in Novi Sad on the isokinetic dynamometer "Easytech prima DOC". Significant differences were noted in the maximum torque moment of both legs extensors force (PTQR, PTQL) between judo athletes and football players, in favor of judo. Obtained results between observed groups can be attributed to the various sports branches training processes specificities, i.e. performing certain techniques in the sport itself.

Keywords: isokinetic diagnostics, football players, judo athletes, handball players

UČESTALOST DEFORMITETA KIČMENOG STUBA I STOPALA KOD BANJALUČKIH SPORTISTA

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SAŽETAK

Istraživanje je dizajnirano kao studija presjeka sa ciljem da se utvrdi broj sportista svih uzrasnih kategorija sa dijagnostifikovanim deformitetima kičmenog stuba i deformitetom stopala (ravno stopalo), koji su u 2018. godini kao aktivni sportisti obavili periodični sistematski pregled u JZU Zavod za medicinu rada i sporta RS. U istraživanju je obuhvaćeno ukupno 4127 sportista koji su pregledani u 2018. godini u 13 različitih sportskih disciplina. Rezultati ovog istraživanja su pokazali da su posturalni poremećaji kičmenog stuba I stopala veoma česti i statistički izraženi u velikom procentu. U ovom istraživanju kao mjerni

instrument za postavljanje dijagnoze posturalnog poremećaja kičmenog stuba i stopala predstavljao je klinički pregled (skrining) kičmenog stuba i stopala stručno osposobljenih ljekara, specijalista medicine sporta zaposlenih u JZU Zavod za medicinu rada i sporta Republike Srpske.

Ključne riječi: deformiteti kičmenog stuba, deformitet stopala, sportisti

THE INCIDENCE OF POSTURAL AND FOOT DEFORMITIES AMONG ATHLETES FROM BANJA LUKA

SUMMARY

The research was designed as a cross sectional study aimed at determining the number of athletes of all age categories with diagnosed deformities of the spinal column and deformity of the foot (flat foot), who in 2018, as active athletes, performed a periodic systematic review in the PHI Department of Occupational Health and Sport RS. The research involved a total of 4127 athletes who were examined in 2018 in 13 different sports disciplines. The results of this study have shown that postural disorders of the spinal column and feet are very common and statistically expressed in a large percentage. In this research, as a measuring instrument for diagnosing postural disorders of the spinal column and foot, was a clinical examination of the spinal column and foot of the professionally trained doctors, a specialist in the medicine of sports employed in the Institute for Occupational Health and Sport of Republic of Srpska. **Keywords:** deformities of the spinal column, deformity of the foot, athletes

MULTIDIMENZIONALNA PROCJENA STAVOVA MLADIH OSOBA PREMA OSOBAMA SA INVALIDITETOM

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SAŽETAK

Multidimenzionalna procjena stavova mladih osoba prema osobama sa invaliditetom je rad koji nastoji istražiti novi pristup u procjeni stavova u pogledu njegovih komponenti. Osnovni cilj rada je ispitati stavove mladih osoba u odnosu na dimenzije stava, sociodemografske podatke i prethodno iskustvo u kontaktima sa osobama sa invaliditetom. Istraživanjem je obuhvaćeno 200 mladih osoba oba spola koji su učenici Gimnazije „Meša Selimović“, Mješovite srednje mašinske škole u Tuzli i studenti Fakulteta za tjelesni odgoj i sport i Edukacijsko-rehabilitacijskog fakulteta Univerziteta u Tuzli. Rezultati istraživanja pokazuju značajnu statističku razliku među komponentama stava, od kojih se najpozitivnijim pokazala kognitivna komponenta, a nađene su i statistički značajne razlike u stavovima ispitanika koji imaju prethodno iskustvo u kontaktima sa osobama sa invaliditetom u odnosu na one koji to iskustvo imaju rjeđe ili nikako.

Ključne riječi: osobe sa invaliditetom, stav, komponente stava, iskustvo u kontaktima

MULTIDIMENSIONAL ASSESSMENT OF YOUNG PEOPLE ATTITUDES TOWARD PERSONS WITH DISABILITIES

ABSTRACT

Multidimensional assessment of the attitudes of young people towards people with disabilities is a work that aims to explore a new approach to the assessment of attitudes in terms of its components. The main objective of this paper is to examine the attitudes of young people in relation to the dimensions of attitude, socio-demographic data and prior experience in dealing with people with disabilities.

The study included 200 young adults of both sexes who are students of the Gymnasium "Meša Selimović" and Mixed Secondary technical school in Tuzla and students of the Faculty of Physical Education and Sports and Education and Rehabilitation, University of Tuzla. The research results show a statistically significant difference among the components of the attitude, however, has clearly highlight the cognitive component of attitude in relation to the other two. Experience in contacts proved to be an important prerequisite for achieving positive attitudes and combat prejudice, and found significant differences in the attitudes of respondents who have previous experience in contact with persons with disabilities in relation to those who have less or none experience.

Keywords: persons with disabilities, attitudes, components of attitudes, contacts

PRINCIPI MATEMATIČKE FORMULACIJE MATRIČNE STRUKTURE OPTIMALNE MARKETING STRATEGIJE U SPORTU

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APSTRAKT

Optimalno funkcionisanje poslovnih sistema podrazumijeva maksimizaciju razlike izlaznih i ulaznih veličina, temelji se na sposobnostima kreiranja tražnje proizvoda a realizuje se odgovarajućim strategijama marketinga.

Dugoročno planiranje aktivnosti u odabranom poslovnom okruženju zahtijeva ukrštanje svjesnih akcija sa neizvjesnim stanjima prirode, odnosno tržišta.

Tržište proizvoda možemo i trebamo shvatiti kao neracionalnog protivnika, koji ne želi zauzeti najnepovoljniji stav za nas.

Monetarne posljedice strategijskih opredjeljenja zavisno od tržišnih odgovora, složenih u matricu plaćanja omogućavaju izbor optimalne strategije marketinga usmjerenih na sportsko – rekreativne događaje.

Sagledavanje ciljnog potencijala navedenih događaja zahtijeva detaljnu analizu i suptilan pristup, kako bi odabrana strategija marketinga u realnosti iskoristila svoje potencijale.

Princip matematičke formulacije realne upravljačke situacije zahtijeva visok stepen saglasnosti između modela i nivoa realiteta, a time i primjenu modeliranih upravljačkih informacija mozemo smatrati pouzdanim saveznikom.

Odnos ulaganja i benefita odabrane strategiju marketinga opravdava uvrštavanje i kvalitativnih, kao i kvantitativnih pokazatelja poslovne efikasnosti.

Cljučne riječi: marketing strategija, tržišni potencijal, matrica odlučivanja, optimalno poslovanje

PRINCIPLES OF MATHEMATICAL FORMULATION OF MATRIC STRUCTURE OF OPTIMAL MARKETING STRATEGY IN SPORT

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ABSTRACT

The optimum functioning of business systems implies maximizing the difference between output and input sizes and is based on the ability to create product demand and is implemented through appropriate marketing strategies.

Long-term planning of activities in the chosen business environment requires the crossing of conscious actions with uncertain states of nature, i.e. markets.

The product market can and should be understood as an irrational opponent that does not want to take the most unfavorable attitude towards us. Monetary consequences of strategic orientation depending on market responses, complex in the payment matrix, make it possible to choose the optimal marketing strategy focused on sports and recreational events.

Taking into consideration the target potential of these events requires detailed analysis and subtle approach, so that the chosen marketing strategy in reality uses its potential.

The principle of a mathematical formulation of a real-life management situation requires a high degree of agreement between the model and reality level, and thus the application of modeled management information can be considered as a reliable ally.

The investment and benefit ratio of the chosen marketing strategy justifies the inclusion of both qualitative and quantitative indicators of business efficiency.

Key words: marketing strategy, market potential, decision matrix, optimal business

POZICIJSKE RAZLIKE U REAKTIVNOJ I NEREAKTIVNOJ AGILNOSTI MLADIH NOGOMETAŠA

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SAŽETAK

S obzirom da je agilnost jedna od motoričkih sposobnosti od kojih zavisi uspješnost izvedbe nogometaša, važno je napredak ove sposobnosti redovito pratiti i trenirati kako kod seniora tako i kod mladih nogometaša. Iz dosadašnjih istraživanja je poznato kako agilnost ima dvije različite dimenzije; reaktivna agilnost (RAG) i nereaktivna agilnost (CODS). U ovom su istraživanju usporedene 4 tipične igračke pozicije (vratar, obrambeni, vezni i napadači) i njihove međusobne razlike u specifičnoj agilnosti. Analiza razlika je pokazala kako nema značajnih razlika između igračkih pozicija u specifičnim testovima agilnosti. Uočeno je kako se kod svih igračkih pozicija postižu slabiji rezultati u reaktivnoj agilnosti. Test reaktivne agilnosti je zahtjevniji jer je potrebno vrijeme za zapažanje i odluku u kojem smjeru uspostaviti kretanje pa su i rezultati na ovom testu slabiji od testa nereaktivne agilnosti.

Glavne riječi: igrač, sportska igra, brzina, eksplozivnost, sastav tijela

POSITIONAL DIFFERENCES IN REACTIVE AND NONREACTIVE AGILITY OF YOUNG FOOTBALL PLAYERS

Nikola Foretić¹, Miodrag Spasić¹, Marko Radić^{1,2}

ABSTRACT

Agility is one of the basic motor abilities that determine successful performance of football play-

ers. As so it is very important to assess and monitor development of this ability on professional level but also with youth footballers. From recent investigations it is evident that agility has two dimensions; reactive agility (RAG) and nonreactive agility (CODS). In this research 4 typical playing positions (goalkeepers, defenders, midfielders, and attackers) were compared in specific agility tests. Analysis of variance showed no differences between playing positions. Weaker performance was detected in all 4 positions during reactive performance. Reactive test is more complex to execute and demands more time for perception and decision making. Obviously this complexity is not possible to compensate just with basic motor abilities such as speed, quickness or explosive power.

Keywords: players, soccer, speed, power, body composition

UTJECAJ MORFOLOŠKIH KARAKTERISTIKA I MOTORIČKIH SPOSOBNOSTI NA REAKTIVNU I NEREAKTIVNU AGILNOST MLADIH NOGOMETAŠA

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SAŽETAK

Agilnost predstavlja sposobnost učinkovite promjene smjera kretanja koja se često pojavljuje u mnogim sportskim igrama. U nogometu je prisutna u svim fazama igre i stoga vrlo zanimljiva za istraživanje. Dijeli se na nereaktivnu agilnost (CODS) – u kojoj je obrazac kretanja poznat, i na reaktivnu agilnost (RAG) – u njoj nogometaš mora reagirati na vanjski podražaj i nakon njega izvršiti kretanje sa promjenom pravca. U ovom istraživanju je izvršena procjena utjecaja morfoloških karakteristika i motoričkih sposobnosti na reaktivnu i nereaktivnu agilnost mladih nogometaša (prosječne dobi 14,43 godina). Uzorak varijabli činili su: tjelesna visina (ATV) i tjelesna

masa (ATM), brzina trčanja na 10 i 20 metara (S10 i S20), agilnost 10 i 20 yardi (10y i 20y), skok uvis (CMJ), indeks reaktivne snage nakon propadajućeg skoka (RSI), indeks reaktivne snage od povezanih skokova u 15 sekundi (RSI 15) te testovi specifične nogometne agilnosti CODS i RAG. Utvrđen je značajan utjecaj motoričkih sposobnosti na agilnost generalno. Veći utjecaj je utvrđen na nereaktivnu nego na reaktivnu agilnost. Očito je da na RAG ne utječu samo motoričke sposobnosti, već i mnogi ostali kognitivni faktori kao što su zapažanje, percepcija, anticipacija ili brzina donošenja odluka tijekom igre.

Cljučne riječi: antropometrijske značajke, sportska igra, brzina, eksplozivnost

INFLUENCE OF ANTHROPOMETRIC INDICIES AND MOTOR ABILITIES ON REACTIVE AND NONREACTIVE AGILITY AT YOUTH FOOTBALL PLAYERS

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ABSTRACT

Agility is defined as ability of athlete to efficiently change direction and speed of movement. In football is evident in all phases of the game. As so it is very interesting for sport scientist to explore. It is divided in two separate abilities; nonreactive (CODS) and reactive agility (RAG). In this study influence of anthropometric indices and motor abilities on reactive and nonreactive agility at youth football players (age average 14.43 years) was researched. Sample of variables were: sprint on 10 and 20 meters (S10; S20), agility on 10 and 20 yards (10y; 20y), reactive strength index after drop jump (RSI), reactive strength index after 15 second of consecutive jumps (RSI 15) and specific football nonreactive (CODS) and reactive (RAG) agility tests. Significant influence was noticed between speed and explosiveness variables and agility. More influence was noticed on nonreactive than on reactive agility test. Most likely reactive agility depend on some other abilities (cognitive factors such as perception, anti-

pation or fast and precise decision making) than just motor abilities.

Keywords: anthropometric indices, sports game, speed, explosive power

PRIJEDLOG NOVE BATERIJE TESTOVA ZA PROCJENU PLIVAČKIH VJEŠTINA; PRELIMINARNA ANALIZA

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SAŽETAK

Cilj rada bio je ispitati primjenjivost i upotrebnost valjanost novog sustava za procjenu znanja plivanja, a koji se temelji na procjeni plivačkih vještina kod djece uzrasta od 6 do 8 godina. Ispitanici su djeca iz Dubrovnika koja su u trenutku testiranja imala 6 do 8 godina (n = 330). Varijable su bile novokonstruirani testovi plivačkih vještina, ukupno šest i to: (1) skok u vodu; (2) disanje uz rub bazena, (3) kombinirano plivanje i mahanje, (4) slobodna leđna tehnika, (5) plivanje oko plutača i (6) ronjenje ispod prepreka. Svi testovi procijenjeni su od eksperata iz plivanja. Učenici 1. razreda postižu značajno slabije rezultate na test bateriji nego učenici 2. razreda (t-test: 2,28; p < 0,05). Nema značajnih razlika između dječaka i djevojčica (t-test: 0,42; p = 0,67). Djeca koja se bave vodenim sportovima imaju značajno bolje rezultate nego djeca koja su se bavila ili se nisu uopće bavila vodenim sportovima (F-test: 18,73, p = 0,01). Konačno, nema značajnih razlika u rezultatima između djece koja pohađaju različite škole u Dubrovniku (F-test: 2,02; p = 0,13). Suđeci po rezultatima baterija ima dobru upotrebnost vrijednost i može se koristiti kod djece u prvim i drugim razredima osnovne škole.

Ključne riječi: plivanje, utapanje, djeca, vještina, valjanost

THE NEWLY DEVELOPED BATTERY OF SWIMMING SKILLS TESTS; PRELIMINARY ANALYSIS

ABSTRACT

The aim of the investigation was to evaluate the applicability and validity of the new system for the evaluation of the swimming skills in children aged 6 to 8 years. The sample of participants consisted of 6-8 year old children (n = 330) from Dubrovnik, Croatia. All children were tested on six tests of swimming skills, including: (i) jump into water, (ii) breathing at the edge of the swimming pool, (iii) combined swimming and waving, (iv) free-style backstroke, (v) swimming in triangle, and (vi) diving. All tests were evaluated by three swimming experts. Significant differences were evidenced between 1st and 2nd graders (t-test: 2.28, p < 0.05), and children involved vs. non-involved in aquatic sports (F-test: 18.73, p < 0.01). Meanwhile, no significant differences were evidenced between genders (t-test: 0.42, p > 0.05), and among schools (F-test: 2.02, p > 0.05). In conclusion, test battery is applicable and valid in evaluation of the swimming skills in 6-8 year old children.

Key words: swimming, drowning, children, skills, validity

DOPING FAKTORI U KOŠARCI; ANALIZA RAZLIKA IZMEĐU JUNIORA I SENIORA

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SAŽETAK

Cilj studije je identificirati razlike u doping faktorima među košarkašima juniorskog i seniorskog uzrasta. Istraživanje je provedeno na uzorku od 126 košarkaša prve i druge Bosanskohercegovačke košarkaške lige. Od čega su 32 ispitanika juniori (Dob: 17.3), a 94 ispitanika seniori (Dob: 21.5). Podatci su prikupljeni kroz pitanja vezana za: (i) sociodemografske pokazatelje (dob, uzrasne kategorije) (ii) doping faktore. Statistička obrada rezultata uključivala je izračun aritmetičke sredine i standardne devijacije za dob i frekvencije (F) i postotke (%) za preostale varijable. Razlika između juniora i seniora izračunata je Kruskal Wallis i Hi-kvadrat testom. Promatrane su razlike između košarkaša juniorskog i seniorskog uzrasta, a identificirano je nekoliko statistički značajnih razlika; razlika u povjerenju prema dopingu (Chi=9.7, p=0.02), testiranju na doping (KW=10.91, p=0.01), korištenju dopinga u sportu (KW=21.71 p=0.00) i doping kaznama (KW=30.1 p=0.00). S druge strane razlika u potencijalnom korištenju dopinga (KW=2.19 p=0.13) nije identificirana. Zabrinjava činjenica da bez obzira na značajne razlike juniora i seniora u mišljenju o kontaminiranosti sporta dopingom, statistički značajna razlika nije utvrđena u potencijalnom doping ponašanju. Iako ovaj podatak može biti posljedica slabe osjetljivosti primijenjenih statističkih metoda, autori smatraju da je potrebna detaljnija analiza kao bi mogli sa sigurnošću utvrditi stvaran razlog ovakvog rezultata. Ključne riječi: doping, košarka, seniori, juniori, razlika

ABSTRACT

The aim of this study was to determine the differences between doping factors among junior and senior basketball players. The study was conducted on the sample of 126 basketball players of the first and the second basketball league in Bosnia-Herzegovina. The sample comprises of 32 junior players and 94 senior players. The data was collected through sociodemographic questions (age, age categories), and questions about doping factors. Statistical procedures included standard deviations and means for age, and frequencies, and percentages for other variables. The differences between age categories were identified by Kruskal Wallis and Chi-square test. A few significant differences were detected; the difference between trust towards doping (Chi=9.7, p=0.02), doping testing (KW=10.91, p=0.01), the use of doping in sports (KW=21.71 p=0.00) and doping penalties (KW=30.1 p=0.00), while the difference in the potential doping behavior (KW=2.19 p=0.13) wasn't identified. The fact that the difference between the use of doping in sports was identified, while the difference between potential doping behavior wasn't is concerning. Although this data could be a consequence of poor sensitivity of the applied statistical methods, the authors believe that more detailed analysis is needed in order to determine the real reason for such result.

Key Words: doping, basketball, seniors, juniors, difference

FIZIOLOŠKE PROMJENE NAKON IZVOĐENJA SLOBODNE RUTINE MJEŠOVITOG DUETA U UMJETNIČKOM PLIVANJU

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SAŽETAK

Cilj ovog istraživanja bio je ustanoviti funkcionalno stanje organizma mješovitog dueta u sin-

kroniziranom plivanju. Plivač (M) i plivačica (Ž) prosječne dobi 24 godine sudjelovali su na seniorskom državnom prvenstvu te su pristali da im se mjeri puls i razina laktata prije i nakon izvođenja rutine. Razina laktata u mirovanju bila je u okvirima stabilnog laktatnog stanja, prije izvođenja rutine je zabilježeno je kod M 5.7 mmol/L i Ž 2.9 mmol/L. Nakon izvođenje trominutne koreografije uz glazbu, razina laktata značajno je porasla na M-17.8 mmol/L te Ž-11.8 mmol/L sa zabilježenom frekvencijom srca 148-174 otkucaja u minuti. Rezultati na sličnom uzorku imaju niže vrijednosti laktata u krvi, što je opravdano razlikama u konceptu rutine te razlikama u tehničkom znanju plivača i plivačice.

Ključne riječi: Razina laktata, Srčana frekvencija, Sinkronizirano plivanje, Mješoviti duet

PHYSIOLOGICAL CHANGES AFTER PERFORMING THE MIXED DUET FREE ROUTINE IN ARTISTIC SWIMMING

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ABSTRACT

The aim of this study was to determine the physiological condition of swimmers in mixed duets, in artistic swimming. One male (M) and one female (F) swimmer were measured for blood lactate level and heart rate after performing senior free routine. The resting lactate level was within stable lactate state level. Before performing the routine, it was recorded (M) 5.7 mmol / L and (F) 2.9 mmol / L. After performing three-minute routine with music, lactate levels increased significantly to M-17.8 mmol / L and F-11.8 mmol / L with a heart rate recorded 148-174 bpm. The results of a similar sample signed lower blood lactate values, which may be due to differences in the routine concept and differences in the technical knowledge between male and female swimmers.

Key words: Lactate level, Heart rate, synchronized swimming, Mixed duet

TJELESNO VJEŽBANJE STARIJIH OSOBA – NEKA RAZMATRANJA

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SAŽETAK

Cilj ovog rada bio je predstaviti neke specifične probleme tjelesnog vježbanja starijih osoba. Predstavljen je problem starosti i tjelesnog vježbanja, opisane su rekreativne aktivnosti koje su pogodne za tjelesno vježbanje starijih osoba, te opasnosti koje se javljaju kod tjelesnog vježbanja starijih osoba. Na kraju su predstavljene neke specifične mogućnosti koje se javljaju u ovom području sportske znanosti. Neki elementi zahtijevaju mnogo zalaganja da bi se ostvario napredak. Među njima su: (i) stvaranje više raznolikih programa da bi se privuklo osobe zrelije dobi današnjice; (ii) povećavanje broja istraživanja i prikazivanje rezultata kojima se evidentno daje do znanja da bavljenje sportom može biti samo dobrovoljno, ali i da donosi kao nagradu očuvanje zdravlja; (iii) podizanje svijesti da su sport i tjelesna aktivnost bitne djelatnosti uz ostale koje čine ispunjen i sretan život; (iv) preorijentacija trenera i instruktora ka osobama zrelije životne dobi.

Ključne riječi: starije osobe, vježbanje, tjelesna aktivnost, programi, kadrovi

PHYSICAL EXERCISING OF OLDER PERSONS – SOME CONSIDERATIONS

ABSTRACT

The aim of this paper was to describe certain problems of physical exercising of older person. We acknowledged the problem of older age and physical exercising in this specific period of life. Further, activities which are suitable for exerci-

sing of older persons are briefly discussed, as well as risks of physical exercising in this age. Finally, some specific possibilities of sport-practice which are rarely recognized are overviewed. Generally, some elements asks for further development mainly with regard to (i) development of exercise programs, (ii) increased body of knowledge on empirical data on this issue, (iii) increase of the awareness of importance of physical exercising in this age, and (iv) orientation of coaches and fitness professionals toward this specific population.

Key words: older persons, physical exercising, physical activity, programs, professionals

tanika prvog i četvrtog razreda u korist mlađeg uzrast.

Gljučne riječi: intrinzična motivacija, napor i važnost i tjelesni i zdravstveni odgoj

THE DIFFERENCE IN INTRINSIC MOTIVATION FOR HIGH SCHOOL STUDENTS IN RELATION TO AGE

ABSTRACT

The aim of this research is to examine the difference in intrinsic motivation for high school students in relation to their age. The sample in this research consisted of 144 participants, divided into four subsamples regarding the grade they attended. For this research was used Intrinsic Motivation Inventory (IMI) adopted to physical education class. Monitoring of descriptive indicators in each subsamples, participants make an effort, enjoy during the classes, perceive competences and attend the lessons relaxed without any pressure. In order to find the difference between groups analysis of variance (ANOVA) was used, while Bonferroni's test was used to define the difference among groups. Obtained results showed that the only difference is noticed in variable of effort and importance that estimates own felling of personal effort, however, that difference is only noticed among participants of 1st and 4th grade in favor of younger age.

Keywords: intrinsic motivation, effort and importance, physical education

RAZLIKA U INTRINZIČNOJ MOTIVACIJI KOD UČENIKA SREDNJE ŠKOLE U ODNOSU NA UZRASST

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SAŽETAK

Cilj istraživanja je utvrditi postojanje razlike u intrinzičnoj motivaciji kod učenika srednje škole različitog uzrasta. U ovom istraživanju je učestvovalo 144 ispitanika, podjeljeni u četiri subuzorka prema razredima koji su pohađali. Za potrebe ovog istraživanja korišten je metrijski instrument tipa papir-olovka: upitnik intrinzične motivacije (IMI) prilagođen za nastavu tjelesnog i zdravstvenog odgoja. Posmatrajući deskriptivne pokazatelje u svim subuzorcima, ispitanici uglavnom imaju osjećaj da ulažu napor, uživaju, percipiraju svoje kompetencije i bez naglašenog pritiska prisustvuju nastavi. Za potrebe utvrđivanja razlika između grupa korištena je analiza varijanse (ANOVA), dok je post hoc analizom primjenom Bonferonijeog testa utvrđeno između kojih grupa se pojavljuju razlike. Dobijeni rezultati pokazuju da se subuzorci razlikuju samo u varijabli napori i važnost koja procjenjuje vlastiti osjećaj uloženog truda, a ta razlika je jedino uočena između ispi-

RAZLIKE U FUNKCIONALNIM SPOSOBNOSTIMA UČENIKA DIFFERENCES IN THE FUNCTIONAL ABILITIES OF STUDENTS

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ABSTRAKT

Sprovedeno je transversalno istraživanje na uzorku učenika petih razreda osnovne škole oba pola (uzrast 11–12 godina) sa teritorije opštine Zemun. Ukupon uzork činilo je 249 ispitanika podeljenih po rezidencijalnom statusu na tri subuzorka i to: subuzorak urbane sredine, prigradske i ruralne sredine. Kao uzorak mernih instrumenata za potrebe istraživanja koristila su se dva standardizovana testa za procenu funkcionalnih sposobnosti, kojima se procenjivala aerobna i anaerobna sposobnost. Cilj istraživanja bio je da se utvrdi da li postoje razlike u funkcionalnim sposobnostima kod učenika petih razreda osnovne škole iz gradske, prigradske i ruralne sredine. Analizirane polne razlike u okviru funkcionalnih sposobnosti ukazuju da su učenici svakako na većem nivou funkcionalnih sposobnosti od učenica, ali ostaje ne jasno kako su razlike ispoljene kod ispitanika u prigradskoj sredini u korist boljih prosečnih vrednosti učenica. Analizom funkcionalnog prostora između/unutar grupa ispitanika može se konstatovati značajna razlika u anaerobnoj sposobnosti u korist učenika. Nesumnjivo je da su najslabije rezultate ostvarili ispitanici oba pola iz urbane sredine, što još jednom ukazuje da i učenici i učence iz ruralne i prigradske sredine kada je antropološki status u pitanju imaju bolje ostvarene rezultate merenja. Takođe i u ovom slučaju način života, radne navike koje su prisutne kod dece u ovim područjima govore o boljim aerobnim i anaerobnim sposobnostima.

Ključne reči: aerobna i anaerobna izdržljivost, predmatna nastava, razredna nastava, učenici.

DIFFERENCES IN THE FUNCTIONAL ABILITIES OF STUDENTS

ABSTRACT

A transversal study was carried out on the sample of students of five grades of primary school of both sexes (aged 11-12 years) from the territory of the municipality of Zemun. The overall sample consisted of 249 respondents divided by residence status into three sub-assemblies: suburban urban environment, suburban and rural areas. As a sample of measuring instruments for research purposes, two standardized tests for the assessment of functional abilities were used, which assessed aerobic and anaerobic capacity. The aim of the research was to determine whether there are differences in functional abilities among pupils of the five grades of elementary school from the urban, suburban and rural areas. The analyzed full differences in functional abilities indicate that students are certainly at a higher level of functional abilities than pupils, but it remains unclear how the differences are observed among the respondents in the suburban environment in favor of better average values of students. By analyzing the functional space between / within groups of subjects, a significant difference in anaerobic ability can be found in the benefit of students. Undoubtedly, the worst results were achieved by respondents from both sexes from the urban environment, which once again indicates that pupils and students from the rural and suburban environments when the anthropological status is in question have better metered results. Also, in this case, the way of life, the working habits that are present in children in these areas speak of better aerobic and anaerobic capabilities.

Keywords: aerobic and anaerobic endurance, primary education, classroom teaching, pupils.

ANALIZA KVANTITATIVNIH PROMJENA SITUACIONO-MOTORIČKIH SPOSOBNOSTI MLADIH KARATISTA POD UTICAJEM TROMJESEČNOG PROGRAMA RADA

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ANALYSIS OF QUANTITATIVE CHANGES OF SITUATIONAL-MOTOR ABILITIES OF YOUNG KARATEISTS CAUSED BY THREE MONTHS WORKING PROGRAM

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SAŽETAK:

Istraživanje je provedeno na uzorku ispitanika koji je obuhvatio 100 ispitanika – mladih selekcionisanih karatista, koji su u sistematskom trenažnom procesu 6 – 8 godina. U istraživanju su primijenjene četiri varijable za procjenu situaciono-motoričkih sposobnosti karakteristične za karate i primjenjivane u dosadašnjim istraživanjima. Osnovni cilj istraživanja bio je da se longitudinalnom studijom u trajanju tri mjeseca utvrde kvantitativne promjene situaciono-motoričkih sposobnosti mladih karatista nastale pod uticajem tromjesečnog programa rada. Za utvrđivanje kvantitativnih promjena situaciono-motoričkih sposobnosti primijenjena je kanonička diskriminativna analiza.

Rezultati kanoničke diskriminativne analize ukazuju da je tromjesečni program rada izazvao statistički značajne promjene kod tri od ukupno četiri primijenjene varijable.

Do statistički značajnih kvantitativnih promjena došlo je u sljedećim varijablama: SMMV - kružni udarac nogom naprijed vrhom stopala- mavaši geri, SMGZ - direktni udarac naprijed suprotnom rukom, dokorakom naprijed- đako zuki i SMOZ- direktni udarci rukom prema naprijed čelom pesnice, korakom-oi zuki .

Ključne riječi: diskriminativna analiza, eksperimentalni tretman, ispitanici, karatisti, situaciono-motoričke sposobnosti

ABSTRACT:

The survey was conducted on a sample of 100 examinee - young selected karateists, who are in the systematic training process from 6 to 8 years. Four variables applied in earlier research for assessing situational-motor abilities specific for of karate were applied in this research too. The main aim of the research was to, by implementing longitudinal research that lasted for three months, determine the quantitative changes of situational-motor abilities of young karateists under the influence of the quarterly work program. To determine the quantitative changes of situational-motor abilities a canonical discriminant analysis was applied.

The results of canonical discriminant analysis indicate that the quarterly work program has caused statistically significant changes in three out of four applied variables. Statistically significant quantitative changes occurred in the following variables: SMMV - roundhouse kick -Mawashi Geri, SMGZ - Reverse punch Gyaku-zuki and a SMOZ- direct punch (Lung punch)-Oi Zuki

Key words: discriminant analysis, experimental treatment, examinee , karateists, situational-motor abilities

FAKTORSKA STRUKTURA LATENTNOG BAZIČNOG MOTORIČKOG PROSTORA UČENIKA SREDNJE ŠKOLE

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SAŽETAK

Cilj istraživanja je da se utvrdi latentna struktura bazičnih motoričkih sposobnosti učenika te da se utvrdi koji su regulacioni mehanizmi po hipotetskom modelu nadređeni primarnih faktorima prvog reda. Istraživanje je vršeno na uzorku 86 učenika Mješovite srednje škole u Živinicama na kojima je primijenjena baterija testova po programu Eurofita sa baterijom koju čine 11 testova za procjenu bazičnih motoričkih sposobnost .

Za obradu podataka korištena je faktorska analiza (ekstrakcija ALPHA) gdje je faktorizacijom metrice interkorelacija izdvojeno tri faktora.

Prva latentna dimenzija je mješovite strukture koja se na osnovu funkcionalnog pristupa može definisati kao faktor u čijoj su osnovi aerobna izdržljivost, repetitivna i statička snaga.

Druga latentna dimenzija se može definisati kao faktor eksplozivne snage nad kojim je nadređen mehanizam za regulaciju inteziteta ekstitacije.

Treća latentna dimenzija može se definisati kao faktor fleksibilnosti i brzine jednostavnih pokreta nad kojim je nadređen mehanizam za sinergijsku regulaciju tonusa.

Ključne riječi: faktorska analiza, učenici.

FACTORAL STRUCTURE OF LATENT BASIC MOTORCYCLE SPACE OF MIDDLE SCHOOL STUDENTS

ABSTRACT

The aim of the research is to determine the latent structure of the students' basic motor skills and to determine which regulatory mechanisms are superior to the hypothetical model of the primary order factor of the first order. The survey was conducted on a sample of 86 secondary school students in Živinice, where battery test was performed using the Eurofit battery with 11 tests to assess basic motor skills.

Factor analysis (ALPHA extraction) was used for data processing, where by factorization of the intercalibration metric, three factors were separated.

The first latent dimension is a mixed structure that can be defined as a factor on the basis of which aerobic endurance, repetitive and static strength can be based on the functional approach. The second latent dimension is defined as an explosive force factor over which the mechanism for regulating the excitation intensity is over.

The third latent dimension can be defined as the factor of flexibility and speed of simple movements over which the mechanism for synergistic tone regulation is superior.

Key words: factor analysis, pupils,

UTICAJ FLEKSIBILNOSTI NA REZULTATE TESTOVA SITUACIONE MOTORIKE U FUDBALU

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SAŽETAK

Istraživanje je provedeno na uzorku od 52 ispitanika – fudbalera uzrasta od 14 do 16 godina koji treniraju fudbal u fudbalskim klubovima najmanje dvije godine. Ispitanici su polaznici fudbalskih škola: FK „Borac“ Banja Luka, FK „BSK“ Banja Luka i FK „Krupa“ Krupa na Vrbasu.

Osnovni cilj ovog istraživanja odnosi se na utvrđivanje značaja i veličine uticaja segmenata motoričkog prostora definisanog kao fleksibilnost na rezultate izvođenja situaciono-motoričkih testova. U istraživanju je primijenjeno šest varijabli za procjenu fleksibilnosti (prediktorske varijable) i četiri varijable za procjenu situaciono-motoričkih sposobnosti kao kriterij. Za utvrđivanje značaja i veličine uticaja segmenata motoričkog prostora definisanog kao fleksibilnost na rezultate izvođenja situaciono-motoričkih testova primijenjen je niz regresionih analiza.

Dobijeni rezultati regresionih analiza ukazuju da je sistem prediktoraskih varijabli koje su predstavljali testovi za procjenu fleksibilnosti nije ostvario statistički značajan uticaj na rezultate u testovima situacione motorike, izuzimajući testove duboki pretklon i pretklon raznožno iz sjeda s oslonom o zid, gdje je koeficijent multiple korelacije na nivou statističke značajnosti $p = .01$ i $p = .05$.

Ključne riječi: fudbal, fleksibilnost, situaciona motorika, uticaj, regresiona analiza.

THE INFLUENCE OF FLEXIBILITY ON THE RESULTS OF SITUATIONAL MOTOR ABILITIES IN FOOTBALL

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ABSTRACT

The research was conducted on a sample of 52 respondents – football players aged 14 to 16 who are training football in football clubs for at least two years. Respondents are football school students: FK "Borac" Banja Luka, FK "BSK" Banja Luka and FC "Krupa" Krupa na Vrbasu.

The main goal of this research is to determine the significance and magnitude of the influence of the motoric capabilities segments defined as the flexibility of the results of the situation-motoric tests. In the study, six variables was used for assessing flexibility (pre-indicator variables) and four variables for assessing situational-motor abilities were used as a criterion.

For determination the significance and magnitude of the influence of motor capabilities segments defined as flexibility on the results of the situational-motoric tests is applied a series of regression analyzes.

The obtained results of regression analyzes indicate that the system of pre-test variables that represented flexibility assessment tests didn't statistically significantly influence the results in situational motoric tests, excluding forward bend tests and forward bend with spread legs tests whilst leaning against a wall, where the coefficient of multiple correlation is at the level of statistical significance $p = .01$ and $p = .05$.

Key words: football, flexibility, situational motoric skills, influence, regression analysis

KONSOLIDACIJA KORELACIJE RANGA SA MARKETING AKTIVNOSTIMA U FUNKCIJI USPOSTAVE SISTEMA KVALITETA U OKVIRU PRIMARNE ZDRAVSTVENE ZAŠTITE

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APSTRAKT

Savremeni uslovi privređivanja zahtijevaju fokusiranje na korisnika, time se poseban izazov stavlja pred javna preduzeća, kao što su pružaoци usluga u okviru primarne zdravstvene zaštite. Poslovanje u kontekstu monopolističkog položaja davaoca usluge omogućava komfornost u sagledavanju poslovne efikasnosti, kao i zanemarivanje korisničke percepcije kvaliteta usluge, kao što je slučaj sa pomenutim uslugama.

Tržišno pozicioniranje u uslovima globalizacije i otvaranja tržišta, te formiranje korisničke svijesti o nivou kvaliteta usluge u okviru analizirane grane obuhvata brojne aktivnosti, ali i suptilnu analizu faktora koji uslovljavaju tržišnu poziciju. Tržišna pozicija uslovljena je kompleksnom interakcijom stohastičkih faktora čije postojanje, oblik korelacije i značaj je neophodno detektovati.

Komponovanje poslovanja koje će uspostaviti i održavati nivo kvaliteta na željenom nivou obuhvata paket mjera a obuhvata formulaciju strategije poslovanja i selekciju strategija marketinga zasnovanu na ispitivanju korelacije ranga prvenstveno, kvalitativnih promjenljivih, kao adekvatnog komunikacionog kanala između davaoca i korisnika usluge u okviru primarne zdravstvene zaštite u Republici Srpskoj/Bosni i Hercegovini. Ključne riječi: marketing aktivnost, poslovna efikasnost, korelacija ranga, kvalitativni faktori

CONSOLIDATION OF THE CORRELATION RANK WITH MARKETING ACTIVITIES IN THE FUNCTION OF ESTABLISHMENT OF QUALITY SYSTEMS IN THE FRAMEWORK OF PRIMARY HEALTH CARE

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ABSTRACT

Contemporary business conditions require focus on the user, thus posing a particular challenge to public companies, such as primary healthcare providers. Business in the context of the monopoly position of the service provider provides comfort in perceiving business efficiency as well as neglecting user perception of service quality, such as the case with the mentioned services.

Market positioning in the conditions of globalization and markets openings, as well as creating user awareness about the level of quality of service within the analyzed branch includes a number of activities, but also a subtle analysis of the factors that influence the market position. The market position is conditioned by the complex interaction of stochastic factors that require the existence, form of correlation and significance to be detected.

The compilation of a business, which will establish and maintain quality level at the desired level, includes a package of measures with the formulation of a business strategy and selection of marketing strategies based on the correlation testing of the rank primarily, qualitative variables, as an adequate communication channel between the provider and the service users within the framework of primary healthcare in Republic of Srpska / Bosnia and Herzegovina.

Key words: marketing activity, business efficiency, rank of correlation, qualitative factors

THE EFFICIENCY OF PHYSIOTHERAPY IN THE TREATMENT OF FROZEN SHOULDER

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ABSTRACT

Introduction: - Frozen shoulder, often called adhesive capsulitis, is a serious and mysterious condition which can occur in middle age, and is manifested with stiffness and pain of the shoulder. This condition, for which an exact cause is unknown, can last from five months to three years. It is a curious and often confused condition that causes a substantial frustration for patients and for modern medicine, even though frozen shoulder still remains a puzzle for thoracic surgery.

Objective: - Main goal of this thesis is to evaluate the role of physiotherapy in treating adhesive capsulitis. Physiotherapy as an ever-changing branch of medicine among other medical disciplines has an irreplaceable efficiency and role in treating various pathologies.

Materials and methods: - In this study are included 40 patients diagnosed with frozen shoulder, which are divided randomly into two groups. Experimental group was treated with parafinotherapy, passive joint mobilization, while Control group was treated with parafinotherapy and therapeutic exercise.

Results: - After the evaluation of the results, improvements are found in range of motion, pain and function. Significant improvements mainly are found in patients of experimental group treated with passive mobilization. Results of this study will be a great contribution in evidence based treatment of adhesive capsulitis.

Discussion: - Range of motion was measured with goniometer and pain results, satisfaction and function were measured using shoulder scale

according to University of Pensilvania, which was performed at the beginning of treatment, after one week of treatment and at the end of treatment, after two weeks, respectively.

Conclusion: - This study confirms the hypothesis that physiotherapy has a significant role in frozen shoulder treatment, resulting in pain reduction, range of motion progression and improvement in life quality. Comparing both techniques of treatment: passive joint mobilization and therapeutic exercise are shown very effectively, even though passive mobilization results more effectively in adhesive capsulitis treatment.

Key words: Frozen Shoulder, Range of motion, Passive joint mobilization Physiotherapy, Therapeutic Exercise

THE INFLUENCE OF THE CERVICAL TRACTION AND MANIPULATIVE METHODS IN A REPORT WITH CHRONIC CERVICALGIA

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ABSTRACT

Revious studies about the usefulness of manipulative methods and traction therapy have concluded with conflicting results.

The aim of this study was to examine its efficacy in chronic neck pain. Sixty-four patients with at least 4 weeks of nonspecific neck pain were selected for the study. Data about demographic characteristics including age, sex, working status, and regular exercise were recorded.

Each patient was randomly assigned to Group 1—receiving only standard physical therapy including thermotherapy, electro therapy and masage and Group 2—treated with manipulative

method and traction therapy in addition to standard physical therapy.

The patients were re-evaluated at the end of the therapy. The data obtained were grouped according to the questions posed and the statistical processing is done with the SPSS program for calculating statistical parameters: structure, average size and measures of variability. Verification testing is done with the degree of reliability for 99.7% respectively with the degree of error of $p < 0:01$ and $p < 0:05$ with reliability of 95%.

Key words: Cervical Traction and Manipulative Methods, Chronic Cervicalgia, Neck Pain, Basic Physiotherapy.

PSYCHOLOGICAL CHARACTERISTICS FACTOR OF SUCCESS IN KARATE ATHLETES

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ABSTRACT

A survey was conducted with two sub-samples of respondents, karate athletes representatives (members of the national team) and karate athletes competitors in the kumite (sports fight). The survey was conducted on a stratified sample of 32 respondents divided into two groups, 16 karate representatives and 16 karate competitors, males, seniors from the Republic of Macedonia. The main purpose of the research is to determine the differences in the psychological characteristics between the two sub-samples of the respondents. In the research, a total of 13 variables for the assessment of psychological characteristics were applied: for estimation of emotional characteristics six (6) variables, three (3) variables for assessment of the motivational dispositions, for assessment of the specific intellectual characteristics (3) three variables and one variable for assessing the general intellectual characteristic.

The basic statistical parameters are determined using the basic descriptive statistics for the two groups of respondents separately, while for determining the differences in the arithmetic means of the psychological characteristics, a T-test for small independent samples was applied. From the analysis of the data from the basic descriptive statistical parameters, it was established that in all applied variables, homogeneity of the results as well as normal distribution was obtained, with very small deviations present in two variables. The results of the T - test obtained in the survey show statistically significant differences in the entire analyzed space between the two groups, with the exception of two variables (L - social desire and P - psychoticism), ie differences were found in 11 variables from a total of 13 examined variables.

Keywords: psychological characteristics, karate competitors, karate representatives, descriptive statistics, T-test

KANONIČKA KORELACIONA ANALIZA MORFOLOŠKIH I KOGNITIVNIH DIMENZIJA KOD VRHUNSKIH RVAČA

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ABSTRAKT

Savremeni sport i postizanja vrhunskih sportskih rezultata sve više zavise od rezultata naučnih istraživanja i njihove primjene u praksi. Savremeno rvanje traži da rvačka borba teče u relativno kratkom vremenu, veoma intezivnim tempom i da obiluje mnoštvom tehničko-taktičkih aktivnosti. Na uzorku od 103 ispitanika u ovom istraživanju rvači reprezentativci uzrasta 18.6 ± 0.6 , i sa prosječno 4.88 godina rvačkog staža, primjenjena ja baterija testova za procjenu morfološkog statu-

sa rvača i sistem varijabli za procjenu kognitivnih dimenzija rvača. Primjenom kanoničke korelacije analize utvrđena je statistički značajna povezanost između ova dva seta varijabli.

Ključne reči: rvanje, antropometrijske, psihološke

CANONICAL CORRELATION ANALYSIS OF MORPHOLOGICAL AND COGNITIVE DIMENSIONS IN TOP WRESTLERS

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ABSTRACT

Contemporary sports and achieving top-class sports results are increasingly dependent on the results of scientific research and their application in practice. Modern wrestling requires wrestling to run in a relatively short time, at a very intense pace and to abound with a variety of technical-tactical activities. A sample of 103 respondents in this study waves the team at the age of 18.6 ± 0.6 , and with an average year of welding time of 4.88 years, a test battery is used to evaluate the morphological status of wrestlers and a system of variables for assessing the cognitive dimensions of wrestlers. The help of canonical correlation analysis has established a statistically significant relationship between these two sets of variables. **Keywords:** wrestling, anthropometric, psychological

FAKTORSKA STRUKTURA BAZIČNO-MOTORIČKIH SPOSOBNOSTI KOD MLADIH ODBOJKAŠICA

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ABSTRAKT

Za realizaciju ovog projekta sprovedeno je istraživanje na uzorku od 80 učenica ženskog pola na uzrasta od 14 do 16 godina. U ovom istraživanju primjenjeni su 16 varijabli, mjerni instrumenti za procenu bazično motoričkih sposobnosti. Za dobijene rezultate izračunate su slijedeći parametri: Aritmetička sredina (Mean), Standardna devijacije (St.dev), Minimalna vrijednost (Min), Maksimalna vrijednost (Max). Hipoteza da je neka varijabla normalno distribuirana ispitat će se na osnovu mjera: Koeficijent zakrivljenosti - Skewness i koeficijent izduženosti – Kurtosis. Struktura bazično-motoričkih sposobnosti utvrđena je sa komponentni model Faktorske analize (metod kongruencije), gdje će prva glavna komponenta matrica korelacija razlika biti analizirana u ortogonalnoj i kosoj (oblimin) soluciji. Na osnovu toga utvrđeni su pet faktora.

Ključne reči: odbojka, motorika, faktor

FACTORIAL STRUCTURE OF BASIC-MOTOR ABILITIES TO YOUTH VOLLEYBALL PLAYERS

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ABSTRACT

For the realization of this project, a survey was conducted on a sample of 80 female students, aged 14 to 16 years. In this study, 16 variables were applied, measuring instruments for the assessment of basic-motor abilities. For the obtained

parameters, the following parameters were calculated: Arithmetic mean (mean), Standard deviation (St.Dev), Minimum value (min.), Maximum value (max.). The hypothesis that a variable is normally distributed is examined on the basis of the following measures: the coefficient of curvature - Skewness and coefficient of elongation - Kurtosis. The structure of the basic-motor abilities was determined by the component model of Factor analysis (congruent method), where the first main component of the correlation matrix of differences will be analyzed in the orthogonal and oblimin solution. On this basis, five factors were identified.

Key words: volleyball, motor, factor

DIFFERENCES IN THE ATTITUDES OF THE NATIONAL IDENTITY EXAMPLES AND THE NATIONAL BASKETBALL REPRESENTATION DEPENDING ON THE ETHNIC INFLUENCE

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ABSTRACT

In this paper, there were differences between views on public assessment, personal assessment, personal connection, sense of connectivity, involvement and awareness of the respondents in relation to identification with the national basketball team and belonging to some ethnicity on national identity. The survey was conducted on a sample of 219 respondents on the entire territory of Macedonia, who were selected for free-choice interviewing and their free war. The main thing in this research was to determine the link between the national identity and the belonging of a particular political party to the respondents, as well

as the affiliation to the state basketball team, or to explain how the attachment to the national basketball team may have an impact or contribute to the strengthening of the national identity, especially through the ethnical affiliation of the respondents. One of the main tasks in implementing the main goal of this research is to improve their understanding of the group identity that was tested through the model of Heere & James 2007 year. The conclusion is that the research of this type should be the focus of our political and educational system in order to strengthen the national identity among all citizens of our country regardless of their ethnicity.

Key words: Macedonia / Ethnicity / Identity / National basketball team

STRUKTURA SPORTSKOG MENADZMENTA U MAKEDONSKIM SPORTSKIM KLUBOVIMA

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ABSTRACT

Ovim istraživanjem nastojali smo da utvrdimo povezanost sportskog menadžmenta sa tretiranim sistemom indikatora - varijabli u najkvalitetnijim makedonskim sportskim klubovima u košarci, rukometu, fudbalu i odbojci. Zbog popularnosti timskih sportova i veličine investicije, odlučili smo da istražimo interakciju i funkcionisanje sportskog menadžmenta u prvim ligama najvišeg kvaliteta u navedenim sportskim igrama, koje su obuhvatile 41 sportski klub.

Primjenom faktorske analize u sportskim klubovima, veliki broj međusobno povezanih varijabli definiše 6 izoliranih faktora.

Primenjeni sistem varijabla pokriva većinu specifičnosti sportskog menadžmenta, zbog čega je dobijena značajna povezanost menadžmenta sa tretiranim sistemom varijabla.

Glavne riječi: sportski klubovi, menadžment, faktorska analiza.

THE STRUCTURE OF SPORT MANAGEMENT IN MACEDONIAN SPORTS CLUBS

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ABSTRACT

With this research, we tried to determine the connection of sports management with the treated indicator system - variables in the highest quality Macedonian sports clubs in basketball, handball, football and volleyball. Due to the popularity of team sports and the size of the investment, we decided to explore the interaction and functioning of sports management in the first leagues of the highest quality in the mentioned sports games, which included 41 sports clubs.

By using factor analysis in sports clubs, a large number of interrelated variables define 6 isolated factors.

The applied variable system covers most of the specifics of sports management, which has resulted in a significant connection between the management and the treated system of the variable.

Key words: sports clubs, management, factor analysis.

ПРОЦЕНА УХРАЊЕНОСТИ ДЕЦЕ ОСНОВНОШКОЛСКОГ УЗРАСТА У БАЊА ЛУЦИ

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АБСТРАКТ:

Циљ овог рада јесте да одредимо процену ухрањености међу испитаницима, да ли је тај однос већи код дечака и девојчица и да ли тренираност спорта има утицај на ухрањеност, такође и да упоре-

димо где се налазимо у односу на остале земље око нас.

Укупан узорак је чинило 100 испитаника седмих разреда, који су у тренутку мерења имали 13 година \pm 6 месеци (48 дечака и 52 девојчице) из четири основне школе у Бања Луци. Време испитивања је било за време њихових редовних часова физичког васпитања. Место на којима су вршена испитивања су биле школске сале у којима се ради настава физичког васпитања. Телесна висина је мерена антропометром по Мартину, а параметри телесна тежина, индекс телесне масе БМИ и постотак масноће смо добили помоћу Анализатора састава тела ТАНИТА БЦ – 418МА III.

Интерпретацијом резултата, може се видети да највише испитаника се налази у нормалном односу (49%), затим у потхрањеном односу (29%), прекомерну тежину има (18%) и у најмањем случају гојазност са само 4%. Поредећи са сличним истраживањима у земљама Европе, можемо рећи да имамо доста боље резултате

Кључне речи: ухрањеност, гојазност, основношколски узраст, деца

АБСТРАКТ:

The aim of this study is to determine the assessment of nutritional status among respondents, whether this ratio is greater in boys and girls of preparation and whether sport has an impact on nutritional status, also to compare where we are in relation to other countries around us.

The total sample consisted of 100 respondents of the seventh grade, who at the time of the measurement were 13 \pm 6 months (48 boys and 52 girls) from four primary schools in Banja Luka. The time of the tests was during their regular physical education classes. The places where the examination were held were school halls in which were their classes of physical education. Body height was measured with an anthropometer

according to Martin, and the parameters body weight, body mass index, BMI and fat percentage were obtained by using a body composition analyzer TANITA BC – 418M III.

By interpreting the results, we can see the most participants are in a normal relation (49%), followed by underweight relation (29%) and then there is overweight, and obesity only 4%. Comparing similar research in the countries of Europe, we can say that we have much better results.

Key words: nutrition, obesity, primary school age, children

KINEZILOŠKA AKTIVNOST I SLOBODNO VRIJEME DJECE PREDŠKOLSKE DOBI

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SAŽETAK

Tjelesna aktivnost djece i mladih jedan je od osnovnih preduvjeta njihovog pravilnog rasta i razvoja. Brojna domaća i svjetska istraživanja potvrđuju kako je prosječna tjelesna aktivnost djece i mladih u opadanju, a povećava se vrijeme provedeno u aktivnostima koje ne zahtijevaju nikakav tjelesni napor. Djeca ni svoje slobodno vrijeme ne provode više u tjelesnim aktivnostima, već u korištenju naprednih tehnologija koje ih okružuju. Takvo stanje uzrokovat će dalekosežne zdravstvene posljedice. Odgojno obrazovni sustav jedno je od rješenja ovog problema, posebno dok su djeca predškolskog uzrasta. Upravo zbog toga važno je uvrstiti organiziranu tjelesnu aktivnost u kurikularne dokumente i to na način da se ona provodi barem 60 minuta dnevno u predškolskim ustanovama. Drugi bitan aspekt djelovanja mora se usmjeriti prema radu s roditeljima. Sinergija roditelja i predškolske ustanove najbolji je način za djelovanje s ciljem stjecanja kinezioloških kompetencija djece predškolske dobi.

Ključne riječi: djeca, tjelesna aktivnost, predškolske ustanove, slobodno vrijeme

ABSTRACT

The physical activity of children and youth is one of the basic preconditions for their proper growth and development. Numerous domestic and international studies confirm that The physical activity of children and youth is one of the basic preconditions for their proper growth and development. Numerous domestic and international studies confirm that the average body activity of children and youth is declining and that the time they spend engaged in activities that do not require any physical effort is increasing. Children do not spend their free time doing some kind of physical activity, but rather using advanced technologies that surround them. Such condition will cause far-reaching health consequences. The educational system is one of the solutions to this problem, especially for the preschool children. That is why it is important to include organized physical activity in curriculum documents, in a way that in preschool institutions it occupies at least 60 minutes a day. Another important aspect of this initiative must be directed towards working with parents. Synergy between parents and preschool institutions is the best way to act in order to achieve the aim of preschool children gaining kinesiological competencies.

Key Words: children, physical activity, preschool, leisure time

INCIDENCE AND PREVENTION OF INJURIES IN COMBAT SPORTS: A REVIEW

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ABSTRACT

Introduction: There are a lot of combat sports with different rules but they all have the same characteristic – goal is the controlled destruction of your opponent. When we take this into acco-

unt it is logical to expect a high rate of injuries in combat sports. Aim of this paper is to compare incidence and type of injuries in different combat sports.

Methodology: Database Scopus with full text was searched with different keywords (injuries, combat sports, judo, boxing, wrestling, taekwondo, karate). Afterwards articles that deal with combat sports injuries from the time period after 2000. were selected. Descriptive analysis was conducted in order to summarize the results.

Results and Discussion: Injury surveillance system was established during Beijing and London Olympic Games. Results show that highest percentage of registered injuries among combat sport was in Taekwondo. Other combat sports had similar rate of injured players and it was an average injury rate when compared to other Olympic sports. In striking sports hands and fingers were the most injured body region, while in sports that include throwing there were more shoulder and knee injuries.

Conclusion: Combat sports do not have higher rate of injuries due their combative nature. They are safe to practice as any other Olympic sport.

Keywords: judo, boxing, wrestling, taekwondo, karate

чај и два елемента четврте фазе у којој се атлетичар зауставља. Узети су видео записи резултата Светског рекорда Jan Zelezny-ог од 98,48м, Johannes Vetter-a 93,88м и Thomas Röhler-a од 93,90м са електронске базе података You Tube. Преко програма за видео обраду података "Kinovea" добијени су параметари елемената технике који су даље сврстани у табели. Резултати из табеле показују да најбољи могући угао избачаја од 36° је постигнут при резултату Светског рекорда и највећа забележена брзина избачаја од 32,5 м/с, други и трећи бацач имају постигнуте веће углове избачаја од 40° који су ближи углу од 45° и мање брзине избачаја од 30,9 м/с и 30,7 м/с, мање су спуштали тежиште тела приликом последњег корака 28,4 цм и 26,5 цм у односу на 32,3 цм код резултат Светског рекорда. Такође дужина заустављања кретања тела је краћа код Светског рекорда 1,61цм у односу на 2,26 цм и 2,69 цм. Простор који је остао до фаул линије у односу на задњи део тела је 104 цм код Светског рекорда у односу на 33 цм и 54 цм.

Кључне речи: Биомеханичка анализа бацања копља, Светски рекорд бацања копља, параметри технике бацања копља, кинематичка анализа бацања копља

КОМПАРАТИВНА БИОМЕХАНИЧКА АНАЛИЗА ТЕХНИКЕ ТРИ НАЈБОЉА БАЦАЧА КОПЉА У АТЛЕТИЦИ

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АПСТРАКТ

Циљ овог истраживачког рада је компаративна биомеханичка анализа технике три најбоља бацача копља у историји савремене атлетике до сада. Вршена је упоредна анализа четири елемената треће фазе технике у којој се врши изба-

COMPARATIVE BIOMECHANICAL ANALYSIS TECHNIQUE OF THREE JAVELIN THROWERS IN ATHLETIC

ABSTRACT

Goal of this scientific work is comparative biomechanical analysis technique of three best javelin throwers in history of modern athletics until now. Comparative analysis was perform on four elements from third phase technique of throwing in which are perform throw and two elements from fourth phase technique of throwing in

which are thrower had stopped his movement. A video record of scores was taken from electronic database You Tube: World record of Jan Zelezny 98,48m, Johannes Vetter score of 93,88m and Thomas Röhler score of 93,90m. Through software of video processing "Kinovea" scores of throwing are analyzed and then parameters of technique elements are classify in table. Results from table point that best possible angle of throwing 36° are perform in World record throw and highest speed of release 32,5 m/s are measured and both second and third thrower had higher angle of throwing 40° closer to perfect angle 45° and lower speed of release 30,9 m/s and 30,7 m/s, smaller body drop in last step of throwing 28,4 cm & 26,5 cm in regards to 32,3 cm in World record. Also path of stopping movement are shorter in World record throw 1,61cm in regards to 2,26 cm & 2,69 cm. Space between foul line and last throwers body part are in World record 104 cm in regards of 33 cm and 54 cm.

Key words: Biomechanical analysis of javelin throwing, world record javelin throw, parameters technique of javelin throw, kinematic analysis of javelin throw

inicijalnom mjerenju izolovane su dvije latentne komponente (faktora) koje ukupni morfološko - motorički prostor objašnjavaju sa 45,13 % zajedničke varijanse (*generalni faktor rasta i faktor ekscitacije energije i regulacije statičke ravnoteže*). Dvije izolovane latentne komponente (faktori) na finalnom mjerenju objašnjavaju 44,07% zajedničke varijanse (*generalni faktor rasta i mješoviti motorički faktor*). Analizom matrica strukture u inicijalnom i finalnom mjerenju, može se zaključiti da je došlo do transformacije nekih numeričkih pokazatelja morfološko - motoričkih sposobnosti ispitanika. Primijenjeni program fizičkog vježbanja svojim sadržajem aktivnosti, opterećenjima i dužinom trajanja izazvao pozitivne efekte morfološko – motoričkog statusa ispitanika i može biti smjernica i putokaz za kreiranje budućih programa fizičkog vježbanja sa djecom u predškolskim ustanovama.

Glavne riječi: *predškolci, kvalitativne promjene, morfološko-motorička obilježja.*

KVALITATIVNE PROMJENE MORFOLOŠKO-MOTORIČKIH OBILJEŽJA PREDŠKOLACA POD UTICAJEM PROGRAMA FIZIČKOG VJEŽBANJA

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Osnovni cilj rada je bio utvrđivanje kvalitativnih promjena morfološko - motoričkih obilježja kod djece predškolaca muškog pola pod uticajem šestomjesečnog programiranog fizičkog vježbanja u okviru rada škole sporta. Istraživanje je sprovedeno na uzorku od 103 ispitanika, uzrasta 4-6 godina. Primijenjeno je ukupno 13 varijabli, osam iz prostora morfoloških karakteristika i pet iz prostora motoričkih sposobnosti. Da bi se utvrdile kvalitativne strukturalne promjen, primijenjena je faktorska analiza - metod kongruencije. U

QUALITATIVE CHANGES OF MORPHOLOGICAL AND MOTOR CHARACTERISTICS OF PRESCHOOLS UNDER THE INFLUENCE OF THE PHYSICAL EXERCISE PROGRAM

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ABSTRACT

The main goal of the paper was to determine the qualitative changes in the morphological and motor characteristics of pre-school male children under the influence of a six-month programmed physical exercise in the work of the School of Sport. The study was conducted on a sample of 103 subjects, aged 4-6 years. A total of 13 variables were applied, eight from the morphological characteristics area, and five from the area of

motor skills. In order to determine qualitative structural changes, factor analysis - method of congruence was applied. In the initial measurement, two latent components (factors) are isolated, which the total morphologic - motor space is explained with 45.13% of the total variance (general growth factor and factor of excitation of energy and regulation of the static balance). The two isolated latent components (factors) on the final measurement obey 44.07% of the total variance (general growth factor and mixed motor factor). By analyzing the matrix of the structure in the initial and final measurements, it can be concluded that there has been a transformation of some numerical indicators of the morphological and motor abilities of the respondents. The applied physical exercise program with its content of activities, loads and duration has caused positive effects of the morphological and motor status of the respondents and can be a guideline and a guide for creating future physical exercise programs with children in preschool institutions.

Key words: preschoolers, qualitative changes, morphological and motor characteristics.

PLESNE ORGANIZACIJE U SVIJETU

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SAŽETAK

Ples kao pojam podrazumijeva više različitih plesnih formi, koje su dio sportske porodice, a ne mogu se smatrati kao jedna sportska grana. Istraživanje je sprovedeno sa ciljem da se utvrde razlike i sličnosti između vodećih svjetskih plesnih organizacija. Upoređivanjem podataka dobijenih analizom sadržaja dostupnih akata WDSF (Svjetske federacije sportskog plesa), ICU (Međunarodna navijačka unija) i IDO (Svjetska plesna organizacija) može se zaključiti da postoje velike struk-

turalne i funkcionalne sličnosti i razlike između pomenutih organizacija. Na osnovu svega navedenog može se pretpostaviti da će razlike u pravilima i sistemu suđenja plesača, način korištenja muzike (izbor muzike, dužina trajanja, tempo) i takmičarskim kategorijama, kao i porijeklo i tradicija pojedinih plesnih disciplina, biti prepreka u konačnom definisanju porodice sportskog plesa.

Ključne riječi: ples, organizacije, razlike.

DANCE ORGANIZATIONS IN THE WORLD

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SUMMARY

Dance as a term implies several different dance forms, which are part of a sports family, and cannot be considered as a one sports branch. The research was conducted with the aim to determine the differences and similarities between the leading world dance organizations. By comparing the data obtained by analyzing the content of the available WDSF (World Federation of Sports Dance), ICU (International Cheer Union) and IDO (World Dance Organization), it can be concluded that there are large structural and functional similarities and differences between these organizations. Based on all of the above, it can be assumed that the differences in the rules and system of the judging dance competitions, the way of using music (music selection, duration, tempo) and competition categories, as well as the origin and tradition of certain dance disciplines, will be an obstacle in the final definition of the roster of the dance sport disciplines.

Keywords: dance, organization, differences.

DUŽINA BACANJE LOPTE RAZLIČITIH TEŽINA

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APSTRAKT

Na uzorku od 63 mlade zdrave osobe muškog pola (studenti Državnog univerziteta u Novom Pazaru sa Studijskog programa Sport i fizičko vaspitanje) sprovedeno je istraživanje s ciljem da se utvrdi uticaj varijabli sile i snage na ispoljavanje miogenih potencijala tokom bacanja lopti različitih težina jednom rukom (jačom i slabijom).

Varijable sile i snage procenjavane su primenom devet testova, od čega pet dinamometrijskog i četiri situacionog karaktera.

Ključne reči: Sila/snaga/izometrija/lopta/bacanje/student/dinamometrija/.

THE LENGTH OF THROWING BALLS OF DIFFERENT WEIGHTS

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ABSTRACT

On a sample of 63 young healthy male persons (students of the State University in Novi Pazar from the Study Program for Sport and Physical Education), a survey was conducted to determine the effect of variables of force and strength on the manifestation of myogenic potentials during the throwing of ball of different weights by hand (both stronger and weaker hand).

Variables of force and strength were evaluated with the application of nine tests, five dynamometric and four situational characters tests.

Keywords: force, strength, ball, students, dynamometry ...

UPRAVLJANJE LJUDSKIM RESURSIMA U SPORTU

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APSTRAKT

Osnovni cilj rada je da se prikažu funkcije upravljanja ljudskim resursima u sportu. U radu su korištene analiza sadržaja i induktivna metoda. Ljudski resursi su stručni ljudi koji imaju znanja, vještine, sposobnosti i kreativnosti u ostvarivanju ciljeva organizacije. Upravljanje ljudskim resursima u sportu predstavlja sprovođenje utvrđene politike i odabrane strategije menadžmenta sportske oorganizacije u pogledu izbora, selekcije, obuke i angažovanja potrebnih kadrova, kao i stvaranje bezbjednog i funkcionalnog radnog okruženja za sve zaposlene i angažovane pojedince u aktivnostima sportske organizacije. Može se zaključiti da ljudi, njihove potrebe, motivacija i zadovoljstvo postaju središtem pažnje kadrovskog menadžmenta, što se odnosi i na kadrove u sportu.

Ključne riječi: ljudski resursi, upravljanje, sport.

MANAGEMENT OF HUMAN RESOURCES IN SPORT

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ABSTRACT

The basic goal of the work is to show the functions of human resources management in sports.

The paper analyzes the content and the inductive method. Human resources are professional people who have the knowledge, skills, abilities and creativity in achieving the goals of the organization. Human Resource Management in Sports is the implementation of a defined policy and a chosen strategy for the management of a sports organization in terms of selection, selection, training and engagement of the necessary staff, as well as the creation of a safe and functional working environment for all employees and engaged individuals in the activities of a sports organization. It can be concluded that people, their needs, motivation and satisfaction become the focus of the human resources management, which also applies to human resources in sports. **Keywords:** human resources, management, sport.

STAVOVI I ZNANJA O DOPINGU I PREHRAMBENOJ SUPLEMENTACIJI KOD VRHUNSKIH PLIVAČA U ADOLESCENTSKOJ DOBI

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SAŽETAK

Plivanje od davnina izaziva divljenje kod ljudi, upravo zbog permanentne borbe čovjeka i vremena te obaranja granica ljudskih potencijala. Prehrambena suplementacija sastavni je dio puta ka plivačkom uspjehu. Isto tako, plivanje nije imuno na upotrebu nedozvoljenih supstanci u cilju dostizanja plivačke slave. Cilj ovog rada je ispitati znanja o prehrambenoj suplementaciji i doping-u, kod elitnih hrvatskih plivača u adolescentskoj dobi. Uzorak ispitanika sačinjavao je 31 mladi plivač (14 muškaraca i 17 žena) prosječne dobi 17,74 ($\pm 1,65$) godina (plivači 18,43 $\pm 1,45$; plivačice 17,17 $\pm 1,63$), te s prosječno 10,39 ($\pm 2,17$) godina „staža“ u plivanju (plivači 11,57 $\pm 2,21$; plivačice 9,41 $\pm 1,62$), koji su ispunili originalni upitnik kojim se procjenjuje razina znanja o prehrambenim suplementima i doping-u. Rezul-

tati ukazuju na nisku razinu znanja o dodacima prehrani, te još nižu razinu znanja o doping-u. Uspoređujući rezultate istraživanja s rezultatim koje su postigli plivači seniori, te plivački treneri u Hrvatskoj, plivači adolescenti posjeduju najslabije znanje o navedenoj problematici. Istraživanje ukazuje kako je potrebna permanentna i dobro planirana edukacija plivača adolescenata u cilju preventivnog i protektivnog djelovanja.

Cljučne riječi: plivanje, dodaci prehrani, nedozvoljena sredstva, supstance

ABSTRACT

Permanent improvement and breaking the records is making a swimming one of the most popular sports. Dietary supplementation has a very important role in achieving the maximum swimming potential. Also, swimming sport is not immune to the risk of doping use. The aim of this study is was to determine the knowledge of elite Croatian adolescent swimmers about nutrition and doping. The sample of subjects comprised 31 young swimmer (11 males, 17 females), mean age 17,74 ($\pm 1,65$) years (males 18,43 $\pm 1,45$; females 17,17 $\pm 1,63$), mean swimming experience 10,39 ($\pm 2,17$) years (males 11,57 $\pm 2,21$; females 9,41 $\pm 1,62$). Subjects fulfill a specialized questionnaire about sport-nutrition and doping. Results revealed a poor knowledge in sport-nutrition and even poorer knowledge in doping. Comparing the results with previous studies, more experience swimmers and coaches scored better results. Research results suggest importance of the education regarding the sport-nutrition issues and the doping problem.

Key words: swimming, doping, sport-nutrition, young athletes

THE INFLUENCE OF SPECIFIC BODY STRUCTURE PARAMETERS TO THE SUCCESS OF YOUNGER CATEGORIES IN ALPINE SKIING

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dependable on body structure variables, while with girls only 23% of success in competition is dependable on body structure variables. We have found that a connection of all variables is not statistically distinctive to success in competition.

Key words: alpine skiing, body structure, older boys, older girls, competition success

ABSTRACT

In this study we try to determine whether there is a link between specifically chosen and all chosen variables of body structure and the success in competition of younger alpine skiers at the Rauch competition 2015/2016. 25 older boys and 18 older girls, aged 14 to 15, participated in the research.

The measurements took place at the Faculty of Sports, where we used the »Inbody 720« to get a detailed look into an individual's body structure. For the purpose of this research we have chosen the following variables based on the acquired measurements of the body structure of the entire sample: body height, body weight, fat mass, muscle mass, fat percentage and obesity level.

Based on the measurements of the 6 variables of body structure we have tried to establish the connection of said variables with the success of the participating 25 older boys and 18 older girls, using the Pearson correlation coefficient. We have also used regression analysis to determine the connection of the entire compound of variables based on success. The criterion variable (success in competition) was composed of the final number of points at the Rauch competition. Analysis showed there is a statistically distinctive link with the boys between success and the variables of muscle mass and body weight. No such link between success and specific body structure variables was found with girls.

Results show that the correlation between body structure variables and success in competition is moderate. In the boys' section, success is in 38%