

**Међународна научна конференција:  
ФИЗИЧКА АКТИВНОСТ ЗА СВАКОГА**

**Зборник сажетака**



**Book of abstracts**

**International Scientific Conference:  
PHYSICAL ACTIVITY FOR EVERYONE**

**Belgrade,  
December 10-11<sup>th</sup>, 2010.**

**Међународна научна конференција:  
ФИЗИЧКА АКТИВНОСТ ЗА СВАКОГА - Зборник сажетака**

**International Scientific Conference:  
PHYSICAL ACTIVITY FOR EVERYONE - Book of abstracts**

**Издавач / Published by**

Универзитет у Београду, Факултет спорта и физичког васпитања  
*University of Belgrade, Faculty of Sport and Physical Education*

**Уредник / Editor -** Станимир Стојиљковић

**Научни одбор / Scientific Board**

**Председник / President**

проф. Душан Угарковић, *PhD (Faculty of Sport and Physical Education, Belgrade)*

**Чланови / Members**

*prof. Dana Badau, PhD (University of Braşov, Faculty of Sport)*

*prof. Goran Nikovski, PhD (University of Skopje, Faculty of Physical Culture)*

*prof. Herbert Hartman, PhD (Vice president of ISCA)*

*prof. Kadir Pepe, PhD (Mehmet Akif Ersoy University, Faculty of Physical Education, Burdur)*

*prof. Matej Tušak, PhD (University of Ljubljana, Faculty of Sport)*

проф. Милена Микалачки, *PhD (University of Novi Sad, Faculty of Sport and Physical Education)*

проф. Нада Качавенда-Радић, *PhD (University of Belgrade, Faculty of Philosophy)*

*prof. Stepan A. Goniјanc, PhD (RGUFGK, Moscow)*

*prof. Stjepan Heimer, PhD (University of Zagreb, Faculty of Kineziology)*

проф. Вељко Вељковић, *PhD (Institute Vinča, Republic of Serbia)*

*prof. William W. Stringer M.D. (UCLA Medical Center)*

проф. Ђорђе Штакић, *PhD (University of Belgrade, Faculty of Sport and Physical Education)*

проф. Душан Митић, *PhD (University of Belgrade, Faculty of Sport and Physical Education)*

проф. Душанка Лазаревић, *PhD (University of Belgrade, Faculty of Sport and Physical Education)*

проф. Настас Илић, *PhD (University of Belgrade, Faculty of Sport and Physical Education)*

проф. Слајана Мијатовић, *PhD (University of Belgrade, Faculty of Sport and Physical Education)*

проф. Станимир Стојиљковић, *PhD (University of Belgrade, Faculty of Sport and Physical Education)*

**Организациони одбор / Organizational Board**

**Председник / President**

ван. проф. Станимир Стојиљковић, *PhD (Faculty of Sport and Physical Education, Belgrade)*

**Чланови / Members**

доцент Марија Мацура, *PhD (University of Belgrade, Faculty of Sport and Physical Education)*

доцент Марина Ђорђевић-Никић, *PhD (University of Belgrade, Faculty of Sport and PE)*

Јелена Јовановић, *Mr.sci (University of Belgrade, Faculty of Sport and Physical Education)*

Александра Поповић, *Mr.sci (University of Belgrade, Faculty of Sport and Physical Education)*

Ана Орлић, *Mr.sci (University of Belgrade, Faculty of Sport and Physical Education)*

Ана Весковић, *MA (University of Belgrade, Faculty of Sport and Physical Education)*

Дејан Илић, *PhD (University of Belgrade, Faculty of Sport and Physical Education)*

Владимир Илић, *(University of Belgrade, Faculty of Sport and Physical Education)*

доцент Саша Пантелић, *PhD (University of Nis, Faculty of Sport and Physical Education)*

Душан Анастасов, *(Federation of Recreation and Fitness Serbia)*

Јездимир Марсенић, *(Nacional Federation Sport for All)*

Петар Стакић, *(Association Sport for All, Belgrade)*

**Превод / Translated by -** Гордана Векарић

**Компјутерска обрада и графички дизајн / Technical editing - layout**

Анка Срећковић, Ненад Пелемиш

**Штампа / Printed by:** 3Д+, Београд

**Тираж / Circulation:** 250

## САДРЖАЈ / CONTENTS

EXAMINING LEVELS OF LIFE SATISFACTION AND JOB SATISFACTION OF TURKISH FOOTBALL COACHES IN TERMS OF DEMOGRAPHIC DIFFERENCES

**Fikret Soyer, Yusuf Can, Mehmet Bayansalduz, Hale Bozkurt, Ihsan Sari** 13

EXAMINING TURKISH FOOTBALL COACHES' LEVELS OF LIFE SATISFACTION AND ORGANIZATIONAL COMMITMENT IN TERMS OF DEMOGRAPHIC DIFFERENCES

**Ihsan Sari, Fikret Soyer, Yusuf Can, Mehmet Bayansalduz** 14

RELACIJE DIMENZIJA LIČNOSTI KARATISTA SENIORA I FAKTORA OPTIMALNE ORGANIZACIONE KULTURE

RELATIONS BETWEEN KARATE PLAYERS PERSONALITY DIMENSIONS AND OPTIMAL ORGANIZATIONAL CULTURE FACTORS

**Miroljub Ivanović, Uglješa Ivanović** 15

INDEPENDENT PRACTICE AND ITS ROLE IN UPGRADING TEACHING SCHOOL IN PHYSICAL EDUCATION

**Cristian Savu, Constantin Pehoiu, Silviu Badea** 16

MANAGEMENT SYSTEM AND ISSUES OF PHYSICAL EDUCATION AND SPORT IN ROMANIA IN THE CONTEXT OF COMPETITIVE ECONOMY

**Sică Puşcoci, Constantin Pehoiu** 17

DIRECTING EFFORT IN TRAINING OF THE 800 AND 1500 METERS JUNIOR GIRLS RUNNERS

**Constantin Pehoiu** 18

DO SLOVAK ELDERLY WOMEN HAVE SUFFICIENT LEVEL OF MOTOR PERFORMANCE?

**Dagmar Nemcek, Helena Medekova, Jela Labudova, Janka Perackova, Anna Pavlikova, Zuzana Sakacova** 19

PHYSICAL ACTIVITY FOR EVERYONE IN SLOVAK UNION OF RECREATIONAL PHYSICAL EDUCATION AND SPORT

**Jela Labudova, Dagmar Nemcek, Stanislav Kracek** 20

AN INVESTIGATION OF EDUCATIONAL TECHNOLOGY STANDARDS OF PHYSICAL EDUCATION CANDIDATE TEACHERS IN TERMS OF SEVERAL VARIABLES

**Erkan Faruk Sirin, Savaş Duman** 21

USE OF NEW MEDIA BY FANS IN SPORTS COMMUNICATION:  
FACEBOOK AND TWITTER

**Selami Özsoy** 22

CYCLING IN TURKEY FROM OTTOMANS TO OUR DAY

**Mehmet Süme, Selami Özsoy** 23

THE EFFECT OF EIGHT-MOUNT EXERCISE PROGRAM ON BONE DENSITY AND SOME PHYSICAL CHARACTERISTICS IN SEDENTARY WOMEN

**Serkan Hazar, Sedef Kurt** 24

THE RELATIONSHIP BETWEEN REACTION TIME AND DECISION MAKING IN ELITE KICKBOXING ATHLETES

**Çağrı Cetin, Özden Taşgin, Fatma Arslan** 25

EVALUATION OF THE EFFECTS OF EXERCISE PROGRAM ON SOME FITNESS PARAMETERS AND WEIGHT LOSS AT MIDDLE AGED PERIMENOPAUSAL SEDENTARY WOMEN

**Fatma Arslan, Evrim Çakmakçı, Halil Taşkin, Oktay Çakmakçı, Cecilia Gevat Ismet** 26

THE INVESTIGATED OF BODY COMPOSITION CHANGES ASSOCIATED WITH WEIGHT CHANGE AND AEROBIC-DANCE EXERCISE

**Evrin Cakmakci, Fatma Arslan, Halil Tasikin, Oktay Cakmakci** 27

---

WORK ALIENATION IN PREDICTING JOB SATISFACTION AMONG PHYSICAL EDUCATION TEACHERS IN TURKEY

**Erkan Faruk Sirin, Savaş Duman, Seydi Karakus** 28

---

КОМПАРАЦИЈА РЕЗУЛТАТА ПОСТИГНУТИМ НА РЕПУБЛИЧКИМ СПОРТСКИМ ИГРАМА ЗА ГЛУБУ ДЕЦУ СРБИЈЕ

COMPARISON OF RESULTS ACHIEVED THE REPUBLICAN SPORTS GAMES FOR THE DEAF CHILDREN'S SERBIAN

**Radomir Arsić** 29

---

SOCIJALNI STATUS I STILOVI RUKOVOĐENJA U SPORTSKIM KOLEKTIVIMA VOJNE AKADEMIJE  
SOCIAL STATUS AND STYLISH SPORTS TEAM MANAGEMENT IN MILITARY ACADEMY

**Marjan Marinković, Boris Glavač, Lela Marić, Petar Kostić, Aleksandar Milojević, Bojana Milićević Marinković** 31

---

EVALUATION OF SELF-ESTEEM OF THE CHILDREN AND ADOLESCENTS IN TERMS OF PARTICIPATION IN SPORTS

**Hüseyin Kirimoğlu, Gülşen Filazoğlu Çokluk, Yunus Yildirim** 33

---

MODERN AND QUALITY IN PSYCHOMOTOR PREPARATION

**Turcanu Florin, Turcanu Dana** 34

---

SOCIOLOŠKI ASPEKTI FIZIČKIH AKTIVNOSTI

THE SOCIOLOGICAL ASPECTS OF PHYSICAL ACTIVITIES

**Dorđe Stakić, Milan Domanović** 35

---

FIZIČKA AKTIVNOST STUDENATA NIŠKOG UNIVERZITETA - PILOT STUDIJA

PHYSICAL ACTIVITY NIS UNIVERSITY MALE STUDENTS - A PILOT STUDY

**Sasa Pantelic, Nebojsa Randjelovic, Nebojsa Cokorilo, Milena Mikalacki, Darinka Korovljev** 37

---

ELEMENTI KVALITATIVNE I KVANTITAVNE ANALIZE ZNANJA I UMEĆA VOĐENJA PROGRAMA ANIMACIJE REKREATIVNIH AKTIVNOSTI U TURIZMU

**Aleksandar Ivanovski, Saiti Bujar, Vukašin Ilić** 39

---

EFIKASNOST NAPADAČKIH AKCIJA SA NEIZJEDNAČENIM BROJEM IGRAČA U VRHUNSKOM RUKOMETU

THE EFFICIENCY OF ATTACK ACTIONS WITH AN UNEQUAL NUMBER OF PLAYERS IN TOP TEAM HANDBALL

**Zoran Valdevit, Dejan Ilić, Siniša Karišik** 40

---

RAZLIKE MORFOLOŠKIH KARAKTERISTIKA VRHUNSKIH BICIKLISTA JUNIORA U ODNOSU NA TAKMIČARSKU SPECIJALNOST

**Nikolić Biljana, Stefanović Đorđe** 42

---

ŠAH KAO SPORTSKA GRANA U SRBIJI: STATUS I PERSPEKTIVA

**Ivan J. Marković, Dragan Martinović, Vladimir Koprivica** 43

---

THE EFFECT OF WEIGHT LIFTED ON POWER IN CONCENTRIC PHASE OF TRADITIONAL AND INSTABILITY RESISTANCE EXERCISES

**Erika Zemková, Dušan Hamar** 44

---

EPIDEMIOLOGICAL ASPECTS OF TOBACCO, ALCOHOL AND INTERNET USE ADDICTIONS AMONG PHYSICAL EDUCATION AND SPORT FACULTY STUDENTS FROM TIMIȘOARA, ROMANIA <b>Gligor Serba, Coroiu Felicia, Negrea Cristian, Petravovschi Simona, Amanar-Tabara Simona, Voicu Sorinel</b>	<b>45</b>
АТЛЕТИКА НА ПАРАОЛИМПИЈСКИМ ИГРАМА TRACK AND FIELD AT THE PARALYMPICS GAMES <b>Elena Plakona, Đorđe Stefanović, Goran Kasum, Violeta Šiljak</b>	<b>46</b>
ZNAČAJ I PRIMENA RELAKSACIJE KAO SREDSTVA OPORAVKA U SPORTSKOM TRENINGU SIGNIFICANCE AND USE OF RELAXATION AS A MEAN OF RECOVERY IN SPORTS TRAINING <b>Jelena Milićević, Đorđe Stefanović, Nenad Janković, Milan Matić, Igor Ranisavljev</b>	<b>48</b>
ACTIVE PROMOTION OF HEALTH THROUGH SPORT FOR ALL IN ROMANIA <b>Dana Badau, Aurelia Suci, Nicolae Neagu, Adela Badau</b>	<b>50</b>
PHYSIOLOGICAL MODIFICATIONS CAUSED BY THE SPEED EFFORT DURING THE PHYSICAL EDUCATION CLASS UPON THE PUBERTY AGE PUPILS <b>Mircea Neamtu, Alina Martoma</b>	<b>51</b>
ПРОМЕНА АЕРОБНЕ СПОСОБНОСТИ КОД СТУДЕНАТА КРИМИНАЛИСТИЧКО-ПОЛИЦИЈСКЕ АКАДЕМИЈЕ У ТОКУ ПРВЕ ТРИ ГОДИНЕ СТУДИЈА CHANGES OF STUDENTS' AEROBIC ABILITY ON ACADEMY OF CRIMINALISTIC AND POLICE STUDIES DURING FIRST THREE YEARS OF EDUCATION <b>Radivoje Janković, Raša Dimitrijević, Nenad Koropanovski</b>	<b>52</b>
MODELI PREDIKCIJE VREDNOSTI UKUPNOG HOLESTEROLA POMOĆU OSNOVNIH ANTROPOMETRIJSKIH POKAZATELJA KOD POPULACIJE ODRASLIH ZDRAVIH OSOBA OBA POLA: PILOT ISTRAŽIVANJE BASIC ANTHROPOMETRIC PARAMETERS AS PREDICTORS OF THE TOTAL CHOLESTEROL LEVEL IN HEALTHY ADULT POPULATION IN BOTH SEXES: PILOT STUDY <b>Dopsaj, M., Ilić, V., Radović, A.</b>	<b>54</b>
MATERIJALNI USLOVI ZA REALIZACIJU NASTAVNIH SADRŽAJA FIZIČKOG VASPITANJA SA UČENICIMA SA INVALIDITETOM MATERIAL CONDITIONS FOR TEACHING PHYSICAL EDUCATION TO STUDENTS WITH DISABILITIES <b>Sanela Pacic, Fadilj Eminović, Radmila Nikić</b>	<b>56</b>
PROCENA STATUSA BAZIČNIH MOTORIČKIH SPOSOBNOSTI KOD PREDŠKOLSKE DECE THE BASIC MOTOR STATUS EVALUATION IN PRE-SCHOOL CHILDREN <b>Ruzena Popovic</b>	<b>58</b>
NASTAVNIK FIZIČKOG VASPITANJA U SPECIJALNOJ ŠKOLI PHYSICAL EDUCATION TEACHER IN THE SPECIAL SCHOOL <b>Fadilj Eminović, Sanela Pacic, Radmila Nikić</b>	<b>60</b>
POVREDE KOD PROFESIONALNIH BALETSKIH PLESAČA INJURIES OF PROFESSIONAL BALLET DANCERS <b>Ana Pflug</b>	<b>62</b>
NAVIKE U VEŽBANJU I STAV BALETSKIH PLESAČA O PRIMENI PILATES METODE U FIZIČKOJ PRIPREMI PRACTICE HABITS AND ATTITUDE OF BALLET DANCERS APPLICATION METHODS OF PILATES DURING PHYSICAL PREPARATION <b>Ana Pflug</b>	<b>64</b>

COMPARISON IN THE EFFECTIVENESS OF "EXTRA MAN" BETWEEN MEN AND WOMEN IN EUROPEAN CHAMPION 2010

**Stavros Tsangozis, Petros Botonis, Theodoros Platanou** **66**

---

INDEKS TELESNE MASE I FIZIČKA AKTIVNOST ADOLESCENATA U BEOGRADU  
BODY MASS INDEX AND PHYSICAL ACTIVITY OF BELGRADE ADOLESCENTS

**Marina Dorđević-Nikić, Milivoj Dopsaj** **67**

---

PROMOTE THE EQUALITY AND FAIRNESS FOR EVERYONE IN PHYSICAL EDUCATION ACTIVITY-THE CASE OF MIXED GROUP

**Simona Petracovschi, Sorinel Voicu, Mihaela Faur, Felix Sinitean-Singer** **69**

---

UTICAJ JEDNOGODISNEG PROGRAMIRANOG TRENAZNOG PROCESA NA MOTORICKE SPOSOBNOSTI I MOTORICKA ZNANJA PLIVACA PIONIRSKOG UZRATA

**Thanopoulos Vassilios** **70**

---

THE IMPLEMENTATION OF BASIC ATHLETIC GAMES  
IN UNIVERSITY LEVEL PHYSICAL TRAINING

**Marija Zegnal, Nevenka Breslauer** **71**

---

USPEŠNOST USVAJANJA OSNOVNE TEHNIKE SKIJANJA KOD DECE POLAZNIKA ŠKOLE SKIJANJA  
SUCCESS IN ADOPTING BASIC SKI TECHNIQUES WITH CHILDREN ATTENDING SKI SCHOOL

**Dragiša Mladenović** **72**

---

RAVNOTEŽA SPORTISTA REPREZENTATIVACA OŠTEĆENOG VIDA  
BALANCE OF ATHLETES OF REPRESENTATIVE LEVEL WITH VISUALLY IMPAIRED

**Ćosić Marko, Koprivica Vladimir** **74**

---

FIZIOLOŠKE I KINEMATIČKE DETERMINANTE RAZLIČITIH TEHNIKA HODA  
PHYSIOLOGICAL AND KINEMATICAL DETERMINANTS OF DIFFERENT WALKING TECHNIQUES

**Milan Matić, Vladimir Ilić, Igor Ranisavljev** **76**

---

MOTIV SPORTSKOG POSTIGNUĆA I USPEŠNOST KOŠARKAŠA KADETSKOG UZRATA  
SPORT ACHIEVEMENT MOTIVE AND SUCCESS OF MALE CADET BASKETBALL PLAYERS

**Radivoj Mandić, Milivoje Karalejić, Saša Jakovljević** **78**

---

THE INVESTIGATION OF THE REACTION TIMES OF 14-16 YEARS OLD AGED TENIS AND VOLLEYBALL PLAYERS

**Erkan Günay, Metin Polat, Nazmi Sarıtaş, Bekir Çoksevrim** **80**

---

ISPITIVANJE STAVOVA ADOLESCENATA PREMA ESTETSKIM KOMPONENTAMA UMETNIČKOG PLESA  
THE ESTIMATION OF THE ADOLESCENTS ATTITUDES TO THE AESTHETICAL COMPONENTS OF ART DANCE

**Popovic R., Kocic J., Dolga M., Nikolic V., Purenovic, T.** **81**

---

THEORETICAL STUDY ON BODILY COMMUNICATION

**Gaetano Raiola** **82**

---

DIFFERENT MODELS OF FEMALE BASKETBALL PLAYERS TRAINING POWER, SPEED, SKILL AND THE EFFECT OF ANAEROBIC CAPACITIES

**Yilmaz Gürkan, Iri Rüçhan, Çözeli M.Serdar** **83**

---

THE EFFECT OF COMPETITION PERIOD TRAININGS ON SOME BLOOD AND PERFORMANCE PARAMETERS OF YOUNG FEMALE JUDOKAS

**Iri Rüçhan, Yilmaz Gürkan, Çelik Muhammet** **84**

---

COMPARISON IN THE NUMBER OF OFFENSIVE ACTIONS AND SUCCESSFUL SHOTS IN WATER POLO GAME BEFORE AND AFTER THE RULES CHANGE OF 2005 <b>Theodoros Platanou, Petros Botonis</b>	<b>85</b>
UČESTALOST IZDUBLJENIH GRUDI KOD DVANESTOGODIŠNJIH UČENIKA OSNOVNIH ŠKOLA U TUTINU THE FREQUENCY OF HOLLOWED BREASTS AT PUPILS OF TWELVE YEARS OLD IN THE PRIMARY SCHOOLS IN TUTIN <b>Admira Konicanin</b>	<b>86</b>
STAVOVI UČESNIKA MEĐUNARODNOG PLIVAČKOG MITINGA SERBIA GRAND PRIX 2010. O KVALITETU ORGANIZACIJE TAKMIČENJA <b>Vladimir Anušić</b>	<b>87</b>
NARODNI PLES U SISTEMU OBRAZOVANJA KROZ KULTURNE AKTIVNOSTI U GRČKOJ FOLK DANCE IN EDUCATION THROUGH CULTURAL ACTIVITIES IN GREECE <b>Samuilidu Evdokia, Kakogevrgos Ilias, Eminović Fadilj</b>	<b>88</b>
SUPLEMENTACIJA U ČETVOROMESEČNOM CIKLUSU PRIPREME SLABOVIDOG BACAČA KOPLJA ZA SVETSKO PRVENSTVO - NOVI ZELAND, JANUAR 2011. GODINE FOOD SUPPLEMENTS USED IN A FOUR MONTHS PREPARATION PERIOD OF A JAVELIN THROWER WITH VISUAL DISABILITY FOR A WORLD CUP - NEW ZELAND, JANUARY 2011. <b>Srdjan Jovović, Marko Ćirković, Miloš Mudrić, Goran Kasum</b>	<b>90</b>
ДИФЕРЕНЦИРАНИ ПРОГРАМСКИ ДИЗАЈН СПОРТСКИХ ШКОЛА КАО ФАКТОР МОТОРИЧКЕ ЕФИКАСНОСТИ ОСМОГОДИШЊИХ ДЕЧАКА DIFFERENTIATED PROGRAMMING DESIGN OF SPORTS SCHOOLS AS A FACTOR OF MOTOR EFFICACY OF EIGHT YEAR OLD BOYS <b>Dejan Savičević, Dragoljub Višnjić, Dejan Suzović, Branislav Dragić</b>	<b>92</b>
NASTANAK, RAZVOJ I FUNKCIONISANJE ORGANIZACIJE ZA FIZIČKO VASPITANJE I REKREACIJU „PARTIZAN“ JUGOSLAVIJE <b>Petar Stakić, Zoran Mašić</b>	<b>94</b>
THE EFFECTS OF EIGHT WEEKS BASIC STEP AEROBIC TRAININGS ON PHYSICAL AND MOTORIC ABILITIES OF 30–35 YEARS AGED SEDANTERY WOMEN <b>Pepe Osman, Pepe Kadir, Gevat Cecilia, Kaya Mustafa, Yildiz Kadir</b>	<b>95</b>
RESEARCHING THE REASONS AND FREQUENCY OF INDIVIDUALS' PHYSICAL ACTIVITIES <b>Kadir Pepe, Mesut Kozan, Osman Pepe</b>	<b>96</b>
CILJEVI POSTIGNUĆA STUDENATA U NASTAVI KROSA I TRČANJA NA SREDNJIM DISTANCAMA <b>Irina Juhas, Ana Vesković, Nenad Janković, Milan Matić</b>	<b>97</b>
RAZLIKE IZMEĐU POLOVA U STAVOVIMA I MIŠLJENJIMA ZAPOSLENIH U ADMINISTRACIJI O SLOBODNOM VREMENU I SPORTSKOJ REKREACIJI GENDER DIFFERENCES IN ATTITUDES AND BELIEFS ON LEISURE TIME AND SPORTS RECREATION AMONG PUBLIC ADMINISTRATION EMPLOYEES <b>Nikovski Goran, Proković Dušan, Aceski Aleksandar</b>	<b>99</b>
ANALIZA MIŠLJENJA I STAVOVA O SLOBODNOM VREMENU I SPORTSKOJ REKREACIJI KOD OBA POLA ZAPOSLENIH U ADMINISTRACIJI U OPŠTINI AERODROM, SKOPJE ANALYSIS OF KNOWLEDGE AND ATTITUDES ON LEISURE TIME AND RECREATION AMONG MALE AND FEMALE PUBLIC ADMINISTRATION EMPLOYEES IN MUNICIPALITY AERODROM, SKOPJE <b>Proković Dušan, Nikovski Goran, Klinčarov Ilija</b>	<b>101</b>

UTICAJ PROGRAMIRANIH SPORTSKO'REKREATIVNIH AKTIVNOSTI NA MORFOLOŠKE  
KARAKTERISTIKE I MOTORNE SPOSOBNOSTI KOD UČENICA ČETVRTIH RAZREDA OSNOVNIH ŠKOLA  
INFLUENCE OF PROGRAMMED SPORT-RECREATIONAL ACTIVITIES ON MORPHOLOGICAL  
CHARACTERISTICS AND MOTOR ABILITIES IN FORTH GRADE PRIMARY SCHOOL FEMALE STUDENTS  
**Klincarov, I., Nikovski, G., Aceski, A.** **103**

---

БИОМЕХАНИЧКИХ КАРАКТЕРИСТИКА ФУНДМЕНТАЛНИХ МОТОРНИХ ВЕШТИНА МАНИПУЛАТИВНОГ ТИПА  
BIOMECHANICAL CHARACTERISTICS OF FUNDAMENTAL MOTOR SKILLS OF MANIPULATIVE TYPE  
**Aleksandar Aceski, Aleksandar Tufekčevski, Ilija Klinčarov, Dušan Proković** **105**

---

PROCENA POUZDANOSTI TESTOVA SPECIFIČNIH FUDBALSКИХ ВЕШТИНА  
THE EVALUATION OF RELIABILITY OF SPECIFIC FOOTBALL SKILLS TESTS  
**Bojan Leontijević, Aleksandar Janković, Aleksandar Nedeljković, Bojan Šiljegović, Branimir Mićović, Veselin Jelusić** **107**

---

РАЗВОЈ МОТОРИЧКИХ СПОСОБНОСТИ ПОЛАЗНИКА ШКОЛЕ ФУДБАЛА „DIF“  
THE DEVELOPMENT OF MOTOR ABILITIES OF STUDENTS OF DIF SCHOOL OF FOOTBALL  
**Aleksandar Janković, Bojan Leontijević, Dejan Suzović, Slađana Rakić, Branimir Mićović, Veselin Jelusić** **109**

---

УТИЦАЈ ВАННАСТАВНИХ АКТИВНОСТИ НА ТРАНСФОРМАЦИЈУ МОТОРИЧКИХ СПОСОБНОСТИ  
УЧЕНИКА СРЕДЊЕШКОЛСКОГ УЗРАСТА  
THE INFLUENCE OF EXTRA CURRICULAR ACTIVITIES ON MOTOR ABILITIES OF SECONDARY SCHOOL  
MALE STUDENTS  
**Živorad Marković, Zoran Bogdanović, Aleksandar Igњатовић, Sandra Milanović** **111**

---

УЧЕШЋЕ РОДИТЕЛЈА У СПОРТСКО-РЕКРЕАТИВНИМ АКТИВНОСТИМА И ПРИСУСТВО КИФОТИЧНОГ  
ДРЖАЊА ТЕЛА КОД ДЕЦЕ  
PARENT INVOLVEMENT IN SPORTS ACTIVITIES AND IRREGULAR KIFOT POSTURE IN CHILDREN  
**Zoran Bogdanović, Vladimir Čolović, Živorad Marković** **113**

---

РАЗЛИКЕ У САДРЖАЈИМА ПОЈМОВА МОТОРИЧКО УМЕЊЕ – МОТОРИЧКА НАВИКА – МОТОРИЧКИ  
СТЕРЕОТИП  
DIFFERENCES IN THE CONCEPTS OF MOTOR LEARNING – MOTOR HABIT – MOTOR STEREOTYPE  
**Nebojsa Randjelovic, Nenad Zivanovic, Danica PirsI** **115**

---

DOES THE ASSESSMENT OF BODY COMPOSITION IN YOUNG ATHLETES MAY BE A INDICATOR OF  
REDOX BALANCE STATE?  
**Vladimir Jakovljević, Vladimir Živković, Milena Vuletić, Nevena Barudžić, Marija Macura, Marija Slavić,  
Duško Blagojević, Mihajlo Spasić, Dejan Čubrilo** **117**

---

WHETHER THE INCLUSION OF L-ARGININE IN ANTIOXIDANT SUPPLEMENTATION CHANGES NITRIC  
OXIDE AND OXIDATIVE STRESS PARAMETERS DYNAMICS DURING MAXIMAL EXERCISE TESTING:  
FOCUS ON DIFFERENT TRAINING TYPES  
**Dejan Čubrilo, Vladimir Živković, Milena Vuletic, Nevena Barudžić, Marija Macura, Vladimir Jakovljević** **118**

---

ANKLE INJURIES IN SOCCER: FOCUS ON AGE AND LEVEL OF COMPETITION  
**Miroslav Nešić, Vladimir Jakovljević, Duško Spasovski, Zoran Obradović, Dejan Čubrilo** **119**

---

РАЗЛИКЕ У КООРДИНАЦИЈИ ПРЕДШКОЛСКЕ ДЕЦЕ ОБУХВАЋЕНЕ РЕДОВНИМ АКТИВНОСТИМА И  
ДОПУНСКИМ ПЛЕСНИМ ПРОГРАМОМ  
COORDINATION DIFFERENCES BETWEEN PRE-SCHOOL CHILDREN INCLUDED TO REGULAR  
PHYSICAL ACTIVITIES AND COMPLEMENT DANCING PROGRAM  
**Jelica Stojanovic Tosic** **120**

---

THE PERCEPTION OF SPORT AMONG JUNIOR VOLLEYBALL PLAYERS OF BELGRADE  
**Antonio Saccone** **122**

---



THE PERCEPTION OF SPORT AMONG PUPILS OF HIGH SCHOOLS OF CLUJ NAPOCA <b>Antonio Saccone</b>	<b>123</b>
UTICAJ LETNJEG PROGRAMA "ČIGOTICA" NA DECU UZRASTA 12 GODINA EFFECT OF SUMMER PROGRAMME, "CIGOTICA" ON 12 YEARS OLD CHILDREN <b>Jelena Ševkušić, Dušan Mitić</b>	<b>124</b>
OPTIMALIZACIJA PROGRAMA OBUKE U KARATEU KOD DECE MLAĐEG ŠKOLSKOG UZRASTA OPTIMALIZATION OF KARATE TRAINING PROGRAM IN JUNIOR ELEMENTARY SCHOOL CHILDREN <b>Srećko Jovanović, Miloš Mudrić, Marko Ćirković, Srđan Jovović</b>	<b>126</b>
FAKTORSKA ANALIZA INDIKATORA PRIPREMLJENOSTI VRHUNSKIH BICIKLISTA TESTIRANIH U LABORATORIJSKIM USLOVIMA PRIMENOM SPECIFIČNOG TESTA <b>Radoje Milić, Milivoj Dopsaj</b>	<b>128</b>
FIZIČKOM AKTIVNOŠĆU PROTIV HIV VIRUSA, RAKA DOJKE I PROSTATE: UVIDI NA OSNOVU MOLEKULARNOG MEHNIZMA POVEZANOG SA VAZOAKTIVNIM INTESTINALNIM PEPTIDOM (VIP) <b>Nevena Veljković</b>	<b>129</b>
EVALUACIJA YO-YO INTERMITENTNOG TESTA OPORAVKA: PILOT STUDIJA EVALUATION OF YO-YO INTERMITENT RECOVERY TEST: PILOT STUDY <b>Uroš Jojić, Predrag Božić</b>	<b>130</b>
РАЦИОНАЛНИ ОДНОС РАЗЛИЧИТИХ СРЕДСТАВА ОПШТЕ ФИЗИЧКЕ ПРИПРЕМЕ ЖЕНА 40-55 ГОДИНА RATIONAL RELATIONSHIP BETWEEN THE VARIOUS MEANS OF GENERAL PHYSICAL PREPARATION OF WOMEN BETWEEN 40-55 YEARS OF AGE <b>Гасанова-Матвејева Земфира Арифовна</b>	<b>132</b>
UTICAJ ODBOJKAŠKOG TRENINGA NA PROMENE OPŠTIH I SPECIFIČNIH SPOSOBNOSTI KOD DEVOJČICA, POLAZNICA ŠKOLE ODBOJKE "DESANKA MAKSIMOVIĆ - BEOGRAD" THE INFLUENCE OF VOLLEYBALL TRAINING ON THE CHANGES OF GENERAL AND SPECIFIC ABILITIES IN GIRLS, PARTICIPANTS OF VOLLEYBALL SCHOOL "DESANKA MAKSIMOVIC "- BELGRADE <b>Janković Suzana, Nešić Goran, Sikimić Milan, Gortsila Evgenia</b>	<b>134</b>
МЕРЕЊЕ СРЧАНОГ ОДГОВОРА НАКОН ТРЕНАЖНОГ И ТАКМИЧАРСКОГ ОПТЕРЕЋЕЊЕ КОД БОРАЦА У САВАТЕУ MEASURING OF HART RESPONSE AFTER TRAINING AND COMPETITIVE ACTIVITIES IN SAVATE BOXING FIGHTERS <b>Дејан Гавриловић, Милош Мудрић, Марко Ћирковић</b>	<b>136</b>
UTICAJ MORFOLOŠKIH KARAKTERISTIKA I MOTORIČKIH SPOSOBNOSTI NA SELEKCIJU U BALETU INFLUENCE OF MORPHOLOGICAL CHARACTERISTICS AND MOTOR ABILITIES FOR THE SELECTION IN THE BALLET <b>Dejan Suzović, Branislava Porčić</b>	<b>138</b>
TEHNIKE PROMENE PRAVCA U ALPSKOM SKIJANJU DIRECTION CHANGE TECHNIQUES IN ALPINE SKIING <b>Robert Ropret</b>	<b>140</b>
THE ANALYSE OF WORKLOAD EXERCISE DURING THE PERFORMANCE OF THE DIFFERENT PROGRAMMES DURING THE WARMING UP PART OF THE LESSON <b>Dario Novak, Sanja Gomercic, Nemanja Badnjarevic</b>	<b>141</b>

POSTURALNI STATUS KAO FAKTOR SELEKCIJE U RUKOMETU POSTURAL STATUS AS SELECTION CRITERION IN HANDBALL <b>Dejan Ilić, Zoran Valdevit, Vesko Drašković</b>	<b>142</b>
PRIMENA TESTA VERTIKALNOG SKOKA ODSKOKOM SA JEDNE NOGE U PRAĆENJU OPORAVKA NAKON REKONSTRUKCIJE LCA: PILOT STUDIJA <b>Olivera Knežević, Marko Kadija, Darko Milovanović, Dragan M. Mirkov</b>	<b>144</b>
ISPITIVANJE ODNOSA ŠKOLSKOG POSTIGNUĆA I MOTIVACIJE UČENIKA V RAZREDA ZA ANGAŽOVANJE NA ČASOVIMA FIZIČKOG VASPITANJA INVESTIGATION OF RELATIONS BETWEEN SCHOOL ACHIEVEMENTS AND MOTIVATION OF 5TH GRADE STUDENTS FOR INVOLVEMENT IN PHYSICAL EDUCATION CLASSES <b>Dragoljub Višnjić, Dragan Martinović, Jelena Ilić, Živorad Marković</b>	<b>145</b>
ZNAČAJ SPORTSKO-REKREATIVNIH AKTIVNOSTI U KONTEKSTU SOCIJALNOG UKLJUČIVANJA OSOBA SA INTELEKTUALNIM TEŠKOĆAMA THE IMPORTANCE OF SPORTS AND RECREATIONAL ACTIVITIES IN THE CONTEXT OF SOCIAL INCLUSION OF PEOPLE WITH INTELLECTUAL DISABILITIES <b>Boban Petrović, Duška Stojisavljević, Ljiljana B. Lazarević</b>	<b>147</b>
ДИСТРИБУЦИЈА ЗБИРНЕ ОЦЕНЕ ПОСТУРАЛНОГ СТАТУСА ШКОЛСКЕ ДЕЦЕ БАЧКЕ ПАЛАНКЕ У ОДНОСУ НА ПОЛ GENDER-BASED DISTRIBUTION OF THE COLLECTIVE ASSESSMENT OF POSTURAL STATUS IN SCHOOLCHILDREN IN BAČKA PALANKA <b>Драгана Зечак, Бранка Протић – Гава</b>	<b>149</b>
РАЗЛИКЕ У СТАТУСУ СТОПАЛА СПОРТИСТА И НЕСПОРТИСТА МЛАЂЕГ ШКОЛСКОГ УЗРАСТА THE DIFFERENCE IN FOOT HEALTH STATUS BETWEEN PRIMARY SCHOOL ATHLETES AND NON- ATHLETES <b>Бранка Протић – Гава, Тијана Шћепановић, Ивана Пављук</b>	<b>151</b>
KOLIKO JE TEŠKA ĐAČKA TORBA? HOW HEAVY IS THE SCHOOLBAG? <b>Aleksandar Ignjatović, Živorad Marković, Slađana Tošić, Sandra Milanović, Vesna Petrović</b>	<b>153</b>
GOJAZNOST – EPIDEMIJA ILI PANDEMIJA OBESITY - AN EPIDEMIC OR PANDEMIC <b>Miroslav Markovic</b>	<b>155</b>
OSETLJIVOST TERENSKIH TESTOVA ZA PROCENU GIPKOSTI NOGU: PILOT STUDIJA SENSITIVITY OF THE FIELD TESTS OF FLEXIBILITY OF LOWER EXTREMITY: A PILOT STUDY <b>Bobana Berjan, Predrag Božić, Nemanja Pažin</b>	<b>157</b>
LEADERSHIP IN SLOVENIAN SPORTS CLUBS <b>Gregor Jurak, Jakob Bednarik, Edvard Kolar, Marjeta Kovač</b>	<b>159</b>
THE ROLE OF FOOTBALL IN PERSONAL CHILD DEVELOPMENT WITHIN A DEVELOPING COUNTRY <b>Simona Šafaříková</b>	<b>160</b>
UTICAJ PERFORMANSI BRZINE I EKSPLOZIVNE SNAGE NA SPOSOBNOST BRZE PROMENE SMERA KRETANJA KOD PROFESIONALNIH FUDBALERA SENIORSKOG UZRASTA INFLUENCE OF SPEED AND EXPLOSIVE POWER PERFORMANCES ON CHANGE OF DIRECTION SPEED ABILITY OF SENIOR PROFESSIONAL SOCCER PLAYERS <b>Zoran B. Pajić, Jelena R. Ilić, Saša T. Jakovljević</b>	<b>161</b>
100 ГОДИНА СРПСКОГ ОЛИМПИЗМА - ЈУБИЛЕЈ ЗА ПАМЋЕЊЕ (1910-2010) 100 YEARS OF SERBIAN OLYMPISM – ANNIVERSARY TO REMEMBER (1910-2010) <b>Слађана Мијатовић</b>	<b>163</b>

STANJE KONDICIJE UČESNIKA LETNJEG FESTIVALA REKREACIJE, ČANJ 2010. CONDITION STATE OF THE PARTICIPANTS IN THE SUMMER RECREATION FESTIVAL, ČANJ 2010. <b>Natalija Mihajlović, Dušan Mitić</b>	<b>165</b>
STUDIJA SLUČAJA - BOJANA VASILJEVIĆ-OBRAĐOVIĆ VICEŠAMPIONKA SVETA U BODI FITNESSU NA SVETSKOM PRVENSTVU U BODIBILDINGU, FITNESSU I BODI FITNESSU – MEKSIKO, 2010. CASE STUDY - BOJANA VASILJEVIĆ-OBRAĐOVIĆ WORLD VICE CHAMPION IN BODYFITNESS IN THE 2010 WORLD BODYBUILDING, FITNESS AND BODY FITNESS CHAMPIONSHIP IN MEXICO <b>Zoran Obradović, Bojana Vasiljević-Obradović, Stanimir Stojiljković</b>	<b>167</b>
A COMPARISON OF THE PHYSICAL FITNESS OF STUDENTS ATTENDING DIFFERENT HIGH SCHOOL PROGRAMMES IN SCHOOL YEAR 2008/2009 <b>Marjeta Kovač, Bojan Leskošek, Gregor Jurak, Janko Strel</b>	<b>169</b>
FIZIČKA AKTIVNOST ADOLESCENATA: UZRASNE I POLNE RAZLIKE PHYSICAL ACTIVITY OF ADOLESCENTS: AGE AND GENDER DIFFERENCES <b>Snežana Radisavljević Janić, Ivana Milanović, Dušanka Lazarević</b>	<b>170</b>
SQUAT JUMP AND SPRINT QUALITIES OF PREPUBESCENT SOCCER PLAYERS <b>Fatih Hazar</b>	<b>172</b>
THE STATE OF INCONTINENCE AND FEMALE ATHLETES <b>Hale Uyar Hazar, Fatih Hazar</b>	<b>173</b>
AKTIVAN ODMOR NA PLANINI KAO PROMOCIJA ŽIVOTNOG STILA THE ACTIVE REST AT THE MOUNTAIN AS A PROMOTION OF LIFE STYLE <b>Sreten Srečković</b>	<b>174</b>
PLIVANJE ZA SVAKOGA – BEZBEDNOST ZA SVE SWIMMING FOR EVERYONE – SAFETY FOR ALL <b>Branislav Jevtic</b>	<b>176</b>
TOURISTS' ATTACHMENT IN PHYSICAL ACTIVITIES DURING THEIR HOLIDAYS: THE CASE OF TENNIS <b>V. Koronas, K. Koronas, I. Athanailidis, E. Zetou</b>	<b>178</b>
ASSESS THE STATE OF POSTURE, PHYSICAL FITNESS AND PHYSICAL DEVELOPMENT OF STUDENTS OF THE UNIVERSITY <b>Alena Cepková</b>	<b>179</b>
THE POLICE AND CRIMINAL JUSTICE ACADEMY STUDENTS ATTITUDES OF THE SUBJECT OF SPECIAL PHYSICAL EDUCATION <b>Goran Vučković, Milivoj Dopsaj</b>	<b>180</b>
STUDY ON THE PHYSICAL DEVELOPMENT LEVEL OF CLASS V <sup>th</sup> STUDENTS <b>Talaghir Laurentiu-Gabriel, Bădău Dana, Manolache Gabriel, Mereuța Claudiu, Candidate Ionomescu Teodora</b>	<b>181</b>
RESEARCH FOR THE OPINION OF SPORTS ACCORDING TO 13 YEARS OLD STUDENTS <b>Marjan Malcev</b>	<b>182</b>
BORILAČKI SPORTOVI ZA OSOBE SA INVALIDITETOM MARTIAL ARTS FOR DISABLED <b>Goran Kasum, Strašo Gligorov, Tanja Nastasić-Stošković</b>	<b>183</b>
RESULTS OF THE POWER PLATE TRAINING IN TREATMENT OF CEREBRAL PALSY. CASE STUDY <b>Marija Macura, Ana Vilotic, Sanja Mandaric, Goran Kasum</b>	<b>185</b>



## EXAMINING LEVELS OF LIFE SATISFACTION AND JOB SATISFACTION OF TURKISH FOOTBALL COACHES IN TERMS OF DEMOGRAPHIC DIFFERENCES

Fikret Soyer<sup>1</sup>, Yusuf Can<sup>2</sup>, Mehmet Bayansalduz<sup>3</sup>, Hale Bozkurt<sup>4</sup>, Ihsan Sari<sup>1</sup>

<sup>1</sup> Sakarya University, School of Physical Education and Sports, Turkey

<sup>2</sup> Cumhuriyet University, Faculty of Education, Department of Physical Education and Sports, Turkey

<sup>3</sup> General Directorate of Youth and Sport, Turkey

<sup>4</sup> Adnan Menderes University, School of Physical Education and Sports, Turkey

### Introduction

Job satisfaction and life satisfaction are important terms for people's life. Happiness, success and efficiency comes with higher degrees of job satisfaction and life satisfaction. That is why it is important to research these variables in sports context. The aim of this research is examining levels of life satisfaction and job satisfaction of Turkish football coaches in terms of demographic differences.

### Methods

266 football coaches (trainer, technical director, and conditioning coach) that were selected by random sampling method participated in this survey on a voluntary basis. Minnesota job satisfaction questionnaire (Weiss, Dawis, England, Lofquist, 1967) and life satisfaction questionnaire (Pavot & Diener, 1993) were used in the research. Reliability coefficient was found to be 0,7748 for job satisfaction questionnaire and 0,7343 for life satisfaction questionnaire.

### Results and discussion

A significant difference was not observed ( $p > 0,05$ ) for levels of job satisfaction among the age groups, whereas a significant difference was found ( $p < 0,05$ ) for levels of life satisfaction among the age groups. It was found out that this difference was due to the fact that coaches in the age range of 45-54 had lower levels of life satisfaction than the coaches from the other age ranges.

A significant difference for levels of job satisfaction and life satisfaction of the coaches participated to the research was not found in marital status ( $p > 0,05$ ).

Whereas a significant difference was not observed for levels of life satisfaction of football coaches among education groups ( $p > 0,05$ ), a significant difference of 0,001 level was found for levels of job satisfaction.

### Conclusion

Job satisfaction and life satisfaction were found to be differing according to some demographic variables.

### References

Pavot, W. & Diener, E. (1993), "Review of the Satisfaction with Life Scale", *Psychological Assessment*, 5, ss. 164-172.  
Weiss, D.J., Dawis, R.V., England, G.W., Lofquist, L.H. (1967), *Manual for the Minnesota Satisfaction Questionnaire*. Minnesota Studies in Vocational Rehabilitation, Vol. 12, University of Minnesota Industrial Relation Center, Minneapolis, MN.

## **EXAMINING TURKISH FOOTBALL COACHES' LEVELS OF LIFE SATISFACTION AND ORGANIZATIONAL COMMITMENT IN TERMS OF DEMOGRAPHIC DIFFERENCES**

**Ihsan Sari<sup>1</sup>, Fikret Soyer<sup>1</sup>, Yusuf Can<sup>2</sup>, Mehmet Bayansalduz<sup>3</sup>**

<sup>1</sup> Sakarya University, School of Physical Education and Sports, Turkey

<sup>2</sup> Cumhuriyet University, Faculty of Education, Department of Physical Education and Sports, Turkey

<sup>3</sup> General Directorate of Youth and Sport, Turkey

### **Introduction**

The aim of this research is examining Turkish football coaches' levels of life satisfaction and organizational commitment in terms of demographic differences. Organisational commitment is important for people and organisations because there is a positive relationship between organizational commitment and performance. Life satisfaction is also another factor that affects people life. It refers to the extent to which people are satisfied with their life. Therefore it is important to discover life satisfaction and organizational commitment in sport context.

### **Methods**

266 football coaches (trainer, technical director, and conditioning coach) that were selected by random sampling method participated in this survey on a voluntary basis. Organizational commitment questionnaire which was developed by O'Reilly and Chatman (1986) and life satisfaction questionnaire (Pavot & Diener, 1993) were used for the research. In the end of the study, reliability coefficient was found to be 0,80 for organizational commitment questionnaire and 0,73 for life satisfaction questionnaire.

### **Results and discussion**

A significant difference was found for the coaches' levels of organizational commitment between the leagues (amateur- professional) where they work ( $p < 0.05$ ).

A significant difference was not observed for the coaches life satisfaction and organizational commitment among the educational groups ( $p > 0,05$ ).

Results of the research also pointed out that there is a significant difference for life satisfaction levels of the coaches among the income groups ( $p < 0,05$ ).

### **Conclusion**

Life satisfaction and organizational commitment of football coaches were found to be differing according to some demographic variables.

### **References**

- O'Reilly III, C. A., & Chatman, J. (1986). Organizational commitment and psychological attachment: The effects of compliance, identification, and internalization on prosocial behavior. *Journal of Applied Psychology*, 71(3), 492-499.
- Pavot, W. & Diener, E. (1993), "Review of the Satisfaction with Life Scale", *Psychological Assessment*, 5, ss. 164-172.

## RELACIJE DIMENZIJA LIČNOSTI KARATISTA SENIORA I FAKTORA OPTIMALNE ORGANIZACIONE KULTURE

Miroljub Ivanović<sup>1</sup>, Uglješa Ivanović<sup>2</sup>

<sup>1</sup> Visoka škola strukovnih studija za obrazovanje vaspitača, Sremska Mitrovica, Srbija

<sup>2</sup> Fakultet za menadžment u sportu, Beograd, Srbija

Cilj istraživanja bio je da se definišu osobine ličnosti kao prediktori faktora najpovoljnije organizacione kulture, kao i linearne korelacije između latentnih dimenzija ličnosti i pojedinih faktora organizacione kulture. Istraživanje je realizovano na uzorku od 136 ispitanika (62 muškog i 74 ženskog pola), karatista seniora iz Kolubarskog okruga iz 7 klubova. U uzorku su primenjena dva merna instrumenta: a) The Big Five Inventory (BFI; John, Donahue & Kentle, 1991, prema John & Srivastava, 1999) i b) upitnik Organizational Culture Profile (OCP, Saross et al., 2005). U obradi podataka primenjena je multivarijantna analiza kovarijanse i univarijantna analiza varijanse (ANOVA). Testiranjem dimenzija ličnosti modela „Pet velikih“, utvrđene su samo dve osobine ličnosti karatista (prijatnost i otvorenost) kao statistički značajni prediktori faktora organizacione kulture, dok od 7 faktora organizacione kulture nijedan nije bio relevantan. Dobijena je statistički značajna povezanost između sistema prediktorskih varijabli dimenzija ličnosti i faktora organizacione kulture, kao kriterijuma. To ukazuje da se na osnovu dimenzija ličnosti mogu predvideti pojedini faktori organizacione kulture karatista. Osobina ličnosti prijatnost predstavlja statistički značajan prediktor za dva faktora organizacione kulture društvena odgovornost i stabilnost. To znači da će karatisti koji u socijalnim kontaktima manifestuju tendenciju ka skladnim odnosima davati prvenstvo ljudima koji imaju obavezu izvršavanja dužnosti. Dobijeni nalazi na dve ekstrahovane latentne osobine ličnosti prijatnost i ekstraverzija signaliziraju to da su one značajan prediktor faktor organizacione kulture podrška, koji podrazumeva zajednički trening, usmerenost na sportiste i razmenu informacija bez ograničenja. Izdvojene osobine ličnosti prijatnost i otvorenost, mogu imati primenu u praksi pri selekciji karatista, planiranju njihove sportske karijere, realnom sastavljanju reprezentacije u klubu, kao i kod očekivanja na adaptaciju u novom okruženju faktora organizacione kulture u svom klubu.

## RELATIONS BETWEEN KARATE PLAYERS PERSONALITY DIMENSIONS AND OPTIMAL ORGANIZATIONAL CULTURE FACTORS

Miroljub Ivanović<sup>1</sup>, Uglješa Ivanović<sup>2</sup>

<sup>1</sup> Professional studies academy for kindergarten teachers education, Sremska Mitovica, Serbia

<sup>2</sup> Faculty of sport management, Belgrade, Serbia

The aim of research was to define personality characteristics as factor predictors of the most suitable organizational culture, as well as linear correlations between personality dimensions and some organizational culture factors. The research was realized on the sample of 136 examinees (62 males and 74 females), who are karate players in 7 clubs from Kolubara district. Two measure instruments have been applied on the sample: a) The Big Five Inventory (BFI; John, Donahue & Kentle, 1991, to John & Srivastava, 1999) and b) Organizational Culture Profile questionnaire (OCP, Sarss et. al., 2005). Covariance multivariate analysis and univariate variance analysis (ANOVA) have been applied in the data processing. Testing the personality dimension “Big five” model, only two karate players’ personality characteristics (pleasantness and openness) have been determined as statistically significant organizational culture factor predictors, while from 7 organizational culture factors none was relevant. Also, the statistically significant correlation between predictor system variables of personality dimensions and organizational culture factors as criterion has been achieved. That indicates to the fact that according to the personality dimensions some factors of karate players’ organizational culture can be predicted. Personality characteristics pleasantness presents statistically significant predictor for two organizational culture factors- social responsibility and stability. That means that karate players, who in social contacts manifest tendency to harmonious relationship, will give priority to people who have obligation of carrying out duties. Achieved findings of two extracted latent personality characteristics pleasantness and extraversion, signalize that they are significant predictor of organizational culture support factor, which implies mutual training, sportsmen orientation and information exchange with no limits. Separated personality characteristics –pleasantness and openness- can be applicable in practice when selecting karate players, planning their sport carriers, making representations in a club, as well as excepting adaptation in a new organizational culture surrounding in its own club.

## **INDEPENDENT PRACTICE AND ITS ROLE IN UPGRADING TEACHING SCHOOL IN PHYSICAL EDUCATION**

**Cristian Savu, Constantin Pehoiu, Silviu Badea**

Department of Physical Education and Sport, Valahia University of Targoviste, Romania

### **Introduction**

Through the eyes of modern education, individual work gains new meaning and dimensions for the young to be able to integrate quickly and effectively in social life. Thus, this form of organization of school physical education, which is based on conscious and active student participation in extra-curricular activities makes it possible and also necessary conditions self-instruction, self-formation, self-education and training capacity to exercise independent practice.

### **Methods**

If outdoor physical education classes will be organized independent business practice exercise then we contribute to reconsider the concepts of physical education by teaching methods, increasing efficiency of students during lessons etc.

Educational experiment took place with a total of 124 subjects (51% girls, 49% boys), aged 14-15 years, students from two schools located in urban areas, of whom 62 constituted the control group and the others representing the experimental group. The latter received during a school year a special program of extracurricular exercise. Also based on survey-questionnaire were consulted a number of 75 teachers of physical education in rural and urban, with pedagogical experience between 10 and 30 years, 55% of them to step up high school education.

The methods used was documenting and analyzing data literature, pedagogical observation, experiment, teaching conversation, statistics, mathematical processing, graphics and survey questionnaire form.

### **Results and discussion**

From the perspective of the influence of individual work on improving educational approach to the discipline of Physical Education and Sport, 57 teachers, representing 76% of the total responded affirmatively, 21.5%, believe that the positive effects of individual work can be observed only if it is done systematically and a very small percentage, only 2.5% was represented by those who felt that such influence would be negligible for the physical education lesson. On the subject of physical activity necessary for independent daily basis most of the responses recorded, representing 47.7% felt that 15 minutes are sufficient while a very similar percentage, 36.4%, considered as time requirements would be 30 minutes. Of the total responses, 13% believe that the significant influence has the time for independent work to be 45 minutes daily and only 2.9% believed that this unit is better for 60 minutes daily. Following implementation of the individual exercise, all components of the experimental group significantly improved their physical parameters and on the development of motor ability.

### **Conclusions**

Reflecting the views of teachers support the introduction of homework is a form of additional training because of the provisions of the program in the number of hours spent is insufficient, especially in the secondary school. The experiment reveals the basic pedagogical effectiveness of applying sports activities to increase independent physical preparation level of the students.



## MANAGEMENT SYSTEM AND ISSUES OF PHYSICAL EDUCATION AND SPORT IN ROMANIA IN THE CONTEXT OF COMPETITIVE ECONOMY

Sică Pușcoci, Constantin Pehoiu

“Valahia” University of Târgoviște, Department of Physical Education and Sports, Dâmbovița County, Romania

### Introduction

Economic status, social and political life of Romania after 1989 created the foundation and multiple opportunities for develop the national system of physical education and sport. However, the absence of a performant management system, services of education, training and consulting, legal vacuum and the ideas that have real possibilities of managerial capacity does not produce the expected changes, adapting to new social-economic conditions in which sport requires new orientations becoming burdensome.

### Methods

If a transitional period requires extensive changes in the cultural concept of professional communities, based on a system of values in the application of methods, techniques or management tools is essential, then we will see an effective increase at the organizational level.

Our research was conducted over a period of three years, between 2006-2009, in three stages, with subjects 3560 people, aged 18 and 65.

Methods used: scientific documentation, questionnaire-based survey, statistical-mathematical data processing, interpretation of results and their graphic representation.

### Results and discussion

School population of Romania involved in the physical education is about 24.481 schools across the country. Number of Romanian persons engaged in the practice exercises is medium, about 5.7 million people, representing about 26% of the total population. According to the results obtained through the survey undertaken among the 3560 people, 32.9% are involved in sport activities. Sports known and practiced by them are: football 27.1%, 21.8% bodybuilding, aerobics 16.8%, 9.8% basketball, fitness 9.6%, volleyball 5.9%, tennis 4.7% and fighting and self defense, 4.4%. For 56.5% of respondents sport is important for the human life and for other 43.5% is very important. Also, 78.6% of respondents believe that sports as a regular basis is a mean to improve more quality of life.

### Conclusions

The current status of the National System of Physical Education and Sport in Romania is due to a bad management that is not-profit oriented towards getting the sport and recreation. Resolving this issue requires a reshaping and restructuring the management system corresponding to the sports structures. In our opinion, Romania, to build upon the economic and social efficiency and maximum sport potential, tourism and recreation available, should focus their efforts to promote such activities as well.

### References

- 1.\*\*\*, (1990-2008). *Anuarul Statistic al României*, București - Institutul Național de Statistică;
2. Andreff, W., (1994). *The economic importance of sport in Europe: Financing and Economic Impact*, Council of Europe, Strasbourg, 1994.
3. Todea, F. S., (2000). *Managementul educației fizice și sportului*, București-Ed. Fundației România de Mâine;
4. Soucies, D., (1982). *Management theory and practice, Physical education and sport*, Philadelphia Lea & Febiger.

## DIRECTING EFFORT IN TRAINING OF THE 800 AND 1500 METERS JUNIOR GIRLS RUNNERS

**Constantin Pehoiu**

“Valahia” University of Târgoviște, Department of Physical Education and Sports, Dâmbovița County, Romania

### Introduction

Structure of competitive schedule in recent years, the results of a number of athletes of great value, led to the hypothesis that many sports are unable to form a sports plateau to achieve results close to the maximum target of competitions. Reviewing the purposes of restructuring the content of training is a priority for optimum efficiency ratio between principles, methods and training facilities for capacity of building mixed aerobic and anaerobic exercises, treated as separate index volume of compensatory effort nature and the optimal number of competitions in which run junior athletes of 800 and 1500 meters.

### Methods

Participation in competitions with high results can be made by restructuring efforts during the annual cycle exercise training, using the larger proportion of the mixed and anaerobic efforts and approach as an indicator for separate effort with a compensatory nature.

In conducting this study were engaged a number of 35 coaches who answered to a questionnaire with 17 items that focused on sports training periodization and content. The study was conducted with the participation of two groups of junior athletes. Experimental group achieved new proposed model for validation of its contents following specific resistance education capacity and speed of running and maintaining it as long as a portion of the race and the control group developed proposed model curriculum for school clubs.

Used methods: documentation, teaching experiment, questionnaire survey, teacher observation, tests and measurements, statistical-mathematical processing and graphical representation of results.

### Results and discussion

Periodization in the annual sports competitions to obtain an objective form, 19% of professionals use four macro-cycles of training, 62% use two and 20% use three periods of preparation in the same category. Most experts recommend indoor competitions - in winter - and in summer - the outdoor track competitions. In terms of monthly training lessons, they differ depending on the school's athletes, from 25 to 30 trainings to 33% of training for sports to 31-35 trainings for 67% of them. In the case of running and jumping, the experimental group is superior to the control group.

### Conclusions

Results of tests and samples control for the running on 1500 m on portions of the race, and the total distance, restructuring efforts have shown that training in the annual cycle of led to a significant progress for the experimental group regarding the performance.

### References

- ◆ Basco, C., Cotell, I.C., Mogroni, P., (1995) *Antrenamentul de rezistență, viteză, forță / Sportul de performanță*, București, nr. 359-361, 1995, CCPS.
- ◆ Bompa, T. O., (2002) *Teoria și metodică antrenamentului - Periodizarea*, București - Ed. CNFPA
- ◆ Pradet, T., (2000) *Pregătirea fizică / Sportul de Performanță*, nr. 426-428., București - MTS/CCPS.
- ◆ Neuman, G., (1995) *Adaptarea antrenamentului de rezistență / traducere din limba engleză*, București - C.C.P.S., pg. 65-71.
- ◆ Weinek, J., (1992) *Biologia sportului / traducere din limba germană*, București- C.C.P.S., București.

## **DO SLOVAK ELDERLY WOMEN HAVE SUFFICIENT LEVEL OF MOTOR PERFORMANCE?**

**Dagmar Nemcek, Helena Medekova, Jela Labudova, Janka Perackova, Anna Pavlikova, Zuzana Sakacova**

Faculty of Physical Education and Sport, Comenius University in Bratislava, Slovakia

### **Introduction**

Functional fitness and appropriate level of motor performance is a major determinant of quality of life and one of the key predictors of many health outcomes in later life. The purpose of the study was to measure individual performances in different motor abilities in elderly women and compare their average value of achieved performance with existing norms from different age category point of view. This research is part of grand project VEGA nr. 1/0702/10.

### **Methods**

From the Senior Fitness Test battery (Rikli, Jones, 2001) that consists of six performance-based tasks validate to measure functional fitness components we picked up 3 of them (back scratch test, 8-foot up-and-go test and chair stand test). For further measurements we chose 3 additional tests like modified sit and reach test, test of lateral spine flexion and one leg stand test. 129 elderly women in age from 60 to 89 years participated in our research. We divided respondents into five age categories where we provided comparison of average value of achieved motor performance in selected tests with existing norms.

### **Results and discussion**

Women of all examined age categories (60-64, 65-69, 70-74, 75-79 and 80-89 years) achieved average level of motor abilities in all measured test except in chair stand test, where three age categories of Slovak elderly women (60-64, 65-69 and 70-74 years) showed even above-average level of lower limbs strength. In all tested motor abilities active elderly women presented higher level of motor performance comparing sedentary elderly women.

### **Conclusion**

On the basis of our results we can confirm, that Slovak elderly women have an appropriate level of their motor performance, where better results were found in-group of active elderly women. By providing different tests we are not recommending one leg stand test for elderly who are older than 85 years of age.

### **References**

Rikli, R.E, Jones, C.J. (2001). Senior fitness test manual. California State University Fullerton : Human Kinetics.

## **PHYSICAL ACTIVITY FOR EVERYONE IN SLOVAK UNION OF RECREATIONAL PHYSICAL EDUCATION AND SPORT**

**Jela Labudova, Dagmar Nemcek, Stanislav Kracek**

Faculty of Physical Education and Sport, Comenius University in Bratislava, Slovakia

### **Introduction**

Physical activities for everyone as Sport for all is characterized as a tool of health-enhancing activity, which is attractive for people and among citizens is very positively perceived. Sport for all is designated for all age categories and with its different forms of sport and physical activities contributes to increase the quality of life for all citizens. This research is part of grand project VEGA nr. 1/0702/10.

### **Methods**

In the article we are analysing sports and physical activities in clubs of concrete Sport for all organisation called Slovak Union of Recreational Physical Education and Sport (SURPES). We were finding out the most exploited sport activities, its differentiation by the regions in Slovakia (east, middle, west) and number of organized physical activities in particular clubs. We used the questionnaire as a main research method.

### **Results and discussion**

On the basis of 80 units of questionnaire we found out, that aerobic (20,5%) is the most popular sport activity in clubs of SURPES. Health-enhancing physical activities like adapted physical activities: Pilates, Calanetics and exercise in groups of elderly people are also preferred. On the other side classic sports like dance, volleyball, swimming and hiking are not very popular in the clubs of SU RPES. The barriers for further activities developments in clubs of SURPES are first of all lack of finance subsidy (53%), lack of facilities (16,5%) and lack of professionals working in the field of Sport for all. Trends of development head towards to activities, those support healthy life style.

### **Conclusion**

In further education of professionals who are working in the field of Sport for all is need of new publications preparation, use of self-education through CDs and DVDs and organisation of national seminars and conferences mostly for coaches and instructors working with active people at the all age level.

## **AN INVESTIGATION OF EDUCATIONAL TECHNOLOGY STANDARDS OF PHYSICAL EDUCATION CANDIDATE TEACHERS IN TERMS OF SEVERAL VARIABLES**

**Erkan Faruk Şirin, Savaş Duman**

Department of Sport Management, School of Physical Education and Sports, Selcuk University, Konya, Turkey

### **Introduction**

There are a lot of courses that can be useful for making students to gain educational technology standards in the department of physical education teaching in our country. However, it is uncertain that this education is appropriate at what level to the standards of educational technologies are approved by many countries. The present study was designed to evaluate physical education candidate teachers' self-efficacy beliefs of technology usage in line with the views of physical education candidate teachers in terms of NETS-T standards and to find out whether their self-efficacy beliefs differentiate in terms of gender, time spent using computer, computer usage level, time spent using the internet and their type of using the internet.

### **Methods**

This study aims at revealing the overall state of pre-service physical education teachers in terms of educational technology standards. The survey method was applied in this study to collect the research data. The scale developed by Çoklar (2008) taking into consideration the sub-factors of NETS-T standards was used as the data gathering tool. 332 (n<sub>male</sub>=203; n<sub>female</sub>=129) final year undergraduate students studying at physical education department at 9 different universities participated in the study. One-way analysis of variance, one-sample independent t test and frequency, percentage from descriptive statistics were used in the analyses of the study and level of significance was set at .05.

### **Results and discussion**

The results of the research, It was determined that in terms of educational technology standards of physical education candidate teachers have a high level self-efficacy. While the finding of this research shows a parallelism with Oh and French' finding (2004) "the pre-service teachers substantially gain proficiency on educational technology standards at the end of the prep level educational technology course" which has been conducted to find out whether they correspond the NETS-T standards or not, and Hofer's finding (2003) "%65.1 of pre-service teachers are generally efficient in NETS-T standards" gathered at the end of the research conducted on students take educational technology courses at 7 different universities, it shows a dissimilarity with Liang et al.'s finding (2005) has been conducted in China "the teachers in China have limited efficacies".

It was determined that there was not a significant difference between the time spent using computers, the time spent using the internet and sub-level self-efficacy beliefs of educational technology standards but there was a significant difference between level of using computer, type of using the internet and sub-level self-efficacy beliefs of educational technology standards. Examining the sub-levels of educational technology standards, students using computers at "expert level" find themselves more efficient than the students at „beginner level“ and „intermediate level“ in all sub-levels in terms of level of using computer. Examining the sub-levels of educational technology standards, students using the internet for „searching/getting the information“ find themselves more efficient than the students using the internet for „communication“ and „entertainment/relaxation“ in all sub-levels in terms of type of using the internet.

### **Conclusion**

The results of the research shows that pre-service teachers studying in the department of Physical Education Teaching of Physical Education and Sport Colleges see themselves sufficient in terms of educational technology standards, they can use the technology efficiently during the education period and the gender is not important in terms of the educational technology standards scale. At the same time, gender is not an important factor in all sub-levels of educational technology standards. However a significance was observed in favour of the students thinking themselves more efficient in terms of level of using computer and type of using the internet.

### **References**

- Liang, G., Song, J., Liu, G., Walls, R., Li, G., Wang, Z., et al. (2005). Are teachers in China ready to teach in the 21st century? *Journal of Technology and Teacher Education*, 13(2): 197-209.
- Oh, E., French, D.R. (2004). Pre-service Teachers' Perceptions of an Introductory Instructional Technology Course, *Electronic Journal for the Integration of Technology in Education*, 3(1): 37-48.

## USE OF NEW MEDIA BY FANS IN SPORTS COMMUNICATION: FACEBOOK AND TWITTER

**Selami Özsoy**

Assistant Professor, University of Abant İzzet Baysal, School of Physical Education and Sport, Department of Sport Management, Bolu, Turkey

### **Introduction**

In our day, progressing information technology has enabled the creation of various alternative media to standard mass media tools such as newspapers, radio and television. Sports events which are important topics that attract the interest of the masses are now easily accessible by new generation media tools in addition to classic environments. Social networking sites such as Facebook and Twitter which are becoming more and more widespread on the Internet take the lead in the dissemination of news related to sports. This study aims to determine the use of social networking sites such as Facebook and Twitter for following the development in sports by the fans.

### **Method**

Initially 605 university students participated in the study from Bolu Abant İzzet Baysal University and Sakarya University in Turkey and 425 of this total who identified themselves as fans of a sports club comprised the sample. Study employed a 21-item, 5-point Likert scale data collection tool developed by the researcher in line with expert opinions. Obtained results were analyzed by frequencies and one-way analysis of variance (ANOVA).

### **Results and discussion**

According to the results of the study, 90.5% of the fans expressed that they created a profile in Facebook while 15.2% preferred Twitter, 8.2% used Myspace and 1.4% Friendfeed. 9.9% said that they were not members of any social networking sites. Fans expressed that they followed the sports news from internet sites. Majority of the fans followed the formal profile of the teams they support and were informed of the sports activities in their environment through Facebook. With this channel, most of the fans were aware of news that they were not informed of through other sources. The fans uploaded videos with sports content and published messages when their team won. Fans said that they followed blogs with sports content in internet less closely compared to Facebook. In terms of Twitter, fans expressed that they followed the sportsmen they liked and the formal profiles of teams they supported. It was identified that male fans followed the social networking sites for sports communication compared to female fans ( $p \leq 0.005$ ).

### **Conclusion**

It was concluded that the majority of the sample of university students in the study follow Facebook from among the social networking sites and received a part of their information from this site. However, less educated fan profile may display a lower level of use in terms of social networking sites. As the conclusion of the study it can be said that social networking sites are gaining prominence for fans as an alternative to traditional communication channels.

**Key words:** Sport, New Media, Internet, Facebook, Twitter.

### **References**

- Butts, F. (2010) NCAA Athletes and Facebook. *The Sport Journal*, Vol: 13, Number: 4  
Kassing J.W. and Sanderson J. (2010). Fan-Athlete Interaction and Twitter Tweeting Through the Giro: A Case Study. *International Journal of Sport Communication*, 3, 113-128.

## CYCLING IN TURKEY FROM OTTOMANS TO OUR DAY

Mehmet Süme<sup>1</sup>, Selami Özsoy<sup>2</sup>

<sup>1</sup> University of Abant İzzet Baysal, Faculty of Art and Science, Department of History, Bolu, Turkey.

<sup>2</sup> University of Abant İzzet Baysal, School of Physical Education and Sport, Department of Sport Management, Bolu, Turkey.

### Introduction

The bicycle, invented in Europe at the beginning of 19<sup>th</sup> century, was at first a vehicle that the privileged used and later started to be employed for purposes of sports. After the bicycle started to become widespread, it was brought to Ottoman Empire by Levantines and at first it was used in postal service, police organization and army.

The aim of this study is to give information about the expansion process of bicycle sport in Turkey from Ottoman Era to the Republic.

### Method

The relevant literature on this topic was consulted and was benefited from documents about bicycles in the Ottoman Archives of Turkish Republic Prime Ministry and in The Turkish Republic Archives.

### Results and discussion

It was brought to Ottoman Empire by Levantines after it started to be commonly employed and was used primarily in postal services, police organization and military. The first news report about the appearance of bicycles in the Ottomans was published in Tarik newspaper in 1885. Bicycle races were held in big cities starting with Istanbul, İzmir and Thessalonica.

A bicycle race was contemplated in between Vienna and İstanbul with the attempts of bicycle associations in Vienna in 1885, but the race was cancelled.

Then a committee founded by the attempt of Vienna's Deputy Mayor Alber Rinhetr planned a bicycle excursion. The route of the excursion was from Vienna to İstanbul via Belgrad, Niş, Sofya, Filibe, Edirne. Consul General of Austria in İstanbul Bonri supported this organization. Moreover, the sultan's youngest son expressed satisfaction from the foundation of the organization.

### Conclusion

Bicycling organizations which were common after the Second Constitutional Period kept their presence in a more organized manner in the period of the Republic. Following the formation of the cycling federation in 1923, the first Turkish National Team was originated. Turkish sportsmen won medals in international organizations such as Mediterranean Games and the Balkan Championship. In the intervening 120 years, from 1890s to today, the use of bicycle in everyday life has increased and gained mobility in sporting terms.

**Keywords:** Bicycle, Velocipede, Sport.

### References

Atabeyoğlu, C. (1994). *Türk Bisiklet Tarihi [Bicycle History in Turkey]*, İstanbul: Türk Spor Vakfı Yayınları.  
Herlihy, D. (2004). "Bicycle The History", Yale University Press.

## **THE EFFECT OF EIGHT-MOUNT EXERCISE PROGRAM ON BONE DENSITY AND SOME PHYSICAL CHARACTERISTICS IN SEDENTARY WOMEN**

**Serkan Hazar, Sedef Kurt**

Niğde University, Department of Physical Education and Sports, Niğde, Turkey

The aim of the study was to determine and evaluate the effect of eight-mount step aerobic and run-walk exercises on bone density and some physical characteristics as weight, total fat mass, total fat percentile and lean mass at sedentary females

14 sedentary females with mean age 41,2 voluntarily participated in the study. Subjects performed an exercise program lasted an hour three days a week for eight months. Exercise program consisted of 45/50-minute step aerobic one day a week; 30- minute run/walk and 30- minute stretching two days a week. Total bone mineral density (BMD), total bone mineral content (BMC), T score, Z score, Total lean mass, total fat mass and total fat percentile values were diagnosed by dual X-ray absorptiometry (DXA) (NORLAND XR-46). Wilcoxon signed rank test was used for data evaluation and significance level alpha was set at 0.05.

After the eight -month exercise program, it was found out that there was significant decrease in weight, BMI, and total fat mass ( $p<0.05$ ). But the decreases in total fat percentile and lean mess were statically insignificant. Nevertheless the decreases in total BMD, T-score and Z-score were statically significant ( $p<0.05$ ), while the decreases in total BMC value were statically insignificant.

In conclusion the eight-month step aerobic, run-walk and stretching exercises positively affected some anthropometric components as weight, BMI, and total fat mass. However the program didn't affect bone density in a positive way. In addition, the program didn't provide a preventive effect on bone density. It is suggested that preparation of exercise programs with similar purpose should include resistance exercise forms as well.

**Key words:** exercise, bone density, sedentary females



## THE RELATIONSHIP BETWEEN REACTION TIME AND DECISION MAKING IN ELITE KICKBOXING ATHLETES

Çağrı Çetin<sup>1</sup>, Özden Taşğın<sup>2</sup> And Fatma Arslan<sup>3</sup>

<sup>1</sup>High School of Physical Education and Sport, Mustafa Kemal University Hatay, Turkey

<sup>2</sup>Faculty of Science and Arts, Nevşehir University, Nevşehir, Turkey

<sup>3</sup>High School of Physical Education and Sport, Karamanoglu Mehmetbey University, Karaman, Turkey

### Introduction

Sports practice improves some reaction time abilities, especially sports-specific decision-making abilities. Athletes are very quickly required to make a decision participating in kick boxing competitions. Therefore, the purpose of this study was to examine the relationships between decision-making and reaction time of the kick boxing national team athletes.

### Method

Total of 32 male (mean age: 23.28±4.25 year), 22 female (mean age: 22.17±4.63 year) elite kick boxing athletes were participated voluntarily in to this study at the camping period before the Adults European Kick Boxing Championships in 2009. All subjects were divided into two groups according to branch as full contact male (n=18), female (n=12) and light contact male (n=14), female (n=10). Reaction times of subjects were measured using multiple choice electronic reaction timer in both two hand for audio and visual. Besides, In this research were used as means of data collecting "Melbourne Decision Making Scale" developed by Mann and the others (1998) and adapted into Turkish by Deniz (2004) for determined the decision making styles of elite kick boxing athletes. Descriptive statistical analysis results were presented as mean ± SD. Relationships of the variables were tested with Pearson's correlation analysis as statistical method. For all tests significance at  $p < 0.05$  was considered significant.

### Results

As a result correlation was found between RTVR (reaction time visual right) with RTAL (reaction time audial left) at light contact male; RTVL (reaction time visual left) and RTAR (reaction time audial right) with careful from sub dimensions of decision making at full contact male. Correlation was found between RTVR with RTVL, RTAR with RTAL, avoidant with and panic the suspensive from sub dimensions of decision making at light contact female; RTVR with panic, RTVL with RTAL, RTAL with careful from sub dimensions of decision making at full contact female.

### Conclusion

As a result can be said that a long-term studies kick boxing to be effective in the development of reaction times of athletes and careful decision-making capabilities. Besides it was thought to be of full contact athletes both male and female faster than and more careful light contact male and female.

**Key Words:** Reaction Time, Decision Making and Kick Boxing

## EVALUATION OF THE EFFECTS OF EXERCISE PROGRAM ON SOME FITNESS PARAMETERS AND WEIGHT LOSS AT MIDDLE AGED PERIMENOPAUSAL SEDENTARY WOMEN

Fatma Arslan<sup>1</sup>, Evrim Çakmakçı<sup>2</sup>, Halil Taşkin<sup>2</sup>, Oktay Çakmakçı<sup>2</sup>, Cecilia Gevat Ismet<sup>3</sup>

<sup>1</sup> High School of Physical Education and Sport, Karamanoglu Mehmetbey University, Karaman, TURKEY

<sup>2</sup> High School of Physical Education and Sport, Selçuk University, University, Konya, TURKEY

<sup>3</sup> Faculty of Physical Education and Sport, Ovidius University of Constanta, ROMANIA

### Introduction

Menopause is when menstruation permanently cut off. Perimenopause was defined as irregular bleeding (6 weeks to 4 months) and/or vasomotor symptoms such as sweating and hot flushes (Bergstrom et al. 2005). Body composition has become a major field of interest for sport scientists and clinicians. The purpose of this study was to examine the effects of intermittent exercise on body composition, fat distribution and vasomotor symptoms in perimenopausal sedentary women.

### Method

In this study participated that total 66 middle-aged with the phenomenon of hot flushes overweight sedentary women as volunteers. The age and height averages of the subjects exercise and control group were respectively 44,11±2,81 years, 1,59±6,83 cm.(n=42) and 43,33±2,84 years, 1,60±5,12 cm.(n=24). Body weight, Body composition (via skinfolds caliper), waist hip ratio, waist circumference and body fat percentage were obtained from sedentary women. Besides subjects were asked menopausal bleeding patterns (including vasomotor symptoms) states with information form. The measurements were taken twice as before and after pilates mat training program being applied a 6-week series of one hour exercise three days per week. The control group did not participate in any activity exercise program during the six-week period.

### Results and Discussion

There were significant differences between pretest and posttest for weight, body mass index, waist circumference, waist hip ratio, fat percentage and body composition parameters in exercise group ( $p < 0,05$ ). Also, there were not significant differences between pretest and posttest for waist circumference, waist hip ratio, body composition parameters and body fat percentage in control group. According to subjects' answers to was found that pilates mat exercise had significantly effective on hot flushes from vasomotor symptoms at sedentary women.

### Conclusion

The findings support of pilates mat exercises effects on weight loss and body composition parameters. Pilates mat exercises can have long-term benefits for women undergoing the menopausal transition.

**Key Words:** Pilates, Perimenopaus, Body Composition, Hot Flushes

### References:

Bergstrom I, Freyschuss B, Landgren BM (2005) Physical training and hormone replacement therapy reduce the decrease in bone mineral density in perimenopausal women: a pilot study. *Osteoporos Int* 16:823–828

## THE INVESTIGATED OF BODY COMPOSITION CHANGES ASSOCIATED WITH WEIGHT CHANGE AND AEROBIC-DANCE EXERCISE

Evrin Çakmakçı<sup>1</sup>, Fatma Arslan<sup>2</sup>, Halil Taşkin<sup>1</sup>, Oktay Çakmakçı<sup>1</sup>

<sup>1</sup> Selçuk University, University, High School of Physical Education and Sport, Konya/ TURKEY

<sup>2</sup> Karamanoglu Mehmetbey University, High School of Physical Education and Sport, Karaman/ TURKEY

### Introduction

Aerobic dance is one of the most common exercise practices in the world (1). Music with slow or fast rhythm cadences helps to control and pace the movement of selected body segments (2). Weight changes result in lean body mass (LBM, body fat (BF) changes and Body Mass Index (BMI). Therefore, the purpose of this study was to assess the effects of aerobic dance exercise on body composition and health status.

### Method

In this study participated that total 55 adults sedentary women as volunteers. The age, height and weight averages of the subjects exercise and control group were respectively 35,10±9,12 years, 1,60±5,22 cm and 68,55±6,73 kg (n=29) and 30,27±10,85 years, 1,59±5,53 cm and 61,25±8,38 kg (n=26). Body composition (via skinfolds caliper), waist hip ratio, waist circumference were measured and body fat percentage, BMR(basal Metabolic Rate) and LBM (Lean Body Mass) were calculated at sedentary women. The measurements were taken twice as before and after aerobic-dance exercise being applied a 8-week series of one hour exercise three days per week. The control group did not participate in any physical activity during the six-week period.

### Results and Discussion

There were significant differences between pretest and posttest for weight, body mass index, waist circumference, waist hip ratio, metabolic and body composition parameters in exercise group ( $p<0,05$ ). Besides there were significantly decreased body weight, LBM, BMR and fat percentage( $p<0,05$ ). Furthermore, there were not significant differences between pretest and posttest for waist circumference, waist hip ratio, body composition parameters, LBM, BMR, body weight and body fat percentage in control group( $p>0,05$ ).

### Conclusion

As a result, it can be say that aerobic dance exercise at a moderate intensity and duration can improve physical fitness and can decrease body fat percentage, LBM and BMR during weight loss.

**Key Words:** Aerobic-dance exercise, Body Composition, Weight loss.

### References:

1. Williford, H.N., Scharff-Olson, M., Blessing, D.L. (1989). The physiological effects of aerobic dance. *Sports Med.* 8, 335e345.
2. Copeland, B.L., Franks, B.D., (1991). Effects of types and intensities of background music on treadmill endurance. *J. Sports Med. Phys. Fitness* 31, 100e103.

## WORK ALIENATION IN PREDICTING JOB SATISFACTION AMONG PHYSICAL EDUCATION TEACHERS IN TURKEY

Erkan Faruk Şirin<sup>1</sup> Savaş Duman<sup>1</sup> Seydi Karakuş<sup>2</sup>

<sup>1</sup>Department of Sport Management, School of Physical Education and Sports, Selcuk University, Konya, Turkey

<sup>2</sup>Department of Physical Education Teachers, School of Physical Education and Sports, Dumlupınar University, Kütahya, Turkey

### Introduction

Work alienation emerges as a consequence of having various difficulties at work by being affected by a number of environmental factors and these individuals losing their confidence in their work (Duygulu 1999; Ağaoğlu and Madden, 2005) cannot achieve job satisfaction. The aim of the study is to determine what effects the variables of work alienation (powerlessness, meaningfulness, isolation and school alienation) have on predicting job satisfaction.

### Methods

The study group of this research consisted of a total of 338 physical education teachers, 95 of which were females (28.1% ) and 243 (71.9%) were males, working in 178 primary and 160 secondary schools affiliated to the Ministry of National Education which are located in central districts of Ankara during 2009-2010 education year. In the study, Job Satisfaction Scale developed by Hackman and Oldham (1975) and 'Work Alienation Scale' developed by Elma (2003) were used to collect data. Pearson's Product Moment Correlation Coefficient and Multiple Regression Analysis were used for the analysis of the data collected from the study.

### Results and discussion

Findings of the study indicated negative and moderate relationships between job satisfaction and powerlessness, meaningfulness, isolation and alienation from school which are sub-dimensions of work alienations. Accordingly, job satisfaction decreases as the feelings of powerlessness, meaningfulness, isolation and school alienation increase among teachers of physical education. It was observed that all variables with regard to predicting job satisfaction explained 42% of total variance.

At the same time, powerlessness, meaningfulness, school alienation and isolation significantly predicted job satisfaction of the teachers. Besides, job satisfaction, stress, work environment and organizational atmosphere are generally considered to be related to burnout (Tsigilis et al., 2006). Burnout is defined as physical exhaustion, the feeling of despair and hopelessness, emotional emptiness, development of negative self-perception and development of negative attitudes towards job, life and other people (Elma, 2003). While alienation is suggested as a sub-dimension of burnout syndrome, it is considered as a psychological sign of burnout (Igodan and Newscomb, 1986).

### Conclusion

The results of the study found a significant negative relationship between job satisfaction among physical education teachers and their levels of powerlessness, meaningfulness, isolation and school alienation which are sub-dimensions of work alienation.

### References

- Ağaoğlu E., and Madden T. (2005). The level of alienation of high school administrators. [CD]. 3<sup>rd</sup> International JTET Conference. 23- 25 May. Vechta: Germany.
- Duygulu, E. (1999). Yabancılaşma olgusuna yönelik karşılaştırmalı bir inceleme. T.R. Dokuz Eylül University Journal of Graduate School of Social Sciences, 1(3): 1-14.
- Elma, C. (2003). Teachers work alienation in elementary school (Ankara case study). Unpublished doctoral dissertation Ankara: Ankara University.
- Igodan, O.C., and Newcomb, L.H. (1986). Are you experiencing burnout? Symptoms and coping strategies for extension professionals. *Journal of Extension*, 24: 4-7.
- Tsigilis, N., Zachopoulou, E., and Grammatikopoulos, V. (2006). Job satisfaction and burnout among Greek early educators: A comparison between public and private sector employees. *Educational Research and Review*, 11(8): 256-261.

## КОМПАРАЦИЈА РЕЗУЛТАТА ПОСТИГНУТИМ НА РЕПУБЛИЧКИМ СПОРТСКИМ ИГРАМА ЗА ГЛУВУ ДЕЦУ СРБИЈЕ

**Радомир Арсић**

Учитељски факултет у Призрену-Лепосавићу

### Увод

Спорт се код деце са ометеношћу посматра са више аспеката. Он се може посматрати као средство за разумевање и интеракције међу глувима, као средство за њихову рехабилитацију, односно као средство социјализације и социјалне идентификације са популацијом која чује. Поред развоја комуникације, код глувих ученика се другачије развија и моторика.

### Методe

За анализу је примењена дескриптивна анализа резултата(мере централне тенденције и мере дисперзије) ученика добијених на атлетским такмићењима Републичким спортским играма за глуву децу Србије, за узраст пионира и омладинаца у периоду од 2002 до 2010. године.

### Резултати са дискусијом

Губитак слуха представља веома сложен проблем па се и саме дефиниције глувоће разликују међу истраживачима. Прихватамо чињеницу да код оштећења слуха можемо дефинисати две велике и различите подгрупе : глуви и наглуви. У нашем раду анализирамо само резултате глуве деце и омладине постигнуте на школским атлетским такмичењима, без анализе резултата наглуве деце и омладине. Термин глув се односи на ону децу чији губитак слуха је толико озбиљан да они нису у стању да у потпуности стекну говорни језик, а чије је оштећење слуха преко 90 dB.

Резултати истраживања су показали да, говорећи уопштено, глува деца и омладина постиже сличне резултате као и њихови вршњаци који чују. Показало се да не постоје разлике у психомоторним способностима између деце која чују и глуве деце а да се разлике појављују пре свега у начину припремња за такмичење и самом тренирању. Разлике су се појавиле између деце која активно се баве спортом и деце која повремено тренирају и баве се спортом на аматерској основи.

### Закључак

Спорт је једна од моћних везивних снага у свету глувих. Љубав према спорту се негује у интернатским школама за глуву децу и ствара ривалство међу школама. Спорт брзо постаје моћно средство акултурације за глуво дете, размена искустава, извор за понос. Тако се догађа да се кроз такмичења која се организују на нивоу Републике Србије, поред постизања вредних резултата, глува деца међусобно упознају, размењују искуства, стварају здраве навике и развијају своје социјалне вештине.

### Литература

1. Арсић, Р., Зрнзевић, Н. (2010) : The development of phizical education in schools for deaf and hearinh impairmend children in Srebia, Fifth International Scientific Congress "Sport, Stres, Adaptation", Nacional Sports Academy, Sofia, Bulgaria, pages 229-233
2. DePauw, K. P. & Gavron, S. J. (1995) Disability and sport. Champaign, Illinois: Human Kinetics.

## **COMPARISON OF RESULTS ACHIEVED THE REPUBLICAN SPORTS GAMES FOR THE DEAF CHILDREN'S SERBIAN**

**Radomir Arsić**

Teachers training Fakulty in Prizren-Leposavić

### **Introduction**

Sports for children with disabilities are approached from different aspects. It can be seen as a means of understanding and interaction among the deaf, as a means for their rehabilitation, or as a means of socialization and social identification with normal hearing. Besides the development of communication, the deaf student is different and develops motor skills.

### **Methods**

The analysis is applied to descriptive analysis of the results (measures of central tendency and dispersion measures) of students received the athletic takmićenjimana Republican sports games for deaf children of Serbia, to the age of pioneers and young people from 2002 to 2010. year.

### **Results and Discussion**

Hearing loss is a very complex problem and is the very definition of deafness vary among researchers. We accept the fact that the hearing loss can be defined two large and different sub-groups: deaf and hard of hearing. In our paper we analyze only the results of deaf children and young people achieved at school athletic events, without an analysis of the results of hearing impaired children and youth. The term deaf refers to those children whose hearing loss is so severe that they are unable to fully acquire spoken language and whose hearing loss over 90 dB.

The results showed that, generally speaking, deaf children and young people achieve similar results as their peers who hear. It turned out that there are differences in the psychomotor skills of the children who hear and deaf children and that differences appear primarily in the way pripremnja for competition and the coaching. Differences have emerged between children who are actively involved in sports, and children who sometimes trained and involved in sports on an amateur basis.

### **Conclusion**

Sport is one of the powerful bonding forces in the world of the deaf. Love for the sport are nurtured in boarding schools for deaf children and creating a rivalry between schools. Sports is fast becoming a powerful means of acculturation for the deaf child, sharing experiences, the source of pride. This is what happened to the competitions which are organized in the Republic of Serbia, in addition to achieving valuable results, deaf children to know each other, share experiences, create healthy habits and develop their social skills.

### **References**

1. Arsić, R., Zrnzević, N. (2010): The development of physical education in schools for deaf children and hearing impairment in Serbia, Fifth International Scientific Congress "Sport, Stress, Adaptation, National Sports Academy, Sofia, Bulgaria, pages 229-233
2. DePauw, K.P. & Gavron, S.J. (1995) Disability and sport. Champaign, Illinois: Human Kinetics.

## **SOCIJALNI STATUS I STILOVI RUKOVOĐENJA U SPORTSKIM KOLEKTIVIMA VOJNE AKADEMIJE**

**Marjan Marinković<sup>1</sup>, Boris Glavač<sup>1</sup>, Lela Marić<sup>1</sup>, Petar Kostić<sup>2</sup>, Aleksandar Milojević<sup>3</sup>,  
Bojana Milićević Marinković<sup>4</sup>**

<sup>1</sup> Vojna Akademija, MO, Beograd, Srbija

<sup>2</sup> Filozofski fakultet, Kosovska Mitrovica, Srbija

<sup>3</sup> Fakultet za sport i fizičko vaspitanje, Niš, Srbija

<sup>4</sup> Sportski savez Beograda, Beograd, Srbija

### **Uvod**

Liderstvo se svakodnevno identifikuje u svakodnevним nastavnim i sportskim aktivnostima. Od budućih oficira se zahteva da budu rukovodioci od čijih odluka zavise zaposleni. Lider u sportskom kolektivu je u korelaciji sa liderom u struci.

### **Metod**

Uzorak ispitanika je činilo 60 kadeta muškog pola Vojne akademije uzrasta 21 godinu ( $\pm 2$  godine) i 6 trenera ( po 1 u ekipi). Ispitanici su bili podeljeni u šest sportskih sekcija i to: atletika, futsal, košarka, vojni višeboj, ragbi i rukomet. Svaka sekcija je brojala po 10 članova (sportisti Vojne akademije) plus trener koji je odgovorno lice u organizatorskom, trenažnom i takmičarskom vidu. Uzorak varijabli: za procenu socijalnog statusa u ekipi, za procenu osobina trenera, za procenu vođe u ekipi. Merenja sprovedena pomoću upitnika (procena osobina trenera sproveden je Upitnikom PS, stil rukovođenja (P. B. Kostić). Za prikupljanje podataka o socijalnom statusu kadeta u ovom istraživanju primenjen je funkcionalni kriterijum. Podaci dobijeni u merenju su obrađeni deskriptivnom statistikom (aritmetička sredina - AS i standardna devijacija-SD), utvrđivanje korelacija izvršeno je bivarijantnom korelacionom analizom (Pirsonovom korelacionom analizom), a utvrđivanje razlika univarijantnom analizom varijanse (ANOVA).

### **Rezultat sa diskusijom**

Postoji pozitivna korelacija između socijalnog statusa kadeta i stilova rukovođenja unutar Vojne akademije (p .05) .

### **Zaključak**

Postoji statistički značajna razlika stilova rukovođenja između i unutar sportskih ekipa.

### **Literatura**

Kostić, P. (2007). *Psihometrija – konstrukcija, rekonstrukcija i upotreba psiholoških testova*. Priština – Kosovska Mitrovica, Filozofski fakultet.

Milojević, A. (2004). *Psihologija sporta i vežbanja*. Niš: Fakultet fizičke kulture.

## **SOCIAL STATUS AND STYLISH SPORTS TEAM MANAGEMENT IN MILITARY ACADEMY**

**Marjan Marinković<sup>1</sup>, Boris Glavač<sup>1</sup>, Lela Marić<sup>1</sup>, Petar Kostić<sup>2</sup>, Aleksandar Milojević<sup>3</sup>,  
Bojana Milićević Marinković<sup>4</sup>**

<sup>1</sup> Military Academy, Ministry of Defense, Belgrade, Serbia

<sup>2</sup> Faculty of Philosophy, Kosovska Mitrovica, Serbia

<sup>3</sup> Faculty of Sports and Physical Education, Niš, Serbia

<sup>4</sup> Sport association of Belgrade, Belgrade, Serbia

### **Introduction**

Leadership is identified in the daily teaching and sports activities. Of future officers are required to be leaders of their decisions depend on the employee. Leader in the sports collective is correlated with the leader in vocation.

### **Method**

The sample consisted of 60 male cadets of the Military Academy 21 years of age ( $\pm 2$  years) and six coaches (one in the team). The patients were divided into six sections and sports: athletics, futsal, basketball, military pentathlon, rugby and handball. Each section consisted of 10 members (athletes Military Academy) plus a coach who is responsible person of the organizer, the training and competitive form. The sample of variables: for assessing social status in the team, for assessing properties of trainers, for assessing properties of trainers, for the evaluation of leaders in team. Measures conducted through a questionnaire (assessment of characteristics of trainers was conducted by questionnaire PS, management style (PB Kostic). Data collection on the social status of cadets in this study used a functional criterion. The data obtained in the measurements were processed by descriptive statistics (mean - AS and standard deviation-SD), determining the correlation was performed bivariate correlation analysis (Pearson correlation analysis), and determine the differences between univariate analysis of variance (ANOVA).

### **Results and discussion**

There is a positive correlation between social status of cadets and styles of leadership within the military academy (p .05).

### **Conclusion**

There are significant differences between management styles and within sports teams.

### **References**

- Kostić, P. (2007). *Psihometrija – konstrukcija, rekonstrukcija i upotreba psiholoških testova*. Priština – Kosovska Mitrovica, Filozofski fakultet.
- Milojević, A. (2004). *Psihologija sporta i vežbanja*. Niš: Fakultet fizičke kulture.



## EVALUATION OF SELF-ESTEEM OF THE CHILDREN AND ADOLESCENTS IN TERMS OF PARTICIPATION IN SPORTS

Hüseyin Kirimoğlu<sup>1</sup>, Gülşen Filazoğlu Çokluk<sup>2</sup>, Yunus Yildirim<sup>1</sup>

<sup>1</sup>Mustafa Kemal University, Physical Education and Sports Department, Hatay, Turkey

<sup>2</sup>İlkadım Special Need School, Hatay, Turkey

The aim of the present research was to evaluate self-esteem of the children and adolescents in terms of their participation in sports by comparing them to the sedentary peers. "Piers-Harris Children's Self-Concept Scale" was utilized in order to determine the self-esteem levels of the participants. The sample of the research was consisted of 336 primary school students in total; 109 boy players and 74 girl players who participated in U-12 badminton competition among primary schools of Turkey and 85 sedentary boy students and 68 sedentary girls students determined with random sampling method from two primary schools from Antakya city center.

As a result, mean scores of the self-esteem of the participants were found to be high in the general sense. Besides, being a sports-player increased significantly scores of the self-esteem. It was found out according to total mean scores of self esteem that all the participants had a high self concept; yet, players did have a higher self concept than sedentary participants.  $\alpha$  value for the whole scale was found to be as .87. It was seen that participants had higher means in terms of happiness subscale ( $M=1,5128$ ) and behavior subscale ( $M=1,6040$ ). However, mean scores of physical appearance ( $M=1,2774$ ) and intellectual / school success ( $M=1,2594$ ) were found to be lower compared to the mean scores of happiness, anxiety and behavior subscales.

According to the correlation among subscales of the Piers-Harris Children's Self-Concept Scale and to the correlation between the same subscales and the socio demographic variables; anxiety ( $p<0.05$ ), physical appearance ( $p<0.01$ ) and intellectual / school success ( $p<0.01$ ) were inversely correlated with sex (gender) but directly proportional to behavior ( $p<0.01$ ).

It is of high importance to use sports as a key instrument in increasing and developing self-esteem and to make families encourage their children for playing sports.

**Key Words:** Self-Esteem, Sports, Sedentary, Child, Adolescent, Primary School

## MODERN AND QUALITY IN PSYCHOMOTOR PREPARATION

**Turcanu Florin, Turcanu Dana**

University of Medicine and Pharmacy, Târgu Mures, Romania

### Introduction

The content of psychomotor preparation consists in developing those sides of the psycho-behavioral activities of the student that impose on him an efficient conduct in the didactic activities, both regarding the entire adaptation to requests and stress and regarding his best improvement from technical tactic point of view in a certain sportive branch.

### Method

The main goal of our didactic experiment was to draft a methodological system of actions and its implement in the didactic sportive activities with medicine students and not only in order to develop the psychomotor skills with instruments specific to volleyball.

### Results and discussion

Research methods used are: the system of methods in collection of research data; the system of methods for mathematic-statistic and interpretation of the research data; checking and evaluation methods for the research results. The pedagogic experiment was performed between October 2009 and May 2010. As a consequence of the experimental intervention, the values of the psychomotor skills increased progressively in comparison with the performed pre-testing phase. This statement is sustained by the value of the comparison test  $z_1$ , from the post-testing phase for the experimental group and  $z_2$  between the experimental group and the witness group to the frequencies of the post-testing phase that were higher than 1,96. Therefore it results that the difference between the two averages is statistic significant at the level of significance of  $P < 0, 05$ . Meanwhile the graphic representations show us the ascendant line of the skills, observing the progress of the 44 subjects.

### Conclusion

According to this study we can conclude that the development of the psychomotor skills at medicine students can be achieved more efficiently, faster and nicer with means specific to the volleyball game. The *new* element of the study is the structure of these means and methods specific to the volleyball game that can be used in the development of the psychomotor main skills.

### References

1. Bocoș, M. (2007) – *Theory and practice of the pedagogical research* – 2<sup>nd</sup> Edition, Publisher Casa Cărții de Știință, Cluj Napoca.
2. Turcanu F, Turcanu D.S (2009) – *Volleyball – psychomotor capacity development at students*, Publisher Ardealul, Targu Mures.

## **SOCIOLOŠKI ASPEKTI FIZIČKIH AKTIVNOSTI**

**Dorđe Stakić, Milan Domanović**

Univerzitet u Beogradu Fakultet sporta i fizičkog vaspitanja, Beograd, Srbija

### **Uvod**

Uvodne napomene o predmetu rada, objašnjenje društvenog položaja i uloge fizičke kulture u celini složene društvene strukture.

### **Metode**

Konkretno istorijski metod. Analitički pristup pojavama, odnosima i procesima fizičko-kulturnih aktivnosti.

### **Rezultati sa diskusijom**

**I** Terminološka i pojmovna razrešenja

Različita shvatanja fizičke kulture i sporta i njihovih međusobnih odnosa.

Usko shvatanje fizičke kulture kao "obrađivanja", "gajenja", "kultivisanja" u kom slučaju se značenje fizičke kulture poistovećuje sa "telesnim vaspitanjem".

Široko shvatanje fizičke kulture po kome ona obuhvata sve vrste fizičko - kulturnih aktivnosti ljudi i njihovih zajednica, odnosa i oblika organizovanja kroz koje se ta aktivnost odvija, zajedno sa svešću o razlozima, ciljevima i vrednostima fizičko - kulturne aktivnosti. U ovom širem značenju fizička kultura je shvaćena kao posebni deo ukupne kulture društva i obuhvata više oblasti kao što su sport, rekreacija i fizičko vaspitanje.

**II** Sociološki pristup pojavama sporta

Čovek kao socijalno i psiho-fizičko biće. Egzistencionalni značaj održavanja psihofizičkog integriteta i sposobnosti ljudi sa opšte društvenog stanovišta. Interes i briga društva za fizičku kulturu. Povezanost, zavisnost i uslovljenost fizičke kulture sa celinom društvenih odnosa.

### **Zaključak**

Fizička kultura je deo ukupne društvene kulture, koja se ispoljava na jednom području društvenog života. Ukupnost materijalnih i duhovnih dostignuća, obrazaca ponašanja, shvatanja o ciljevima i vrednostima, nasleđenih tradicija i projekata budućeg; svi ti elementi kulture društva predstavljaju ambijent u kome egzistira oblast fizičke kulture.

### **Literatura**

Barry, D. Mc P., James, E. C., John W. L., (1989). The Social Significance in sport. Champaign, Illinois: Human Kinetics Books

Koković, D., 1994. Sociologija obrazovanja. Novi Sad: "Matica srpska".

Flint, W.C., & Eitzen, D.S., (1987). Profesional sports team ownership and entrepreneurial capitalism. Sociology of sport journal, 4, 17-27.

## THE SOCIOLOGICAL ASPECTS OF PHYSICAL ACTIVITIES

**Dorđe Stakić, Milan Domanović**

University of Belgrade, the Faculty of Sport and Physical Education, Belgrade, Serbia

### **Introduction**

Introductory references on the subject of research, the explanations of social status and the role of physical culture in the total complex social structure.

### **Methods**

Specific historic method. Analytical approach to the phenomena, relations and processes of physical and cultural activities.

### **Results and Discussion**

#### **I. The Explanations of Terms and Ideas**

Different insights into physical culture and sport and their mutual relations.

Narrow understanding of physical culture as “modeling”, “breeding”, “cultivation” and in that sense the meaning of physical education is identified with “bodily education”.

The broad understanding of physical culture by which it involves all aspects of physical and cultural activities of people and their communities, relations and forms of organization by which the activities are conducted, together with the understanding and of reasons, aims and values of physical and cultural activities. In this broader sense, physical culture is understood as a special part of total culture of a society and includes a number of fields such as sport, recreation, and physical education.

#### **II. The Sociological Approach to the Phenomenon of Sport**

A man as a social and psycho-physical being. The life-preserving importance of keeping physical integrity and capabilities of people from general social point of view. The interest and concern of society for physical culture. Connection, dependence, and relevance of physical culture to social relations as a whole.

### **Conclusion**

Physical culture is a part of a total social culture that is manifested in one field of social life. The total of material and spiritual accomplishments, forms of conduct, understanding of aims and values, inherited traditions and projects of the future; all these elements of social culture represent the environment where the area of physical culture exists.

### **Literature**

Barry, D. Mc P., James, E. C., John W. L., (1989). The Social Significance in sport. Champaign, Illinois: Human Kinetics Books

Koković, D., 1994. Sociologija obrazovanja. Novi Sad: “Matica srpska”.

Flint, W.C., & Eitzen, D.S., (1987). Professional sports team ownership and entrepreneurial capitalism. Sociology of sport journal, 4, 17-27.

## ФИЗИЧКА АКТИВНОСТ STUDENATA NIŠKOG UNIVERZITETA - PILOT STUDIJA

Saša Pantelić<sup>1</sup>; Nebojša Randelović<sup>1</sup>; Nebojša Čokorilo<sup>2</sup>; Milena Mikalački<sup>2</sup>; Darinka Korovljević<sup>2</sup>

Fakultet sporta i fizičkog vaspitanja, Niš, Srbija<sup>1</sup>

Fakultet sporta i fizičkog vaspitanja, Novi Sad, Srbija<sup>2</sup>

### Uvod

Fizička neaktivnost, posebno je izražena u zemljama savremenog sveta. Ovo je naročito izraženo u starijoj životnoj dobi, ali se trend male ili gotovo nikakve fizičke aktivnosti zapaža i kod mladih (Sharkey & Gaskili, 2008). Novija istraživanja ukazuju na sve veći porast fizičke neaktivnosti kod populacije studenata i studentkinja (De Vahl et al., 2005). Problem istraživanja bio je da se utvrdi koliko su studenti niškog univerziteta angažovani fizičkim aktivnostima.

### Metode

Uzorak ispitanika činilo je 90 studenata niškog univerziteta izabranih metodom slučajnog izbora sa 5 fakulteta (pravni, ekonomski, filozofski, FSFV i FZNR). Merni instrument bio je upitnik indeksa aktivnosti (prema Kasariju). Izračunati su osnovni deskriptivni parametri, a razlike između grupa utvrđene su t-testom. Obrada podataka realizovana je pomoću statističkog paketa SPSS 16.0, a nivo značajnosti bio je .05

### Rezultati i diskusija

Rezultati su pokazali da je najveća fizička aktivnost utvrđena kod studenata fakulteta FSFV (66,57 bodova), a da se ona značajno razlikuje od studenata fakulteta sa ekonomskog (Sig= .017) (41,85) i pravnog fakulteta (Sig= .018) (40,06). Slični rezultati dobijeni su i u pogledu učestalosti i trajanja fizičkih aktivnosti. Kod studenata FSFV zabeležena je frekvencija vežbanja od nešto više od 4 puta nedeljno, dok je kod studenata ekonomskog fakulteta ona iznosila 2,78 (Sig= .025), a pravnog 2,43 (Sig= .012). Značajne razlike u trajanju fizičke aktivnosti zabeležene su između studenata FSFV i studenata pravnog (Sig= .034) i studenata pravnog fakulteta i studenata FZNR (Sig= .044). Generalno je utvrđeno da je angažovanje studenata niškog univerziteta fizičkim aktivnostima relativno dobro, da prosečna učestalost vežbanja iznosi 3 puta nedeljno, ali da ovako dobijeni rezultati obuhvataju samo pojedine grupe studenata, odnosno da postoje i studenti koji uopšte nisu uključeni u sistem fizičkih aktivnosti. Potrebno je naći način da se i ovi studenti uključe u različite i vrste vežbanja.

### Zaključak

Na osnovu dobijenih podataka, može se zaključiti da je kod studenata niškog univerziteta, u proseku utvrđen zadovoljavajući preporučeni minimalni broj vežbanja u toku nedelje, da se indeks fizičke aktivnosti nalazi u vrednostima zadovoljavajućeg, ali da nisu svi studentu uključeni u redovan sistem fizičkog vežbanja.

### Literatura

1. De Vahl, J., King, R., & Williamson, J.W. (2005). Academic Incentives for Students Can Increase Participation in and Effectiveness of a Physical Activity Program. *Journal of American College Health*, 53(6), 295-298.
2. Sharkey, B.J., & Gaskill, S.E. (2008). Вежбање и здравље. Београд: Дата Статус.

## PHYSICAL ACTIVITY NIS UNIVERSITY MALE STUDENTS - A PILOT STUDY

Sasa Pantelic<sup>1</sup>; Nebojsa Randjelovic<sup>1</sup>; Nebojsa Cokorilo<sup>2</sup>; Milena Mikalacki<sup>2</sup>; Darinka Korovljev<sup>2</sup>

Faculty of Sport and Physical Education, Nis, Serbia<sup>1</sup>

Faculty of Sport and Physical Education, Novi Sad, Serbia<sup>2</sup>

### Introduction

Physical inactivity is especially pronounced in the modern world. This is especially pronounced in the elderly, but the trend of low or almost no physical activity was found in young (Sharkey & Gaskili, 2008). Recent research shows a growing increase in physical inactivity in the population of male and female students (De Vahl et al., 2005). This study was to determine how much students of University of Nis engaged in physical activities.

### Methods

We tested 90 students of University of Nis randomly chosen from the five faculties (law, economics, philosophy, FSFV and FZNR). Measuring instrument was a questionnaire index of activity (according to Kasari). We calculated the basic statistical parameters, and differences between groups were confirmed with t-test. Data analysis was carried out using the statistical package SPSS 16.0, a level of significance was .05

### Results and discussion

The results showed that the highest physical activity was determined with the students of FSFV (66.57 points), and that it is significantly different from students of the economic (Sig= .017) (41.85) and law faculty (Sig= .018) (40.06). Similar results were obtained regarding the frequency and duration of physical activity. The students of FSFV recorded the frequency of exercise of more than 4 times a week, while the students of the economic faculty it was 2.78 (Sig= .025), and the law faculty 2.43 (Sig= .012). Significant differences in duration of physical activity were noted between students FSFV and students of law faculty (Sig= .034) and students from the law faculty and students of FZNR (Sig= .044). Overall, it was found that the involvement of students of University of Nis physical activity is relatively good, the average frequency of exercise is three times a week, but that such results apply only to certain groups of students and that there are students who are not included in the physical activity. It is necessary to find a way to do these students engage in various types and exercise.

### Conclusion

Based on the obtained data, it can be concluded that the students of University of Nis, the average set satisfying the recommended minimum number of practice during the week, the index of physical activity is located in the values of satisfactory, but that not all students included into regular physical exercise.

### References

1. De Vahl, J., King, R., & Williamson, J.W. (2005). Academic Incentives for Students Can Increase Participation in and Effectiveness of a Physical Activity Program. *Journal of American College Health*, 53(6), 295-298.
2. Sharkey, B.J., & Gaskill, S.E. (2008). Вежбање и здравље. Београд: Дата Статус.

## ELEMENTI KVALITATIVNE I KVANTITATIVNE ANALIZE ZNANJA I UMEĆA VOĐENJA PROGRAMA ANIMACIJE REKREATIVNIH AKTIVNOSTI U TURIZMU

Aleksandar Ivanovski<sup>1</sup>, Saiti Bujar<sup>2</sup>, Vukašin Ilić<sup>3</sup>

<sup>1</sup> Visoka sportska i zdravstvena škola, Beograd, R.Srbija

<sup>2</sup> Pedagoški fakultet, Skoplje, R.Makedonija

<sup>3</sup> Fakultet za poslovnu ekonomiju, Valjevo, R.Srbija

### Uvod

Predmet ovog istraživanja je profil animatora rekreacije. Neophodan uslov za uspešno obavljanje misije animatora je redovno praćenje aktuelno sportskih i društveno političkih događaja, muzičkih trendova, ali i posedovanje sportske veštine. On treba da primenjuje modernu tehnologiju kao i da aktivno i kreativno učestvuje u kreiranju programa. Logična je pretpostavka da su angažovani animatori u hotelima prethodno prošli obuku i poseduju znanja za realizaciju programa animacije rekreativnih aktivnosti. To je ujedno hipoteza našeg rada.

### Metoda

U ovom istraživanju koristila se empirijsko-neeksperimentalna metoda ili tzv. "survey" metod. Njome se istraživao se profil animatora rekreacije u turizmu u odnosu na programske sadržaje. Ispitivanje profila izvršeno je transversalno, odnosno ispitivana je populacija animatora u turističkoj sezoni. Podaci dobijeni ovim istraživanjem (anketiranjem) obrađeni su standardnim postupcima deskriptivne statistike. Obradeni su aplikacionim statističkim programom SPSS 12.0 prilagođenim za korišćenje na personalnim računarima. Uzorak od 75 ispitanika u ovom istraživanju su odrasle osobe oba pola, koje se aktivno bave animacijom.

### Rezultat sa diskusijom

Svi animatori koji se spremaju za posao animacije uglavnom imaju najviše znanja iz oblasti fitnesa, akvabika, glume, dekoracije, show dance, koreografije zatim, baratanje sa DJ opremom itd. računajući da su to najpotrebnije sposobnosti za bavljenje animatorskim poslom. S druge strane iz tih sredina odnosno škola i najviše dolaze kandidati da budu animatori te ne čudi činjenica da te sposobnosti visoko kotiraju. A opet treba naglasiti da kada je u pitanju „all round” animator, (što je ovde slučaj kod većine hotela) to su upravo sposobnosti koje čine jednog animatora kompletnim i omogućavaju mu da visoko kotira tj. da radi posao animatora. To svakako ne znači da samo oni koji vladaju ovim sposobnostima mogu da budu animatori. Animator može da bude i onaj koji je specijalista jedne oblasti a druge delimično poznaje. Preko 50% ispitanika dobro, vrlo dobro i odlično poznaju fitnes, personalni trening, akvabik, aerobik, pilates, bodybuilding, masažu itd. Još jedan podatak koji nam govori o spremnosti i pripremljenosti animatora za bavljenje ovim pozivom što potvrđuje hipotezu ovog istraživanja.

### Zaključak

Animator je osoba koja sprovodi aktivnosti ljudi na odmoru. Pre svega bavi se vođenjem i organizacijom fizičkih aktivnosti, kao proces vežbanja, kao primenjene sportske igre ili kao primenjene sportove u funkciji druženja i šireg konteksta aktivnog stila življenja. Menadžmenti svih hotelijerskih institucija insistiraju da programe aerobika, akvabika, obuku plivanja, obuku plesa, organizaciju i osnovnu metodiku sportskih igara (fudbal, košarka, odbojka, rukomet, odbojka na pesku, rukomet na pesku..) upravo rade animatori koji imaju znanja u toj oblasti.

### Literatura

Grupa autora ( 1998). *Animacija u hotelijerskoj-turističkoj ponudi*. Opatija

Mitić, D. (2001). *Rekreacija*. Beograd: Fakultet sporta i fizičkog vaspitanja

Nestoroska, I. (2005). *Animacii vo turizmot*. Ohrid: Fakultet za turizam i ugostiteljstvo

### Abstract

On the sample of 75 animators all over the Mediteranean region, we analyze the knowledge of running the programs of animation recreational activities with "survey" method. The results of research show that the animators who run programs of recreational activities are the persons that have knowledge from area of sport and recreation.

# EFIKASNOST NAPADAČKIH AKCIJA SA NEIZJEDNAČENIM BROJEM IGRAČA U VRHUNSKOM RUKOMETU

Zoran Valdevit<sup>1</sup>, Dejan Ilić<sup>1</sup>, Siniša Karišik<sup>2</sup>

<sup>1</sup> Fakultet sporta i fizičkog vaspitanja, Beograd, Srbija

<sup>2</sup> Fakultet fizičkog vaspitanja i sporta, Istočno Sarajevo, Bosna i Hercegovina

## Uvod

Rukomet je, u novije vreme, postao "brza i snažna" igra. Upravo takva igra dovodi do toga da, pokušavajući da spreče protivnika, igrači često nepropisno startuju što za posledicu ima vremensko isključenje. Iako manje zastupljeni, i ovakvi periodi igre značajno utiču na konačan rezultat utakmice. Predpostavka je da veća efikasnost u situacijama nejednakog broja igrača u fazi napada bitno utiče na postignute rezultate.

## Metode

Ovo je transversalno istraživanje empirijskog karaktera. Prikupljanje podataka je ostvareno „posmatranjem” svih utakmica koje su odigrale četiri prvoplasirane reprezentacije na XX svetskom prvenstvu u rukometu za muškarce. Podaci dobijeni istraživanjem obrađeni su postupcima deskriptivne i komparativne statistike.

## Rezultati sa diskusijom

Posmatrane reprezentacije izvele su ukupno 603 napada sa nejednakim brojem igrača od kojih je 338 sa prednošću u napadu, a 265 sa manjim brojem igrača u napadu. Posmatrajući odnos frekvencija napada sa nejednakim brojem igrača svih posmatranih reprezentacija na prvenstvu, postoje statistički značajne razlike u odnosu broja napada sa većim, odnosno manjim brojem igrača ( $H_1$  kvadrat – 9,451;  $p=0,024$ ).

## Zaključak

Skoro četvrtina napada u igri posmatranih reprezentacija je ostvarena sa nejednakim brojem igrača što objašnjava potrebu za analizom i taktičkom pripremom ekipa za ovakve periode igre. Treba istaći da se veći broj pogodaka, manji broj promašaja, kao i manji broj tehničkih grešaka ostvaruje kada je brojčana prednost na strani napada. Ovo navodi na zaključak da je potrebno još više raditi na tehničko-taktičkim aktivnostima u situacijama sa manjim brojem igrača u napadu kako bi se povećala efikasnost u takvim situacijama.

## Literatura

Gardašević, B. (1985). Još jednom o napadu sa igračem više u rukometu. Sportska praksa, 29 (1), 11-12.



## THE EFFICIENCY OF ATTACK ACTIONS WITH AN UNEQUAL NUMBER OF PLAYERS IN TOP TEAM HANDBALL

Zoran Valdevit<sup>1</sup>, Dejan Ilić<sup>1</sup>, Siniša Karišik<sup>2</sup>

<sup>1</sup>The Faculty of Sport and Physical Education, Belgrade, Serbia

<sup>2</sup>The Faculty of Physical Education and Sport, East Sarajevo, Bosnia-Herzegovina

### Introduction

Team handball has become a fast and tough game in recent years. This is the reason why in such a game, while trying to incapacitate the opponent, players often make irregular starts that consequently bring about time-suspension punishments. Although not so frequent, these periods in the game also can have a considerable impact on the final result of a match. The premise is that greater efficiency, in situations of an unequal number of players during the attack phase, has the vital influence on achieved results.

### Methods

This transversal research is empirical in character. The data were collected by means of observation applied to all the matches played by the four top-ranked national teams at the XX World Team Handball Championship for Men. The data obtained in the research were processed using the procedures of descriptive and comparative statistics.

### Results and Discussion

The observed national teams executed the total of 603 attacks with the unequal number of players, 338 of which were with the advantage in attacks and 265 with a player less during attacks. Considering the attack frequency ratio with unequal number of players of all observed national teams in the Championship, there are statistically significant differences in the ratio of the number of attacks with greater and lesser number of players, respectively (Chi-square – 9,451;  $p=0,024$ ).

### Conclusion

Almost one-fourth of attacks in the matches of the observed national teams were realized with an unequal number of players, which explains the need for analysis and tactically preparing the teams for the periods of this kind in matches. It should be stressed that greater number of goals, lesser number of misses, as well as lesser number of technical faults are made when the numerical advantage is on the side of the attack. This suggests the conclusion that it is necessary to put even greater effort in working on technical and tactical activities in situations with the lesser number of players in the attack phase, in order to increase the efficiency under these conditions.

### Bibliography

Gardašević, B. (1985). Još jednom o napadu sa igračem više u rukometu. Sportska praksa, 29 (1), 11-12.

## RAZLIKE MORFOLOŠKIH KARAKTERISTIKA VRHUNSKIH BICIKLISTA JUNIORA U ODNOSU NA TAKMIČARSKU SPECIJALNOST

Nikolić Biljana<sup>1</sup>, Stefanović Đorđe<sup>2</sup>

<sup>1</sup> Republički zavod za sport, Beograd, R Srbija

<sup>2</sup> Fakultet za sport i fizičko vaspitanja, Beograd, R Srbija

### Uvod

Biciklizam pripada grupi cikličnih sportova ekstremne izdržljivosti gde takmičarski rezultat zavisi od više faktora i to: tehničko-tehnološke komponente, radno-funkcionalne sposobnosti biciklista, taktičkih faktora vožnje, meteo uticaji, konfiguracije terena, kao i telesnih karakteristika tj. antropo-morfoloških karakteristika bicikliste. U odnosu na discipline u današnjem sistemu takmičenja po klasifikaciji UCI postoje sledeće takmičarske specijalnosti: takmičari specijalizovani za drumske, brdske i sprinterske vožnje, za vožnje na hronometar i univerzalni takmičarski tipovi. Cilj ovog rada je da definiše razlike antropo-morfoloških (A-M) karakteristika vrhunskih biciklista R Srbije juniorskog uzrasta muškog pola u odnosu na takmičarsku specijalnost.

### Metode

Osnovni metod korišćen u ovom radu je metod laboratorijskog testiranja. Na uzorku od 31 bicikliste juniorskog uzrasta različite takmičarske specijalnosti (Sprinteri N = 12; Brdaši N=9, Drumaši N=10) sa šireg spiska nacionalne reprezentacije R Srbije izvršeno je merenje i izračunavanje sledećih A-M karakteristika: telesna masa (TM) i visina (TV), indeks telesne mase (BMI), bezmasna telesna masa (LBW), kožni nabori nadlaktka (Trisepts), leđa (Subskapularno) i boka (Cr\_Iliaca), procenat masnog tkiva u apsolutnim (BF\_rel %) i relativnim (BF\_asp) vrednostima, kao i indeks za procenu odnosa bezmasnog i masnog tkiva (LBW / BF\_aps). Sva merenja su izvršena u Republičkom zavodu za sport u okviru redovnih testiranja sportista, a primenom standardizovanih laboratorijskih procedura merenja. Za izračunavanje razlika između varijabli istraživanja u funkciji takmičarske specijalnosti korišćena je MANOVA i Studentov t test za ne zavisne uzorke.

### Rezultati i diskusija

Na osnovu rezultata MANOVE može se zaključiti da ne postoji generalna statistički značajna razlika analiziranog A-M prostora između najboljih biciklista juniorskog uzrasta (Wilks' Lambda value 0.446, F – 0.945, p value = 0.540). Pokazalo se da se ispitanici najviše razlikuju, iako statistički bez značaja na verovatnoći od 95%, kod varijable BH (F-1.563, p value=0.227), i kod kožnog nabora boka (F-1.644, p value=0.211), što može samo ukazati na najveću indikativnu informativnost date dve varijable u odnosu na ispitivani uzorak biciklista. Generalno, date varijable se mogu namenski koristiti za neka sledeća istraživanja posmatranog prostora u funkciji biciklista različitog pola, uzrasta i takmičarske specijalnosti.

### Zaključak

U odnosu na analizirani uzorak najboljih biciklista juniorskog uzrasta koji su se takmičili u različitim takmičarskim specijalnostima a na osnovu skupa od 10 varijabli kojim se procenjivao A-M status nije utvrđena ni generalna, a ni parcijalna statistički značajna razlika posmatranog prostora merenja. Dobijeni rezultati upućuju na zaključak da se ispitivani uzorak ne razlikuje po pokazateljima telesnog statusa, odnosno telesne strukture iako su se ispitanici dominantno takmičili na različitim disciplinama tj. imali različitu takmičarsku specijalnost.

### Literatura

Dopsaj, M., Nikolić, B., Mazić, S., Zlatković, J. (2010). Profil pripremljenosti biciklista juniorskog uzrasta određen primenom Leipzig testa, Acta Medica Mediana, 49(3):32-39.  
Ugarković, D. (1996). Biologija razvoja čoveka sa osnovama sportske medicine, Beograd:FFK.

## ŠAH KAO SPORTSKA GRANA U SRBIJI: STATUS I PERSPEKTIVA

Ivan J. Marković<sup>1</sup>; Dragan Martinović<sup>1</sup>; Vladimir Koprivica<sup>2</sup>

<sup>1</sup> Učiteljski fakultet u Beogradu, Beograd, Srbija

<sup>2</sup> Fakultet za sport i fizičko vaspitanje, Beograd, Srbija

### Uvod

Međunarodna šahovska federacija (FIDE) zvanično prepoznaje pet aspekata šaha: igru, sport, umetnost, nauku (matematičko-logički izraz) i didaktičko sredstvo (Blanco, 1998, p. 31). Na osnovu Pravilnika o kriterijumima kategorizacije sportova, misaonih igara i sportskih veština iz 2009. godine, šah je u Srbiji svrstan u grupu misaonih igara. Svođenjem šaha na igru učinjen je ozbiljan propust, koji treba ispraviti u novoj verziji Pravilnika za 2011. Javlja se potreba za revidiranjem statusa šaha kao sportske grane i sagledavanjem njegovog mesta u savremenom društvu u Srbiji.

### Metod

U svetlu metode teorijske (i istorijske) analize sagledava se društveno-istorijski kontekst statusa šaha u globalnim okvirima, a zatim se upoređuju zahtevi nekih od važećih definicija sporta sa rezultatima eksperimentalnih istraživanja usmerenih na aktivnosti šahista. Na osnovu deskriptivne metode se ustanovljava faktičko stanje i status šaha u svetu i Srbiji na nivou Međunarodnog olimpijskog komiteta i nacionalnih sportskih organizacija, ali i u medijima i javnom mnjenju. Istraživanje se proširuje razmatranjima normativnog karaktera radi definisanja smernica za unapređenje statusa šaha u Srbiji i sticanja uslova da se sagleda njegova perspektiva.

### Rezultati sa diskusijom

Postojeća razmatranja ne odstupaju od dosadašnjih stavova koji govore u prilog priznavanja statusa šaha kao sportske grane, kako sa stanovišta naučnih argumenata, tako i na osnovu faktičkog stanja. Predlaže se status šaha kao misaone sportske grane, a kriterijume za kategorizaciju treba usaglasiti sa Strategijom razvoja sporta u Srbiji, Zakonom o sportu i njegovim podzakonskim aktima (pravilnicima), kako bi se sagledavali i blagotvorni i neželjeni efekti bavljenja sportskim granama svih društvenih grupacija na vrhunskom, juniorskom i rekreativnom nivou.

### Zaključak

Predstojeće izmene razmatranog Pravilnika na nacionalnom i regionalnom nivou bi trebalo da doprinesu unapređenju statusa šaha kao sportske grane u Srbiji. Očekuje se da šah kao izborni predmet u osnovnim školama i na fakultetima proširi šahovsku kulturu i senzibilize širi krug ljudi za sagledavanje društvenog značaja šaha.

### Literatura

Blanco, U. (1998). *Why Teach Chess in Schools?*. Lausanne, Switzerland: FIDE Chess in Schools Committee.

Dragojlović, U., et al. (2009). *Pravilnik o kriterijumima kategorizacije sportova, misaonih igara i sportskih veština*. Beograd: JP Službeni glasnik.

## **THE EFFECT OF WEIGHT LIFTED ON POWER IN CONCENTRIC PHASE OF TRADITIONAL AND INSTABILITY RESISTANCE EXERCISES**

**Erika Zemková, Dušan Hamar**

Department of Sports Kinanthropology, Faculty of Physical Education and Sport, Comenius University, Bratislava, Slovakia

### **Introduction**

It has been shown that unstable support base compromises power in concentric phase of resistance exercises. However, there is no information on the effect of weight lifted on power output during these exercises. Therefore the aim of the study was to investigate the relationship between weight lifted and mean power in entire concentric and acceleration phase of traditional and instability resistance exercises.

### **Methods**

A group of 16 PE students (age  $22.7 \pm 1.7$  y, height  $183.2 \pm 7.4$  cm, weight  $77.6 \pm 7.5$  kg) performed randomly in different days of a) barbell chest presses on bench and Swiss ball, respectively, and b) barbell squats on stable surface and Bosu ball, respectively. Initial weight of 20 kg was increased by 10 kg or 5 kg (at higher loads) until previously established 85% 1RM under stable conditions. A PC based system FiTRO Dyne Premium was used to monitor power in concentric phase of lifting.

### **Results and discussion**

There were no significant differences in mean power in entire concentric and acceleration phase of chest presses on stable and unstable surface at lower weights lifted. However, their values were significantly lower during instability than stability chest presses when higher weights were lifted ( $> 57.1\%$  and  $47.5\%$  1RM, respectively). On the other hand, these parameters did not differ significantly during squats under stable and unstable conditions across all weights lifted. Lower power output during concentric phase of chest presses performed with countermovement on unstable surface may be ascribed to delayed and prolonged amortization phase of stretch-shortening cycle. As a consequence is lower velocity and power in subsequent concentric phase.

### **Conclusion**

Mean power in entire concentric and acceleration phase of chest presses is compromised under unstable conditions, however only at higher weights lifted. On the other hand, this effect is not evident during squats on unstable surface.

## **EPIDEMIOLOGICAL ASPECTS OF TOBACCO, ALCOHOL AND INTERNET USE ADDICTIONS AMONG PHYSICAL EDUCATION AND SPORT FACULTY STUDENTS FROM TIMIȘOARA, ROMANIA**

**Gligor Șerba, Coroiu Felicia, Negrea Cristian, Petracovschi Simona, Amanar-Tabara Simona, Voicu Sorinel**

### **Introduction**

The **purpose** of this paper is the epidemiological analysis of alcohol, tobacco and Internet use addiction data among Physical Education and Sport Faculty students of the West University, Timisoara, Romania.

### **Methods**

Epidemiological investigation was conducted in May 2010 on a group of 79 students, using standardized questionnaires (CAGE, FAGERSTRÖM, AUDIT, INTERNET addiction questionnaire). Of the total students number enrolled in research, 77.22% responded to the questionnaires, with a mean age of  $21.1 \pm 2.252$  (age limits are between 19 and 33 years), the majority (67.21%) were male and in the first year of study. Statistical data analysis was done using IBM SPSS 17.0 program, being considered statistically significant values of  $p < 0.01$ .

### **Results**

In the CAGE questionnaire case 21.31% of students were identified with positive screening test, the majority (11.48%) were male and came from the first year (16.39%). FAGERSTRÖM questionnaire reveals a score of  $2.76 \pm 2.917$  for the first year and  $0.96 \pm 2.121$  for the third year. INTERNET addiction questionnaire reveals a score of  $22.03 \pm 13.16$  in the first year and  $15.28 \pm 22.96$  in the third year. AUDIT questionnaire revealed an average score of  $3.45 \pm 3.652$  in the first year and  $2.74 \pm 3.048$  in the third year. After comparing the INTERNET use, AUDIT and FAGERSTRÖM questionnaires results, between the first and third years of study, we obtained a  $p > 0.01$  (statistically insignificant), and when comparing CAGE questionnaire results, we obtained a statistically significant  $p$  ( $p = 0.01$ ).

### **Conclusion**

After analyzing the data obtained through questionnaires, we observed a predominant use of all types of addictions (alcohol, tobacco, and Internet use) among first year students and at male gender.

**Key words:** addiction, tobacco, alcohol, Internet

## АТЛЕТИКА НА ПАРАОЛИМПИЈСКИМ ИГРАМА

Плакона, Е.<sup>1</sup>, Стефановић, Ђ.<sup>2</sup>, Касум Г.<sup>2</sup>, Шиљак, В.<sup>3</sup>

<sup>1</sup> ЕПАС – средња физитерапијска школа, Едеса, Грчка

<sup>2</sup> Факултет спорта и физичког васпитања, Београд, Србија

<sup>3</sup> Факултет за менаџмент у спорту, Београд, Србија

### Увод

Параолимпијске игре представљају планетарни догађај за спортисте са неким обликом телесног оштећења. У простору Параолимпијских игара постоји и атлетика, као базични спорт. Развој технологије и посвећеност атлетском спорту учинили су да су неки незамисливи подвизи постали реалност код хендикепираних спортиста.

### Метод

У раду се користила метода теоријске анализе, као основна метода којом су се логички довели у склад прикупљени подаци о феномену атлетике на Параолимпијским играма. Користила се још историјска и дескриптивна метода истраживања.

### Резултати и дискусија

Идеја овога рада је да се на данашњем нивоу знања истражи и расветли проблематика учешћа хендикепираних спортиста из области атлетике са историјских, социолошких, здравствених, психолошких, телесних и других аспеката. Такође ће се објаснити суштина таксономије атлетских дисциплина, као и теоријско методолошки аспекти система припреме хендикепираних спортиста.

### Закључак

Практични аспект овог теоријског истраживања се огледа у систематизовању и проширивању знања из области науке/теорије спорта која има фундаментални значај за трансфер у праксу. На тај начин се подстичу стваралачке идеје које представљају основу развоја научне мисли из области Параолимпијских игара.

**Кључне речи:** Атлетика, Параолимпијске игре, спортиста

### Литература

Brittain, I. (2004). Perceptions of Disability and their Impact upon Involvement in Sport for People with Disabilities at all Levels. *Journal of Sport & Social Issues* 28: 429-452.

Webster, J. B., Levy C.E., Bryant, P.R. and Prusakowski, P.E. (2001). Sports and recreation for persons with limb deficiency. *Archives of Physical Medicine and Rehabilitation* Volume 82, Issue 3, Supplement 1, Pages S38-S44.

## TRACK AND FIELD AT THE PARALYMPICS GAMES

Elena Plakona<sup>1</sup>; Đorđe Stefanović<sup>2</sup>; Goran Kasum<sup>2</sup>; Violeta Šiljak<sup>3</sup>

<sup>1</sup> EPAS - High school for physiotherapy, Edesa, Greece

<sup>2</sup> Faculty of Sport and Physical Education, Belgrade, Serbia

<sup>3</sup> Faculty of Management in Sport, Belgrade, Serbia

### Introduction

Paralympics Games represent a planetary event for athletes with some form of physical damage. One of the basic sports in Paralympics Games is track and field. Technological development and commitment to track and field have made some unimaginable feats to become a reality for disabled athletes.

### Method

The paper used the method of theoretical analysis, the basic logic that brought into line collected data on the phenomenon of athletics at the Paralympics Games. Historical and descriptive research methods were additionally used.

### Results and discussion

The idea of this paper is that the actual level of knowledge investigate and clarify the issue of participation of disabled athletes in the field of track and field with the historical, social, health, psychological, physical and other aspects. It will also explain the essence of the taxonomy of athletic events, as well as the theoretical and methodological aspects of the preparation system for disabled athletes.

### Conclusion

The practical aspect of this theoretical study is reflected in the systematization and expansion of the knowledge in the field of science / theory of sport that has a fundamental importance for the transfer into practice. As a result, creative ideas that form the basis for the development of scientific thought in the field of the Paralympics games were encouraged.

**Key words:** Track and field, Paralympic Games, athletes

### References

- Brittain, I. (2004). Perceptions of Disability and their Impact upon Involvement in Sport for People with Disabilities at all Levels. *Journal of Sport & Social Issues* 28: 429-452.
- Webster, J. B., Levy C.E., Bryant, P.R. and Prusakowski, P.E. (2001). Sports and recreation for persons with limb deficiency. *Archives of Physical Medicine and Rehabilitation* Volume 82, Issue 3, Supplement 1, Pages S38-S44.

## ZNAČAJ I PRIMENA RELAKSACIJE KAO SREDSTVA OPORAVKA U SPORTSKOM TRENINGU

**Jelena Milićević, Đorđe Stefanović, Nenad Janković, Milan Matić, Igor Ranisavljev**

Univerzite u Beogradu, Fakultet sporta i fizičkog vaspitanja, Beograd, Srbija

### **Uvod**

U današnjem sportu se ne postavlja pitanje kako opteretiti, već brzo oporaviti sportistu. Česta takmičenja mogu da dovedu do pretreniranosti sportiste. Da ne bi došlo do toga pojavljuje se sve više različitih strategija oporavka. Cilj ovog rada je da se objasni složena problematika oporavka sa aspekta korišćenja trenažnih sredstava iz prostora relaksacije, a u funkciji da se što brže uspostavi homeostaza sportiste.

### **Metod**

U radu se koristio metod teorijske analize posmatranog fenomena relaksacije, deskriptivni i komparativni metod istraživanja.

### **Rezultati**

Različita trenažna sredstva relaksacije različito utiču na brzinu oporavka, kod različitih sportova/disciplina. Na osnovu rezultata istraživanja došlo se do saznanja da se relaksacija nedovoljno koristi kao trenažno sredstvo oporavka: pre, tokom i posle takmičenja.

### **Zaključak**

Iako postoji više vrsta trenažnih sredstava oporavka, relaksacija je vrlo dostupna, ne zahteva posebne uslove, primenjiva je u svim sportskim disciplinama, delovima treninga, a suštinsko merilo njenog kvaliteta i efikasnosti je oporavljen sportista. Pravilna primena relaksacije ubrzava regeneraciju, omogućuje efikasan tok pozitivnih adaptacijskih promena u organizmu i smanjuje mogućnost pojave akutnih i hroničnih oblika pretreniranosti. Inovacije, dalje analize istraživanja o sredstvima oporavka, njihovoj efikasnosti, su bitna radi prevazilaženja stereotipa u njihovoj primeni.

### **Literatura**

- Bompa, O.T.(1999). Periodization: Theory and methodology of training (4th ed). Champaign, IL: Human Kinetics.
- Volkov, N. (1986). Zakonomernosti biohimičeskoj adaptacij v procese sportivnoj trenirovke. Fiskuljtura i sport, Moskva.



## **SIGNIFICANCE AND USE OF RELAXATION AS A MEAN OF RECOVERY IN SPORTS TRAINING**

**Jelena Milićević, Đorđe Stefanović, Nenad Janković, Milan Matić, Igor Ranisavljev**

University of Belgrade, Faculty of Sport and Physical Education, Serbia

### **Introduction**

In today's sports is not the question how to load, but how to recover an athlete. Frequent competitions may lead to overtraining of athletes. To avoid that, there are more and more different recovery strategies. The aim of this paper is to explain the complex issue of recovery using different training methods of relaxation with the aim to establish athlete homeostasis as quickly as possible.

### **Method**

The paper used the method of theoretical analysis of the observed phenomena of relaxation, and descriptive and comparative method of research.

### **Results**

Different training means have different influence on relaxation and speed of recovery in different sports / disciplines. Based on the research results, it was found out that the relaxation is insufficiently used as a training tool of recovery before, during and after competition.

### **Conclusion**

Although there are several types of recovery, relaxation is very accessible, does not require special conditions and it is applicable in all sports disciplines and areas of training. A crucial measure of its quality and efficiency is the level of athlete's recovery. Proper application of the relaxation accelerates regeneration, provides an efficient flow of positive adaptation changes in the body and reduces the potential for acute and chronic forms of overtraining. Innovation, further analysis of research on the means of recovery and their effectiveness, are essential to overcome stereotypes in their application.

### **References**

- Bompa, O.T.(1999). *Periodization: Theory and methodology of training* (4th ed). Champaign, IL: Human Kinetics.
- Volkov, N. (1986). *Zakonomernosti biohimičeskoj adaptacij v procese sportivnoj trenirovke*. Fiskuljtura i sport, Moskva.

## **ACTIVE PROMOTION OF HEALTH THROUGH SPORT FOR ALL IN ROMANIA**

**Dana Badau<sup>1</sup>, Aurelia Suciu<sup>3</sup>, Nicolae Neagu<sup>2</sup>, Adela Badau<sup>1</sup>**

<sup>1</sup> “George Baritiu” University, Physical Education and Sport of Brasov, Romania

<sup>2</sup> Medicine and Pharmacology University of Targu Mures, Romania

<sup>3</sup> Romanian Federation Sport for all, Bucharest, Romania

### **Introduction**

By promoting roles and positive valence for practising physical activities, The Romanian Sport for all Federation considers that the optimum level of health parameters needs to represent a national and real priority, and this has to be developed through viable and purposeful programs.

### **Method**

Statistic data regarding the Romanian people’s health condition reveals a relatively critic situation. During 2000-2003 FRSPT developed for the first time a program for active health promotion through sport. It was applied as an experiment only in two cities, after which it was interrupted due to economical reasons. We believe that health promotion programs through sportive activities have to become permanent. Therefore, with the partnership between George Baritiu University of Brasov and the Medicine and Pharmacology University of Targu Mures and with the help of students and professors, in 2009 we developed a study concerning health promotion programs through activities specific to sport for all.

### **Results and discussion**

The purpose of the research was to apply a questionnaire on a representative sample of people from Brasov and Mures, regarding the type and the utilized time to practise physical activities, the health condition and expenses made for health and for those specific to physical activities. The summarized and processed data were sent to FRSPT in order to elaborate a guide of proper practice and to update the initial program of active health promotion through sport.

### **Conclusion**

The research reveals that the important elements for promoting health through sport are represented by the educational level, mentality, economical situation and the health system situation. Therefore, health promotion through physical activities have to be the common results of each individual and of the competent authorities, on the basis of a coherent and stimulating legislation.

### **References**

1. Suciu Aurelia (2009) - “Sport for all”, FRSPT Press, Bucharest, Romania
2. Suciu A, Dumitru Gh, Aldea N – “PAA – Program pentru promovare activa a sanatatii prin sport in Romania”, publicata in Revista Stiinta Sportului , Bucuresti, 2004

## **PHYSIOLOGICAL MODIFICATIONS CAUSED BY THE SPEED EFFORT DURING THE PHYSICAL EDUCATION CLASS UPON THE PUBERTY AGE PUPILS**

**Mircea Neamtu, Alina Martoma**

“Transilvania” University, Faculty of Physical Education and Mountain Sports, Brasov, Romania

### **Introduction**

Effort dosing during the sports class must ensure the implementation of quantitative and qualitative parameters for the effort made by the grade school pupil, effort tailored to meet his/her biological characteristics.

### **Methods**

There were 54 subjects with the ages between 12-15 of which, 30 girls and 24 boys. The objects of the research were: the nervous reactivity of the neuromotric and vegetative tuning and the electrodermal response. We monitored the pulse rhythm, the blood pressure and the clino-orthostatic reflex in a sitting position and post-effort the pulse rhythm and blood pressure.

### **Results and discussion**

Modifications of the neuro-muscular excitability as a result of the effort. It is well known that the effort triggers a decrease in excitability and its increase ratio expresses the degree of fatigue. After the analysis of the results obtained we can say that:

- the fatigue of the red fibers is more increased in girls than in boys.
- the fatigue of the white fibers is more increased in girls than in boys, sometimes 3 or 4 times more.

### **Conclusion**

In conclusion, we can say that at this age (puberty) there is not sufficient blood circulation the upper part of the body and the physical effort, even if it is the normal amount of effort for that age, can have negative effects upon the heart of some of the girls.

### **References**

Dragnea A (2002), Sports and physical education theory, Bucharest;  
Haulică I. (deputy editor) (2009) Human physiology 3rd ed., Bucharest, Medical Publishing House

## ПРОМЕНА АЕРОБНЕ СПОСОБНОСТИ КОД СТУДЕНАТА КРИМИНАЛИСТИЧКО-ПОЛИЦИЈСКЕ АКАДЕМИЈЕ У ТОКУ ПРВЕ ТРИ ГОДИНЕ СТУДИЈА

Радивоје Јанковић<sup>1</sup>; Раша Димитријевић<sup>1</sup>; Ненад Коропановски<sup>1</sup>

<sup>1</sup>Криминалистичко-полицијска академија, Београд, Србија

На узорку од 212 студената Криминалистичко-полицијске академије (КПА) дефинисане су промене аеробних способности током прве три године основних академских студија. За процену аеробних способности коришћен је Куперов тест трчања у трајању од дванаест минута, док је релативна потрошња кисеоника израчуната помоћу формуле:  $VO_{2rel} = 0.0217 * K - 9.1976$ , где је К дужина дистанца које испитаници претрче у Куперовом тесту. Резулти су показали да просечна вредност резултата Куперовог теста за студенте прве године износи  $2791.03 \pm 237.64$  m, уз коефицијент варијације од 8.51 %; да просечна вредност резултата Куперовог теста за студенте друге године износи  $2595.84 \pm 326.34$  m, уз коефицијент варијације од 12.57 %; и да просечна вредност резултата Куперовог теста за студенте треће године износи  $2500.46 \pm 271.20$  m, уз коефицијент варијације од 10.85 %. Просечна вредност релативне потрошње кисеоника за студенте прве године је била  $51.37 \pm 5.16$  ml/kg/min, уз коефицијент варијације од 10.04 %; за студенте друге године је била  $47.13 \pm 7.08$  ml/kg/min, уз коефицијент варијације од 15.03 %; и за студенте треће године је била  $45.06 \pm 5.89$  ml/kg/min, уз коефицијент варијације од 13.06%.

На основу резултата може се тврдити да је код студената дошло до статистички значајног смањења резултата Куперовог теста ( $F = 20.928$ ,  $p = 0.000$ ) и статистички значајног смањења релативне потрошње кисеоника ( $F = 20.922$ ,  $p = 0.000$ ). Током прве три године студија дошло је до смањења резултата оствареног на Куперовом тесту у за  $290.57$  m, односно за 10.41 %, док се просечна релативна потрошња кисеоника смањила за  $6.31$  ml/kg/min, односно за 12.28 %. Може се претпоставити да је смањење укупног фонда часова предмета специјално-физичко образовање за 77.88 %, као и промена режима живота разлог смањења аеробних способности студената Криминалистичко-полицијске академије током студија.

**Кључне речи:** Криминалистичко-полицијска академија, Куперов тест, релативна потрошња кисеоника, специјално физичко образовање, студенти.

## CHANGES OF STUDENTS' AEROBIC ABILITY ON ACADEMY OF CRIMINALISTIC AND POLICE STUDIES DURING FIRST THREE YEARS OF EDUCATION

**Radivoje Janković<sup>1</sup>; Raša Dimitrijević<sup>1</sup>; Nenad Koropanovski<sup>1</sup>**

<sup>1</sup>Academy of Criminalistics and Police Studies, Belgrade, Serbia

On sample of 212 students at Academy of Criminalistic and Police Studies (ACPS), aerobic ability changes are defined during first three years on basic academy studies. Cooper running test in duration of twelve minutes was used for evaluation of aerobic ability, while oxygen relative consumption was calculated by formula:  $VO_{2rel} = 0.0217 * K - 9.1976$ , where K represents length of distance that examinees run inside the Cooper test. Results has shown that average value of Cooper test results, for first-year students, amounts  $2791.03 \pm 237.64$  m, with coefficient of variation 8.51 %; average value of Cooper test results, for second-year students, amounts  $2595.84 \pm 326.34$  m, with coefficient of variation 12.57 %; average value of Cooper test results, for third-year students, amounts  $2500.46 \pm 271.20$  m, with coefficient of variation 10.85 %. Average value of oxygen relative consumption, for first-year students, amounts  $51.37 \pm 5.16$  ml/kg/min, with coefficient of variation 10.04 %; for second-year students, amounts  $47.13 \pm 7.08$  ml/kg/min, with coefficient of variation 15.03 %; and for third-year students, amounts  $45.06 \pm 5.89$  ml/kg/min, with coefficient of variation 13.06%.

On the basis of results it's possible to say that among the students has come to the statistically significant decrease of Cooper test results ( $F - 20.928$ ,  $p = 0.000$ ), and statistically significant reduction of oxygen relative consumption ( $F - 20.922$ ,  $p = 0.000$ ). Gained results has shown that, during first three years of studies, comes to the reduction of accomplished Cooper test results for 290.57 m, i.e. for 10.41 %, while average relative oxygen consumption is decreased for 6.31 ml/kg/min, in other words for 12.28 %. It is likely to assume that decrease for 77.88 % of total fund classes for subject Special physical education, as well as regime change in living, is the reason for decreased aerobic abilities of students in Academy of Criminalistic and Police Studies during their education.

**Key Words:** Academy of Criminalistic and Police Studies, Cooper test, oxygen relative consumption, special physical education, students.

## MODELI PREDIKCIJE VREDNOSTI UKUPNOG HOLESTEROLA POMOĆU OSNOVNIH ANTROPOMETRIJSKIH POKAZATELJA KOD POPULACIJE ODRASLIH ZDRAVIH OSOBA OBA POLA: PILOT ISTRAŽIVANJE

<sup>1</sup>Dopsaj, M., <sup>1</sup>Ilić, V., <sup>2</sup>Radović, A.

<sup>1</sup>Fakultet sporta i fizičkog vaspitanja Univerziteta u Beogradu

<sup>2</sup>Klinički centar Srbije, Centar za medicinsku biohemiju, Beograd

### Uvod

Cilj rada bio je da se utvrde prediktori vrednosti ukupnog holesterola pomoću osnovnih antropometrijskih pokazatelja kod populacije odraslih zdravih osoba oba pola primenom što jednostavnijeg matematičkog modela kao inicijalne skrining mere u procesu definisanju faktora datog zdravstvenog rizika.

### Metode

Uzorak je bio sastavljen od 25 odraslih osoba oba pola (10 žena i 15 muškaraca), prosečnog uzrasta od  $45.2 \pm 6.7$  godina. Kod svih ispitanika merena je telesna visina (TV) i telesna masa (TM), a potom je izračunat indeks telesne mase (body mass indeks-BMI). Serumski holesterol je određivan enzimskom metodom na biohemijском analizatoru Architekt (Abbot Inc., USA). Modeli predikcije su izračunati primenom multiple regresione analize gde je varijabla ukupnog serumskog holesterola (HOL) bila kriterijum, a osnovne antropomorfološke karakteristike (TV, TM i BMI) su bili prediktori.

### Rezultati sa diskusijom

Vrednosti HOL kod ispitanika iznosile su od 4.1. do 8.31mmol/L, prosečno  $5.88 \pm 1.19$ mmol/L. Ovako povišene vrednosti idu u prilog tvrdnji da postoji visok stepen korelacije između vrednosti HOL i BMI (Bhargava A, 2006), pošto je većina ispitanika imala  $BMI \geq 25$ kg/m<sup>2</sup>. Najveću prediktivnu jačinu od 49.39% i standardnu grešku procene ukupnog holesterola od 0.76 mmol/L imao je model sa korišćenjem sve tri antropometrijske varijable (TM, TV i BMI) kod populacije muškaraca. Kod populacije žena, ni jedan model nije pokazao značajnu prediktivnu jačinu, obzirom da vrednosti prilagođenog koeficijenta determinacije ( $R^2$ ) nisu prelazile 18%.

### Zaključak

Kako su prediktorne vrednosti prikazanih modela relativno niske i najverovatnije posledica malog broja ispitanika uključenih u studiju, one u određenom stepenu mogu predvideti vrednosti holesterola u serumu, posebno kod populacije muškaraca. U cilju pronalaženja što boljeg skrining testa, buduće studije će sem većeg broja ispitanika biti dopunjene varijablama, poput obima struka i kukova, debljina kožnih nabora, vrednostima sistolnog i dijastolnog krvnog pritiska, kao i upitnicima koji se odnose na životne navike (pušenje, ishrana i fizička aktivnost).

### Literatura

Bhargava A. (2006). Fiber intakes and anthropometric measures are predictors of circulating hormone, triglyceride and cholesterol concentrations in the women's health trial. J. Nutr. 136: 2249–2254.

## **BASIC ANTHROPOMETRIC PARAMETERS AS PREDICTORS OF THE TOTAL CHOLESTEROL LEVEL IN HEALTHY ADULT POPULATION IN BOTH SEXES: PILOT STUDY**

<sup>1</sup>Dopsaj, M., <sup>1</sup>Ilić, V., <sup>2</sup>Radović, A.

<sup>1</sup>Faculty Sport and Physical Education, University of Belgrade

<sup>2</sup>Clinical Center of Serbia, Medical Biochemistry Center, Belgrade

### **Introduction**

The purpose of the study was to determine predictors of the total cholesterol level using basic anthropometric parameters in healthy adult population of both sexes by applying the simplified mathematical model as an initial screening measure in the process of defining a given health risk factor.

### **Methods**

The sample included 25 adults of both sexes (10 women and 15 men), mean age  $45.2 \pm 6.7$  years. Body height (BH) and body weight (BW) were measured for all subjects and then body mass index was calculated (body mass index-BMI). Serum cholesterol was measured by enzyme method on the Architect biochemical analyzer (Abbott Inc., USA). Prediction models were calculated using multiple regression analysis where the dependent variable was total serum cholesterol (Chol) and predictors were the subject basic anthropometric characteristics (BH, BW and BMI).

### **Results and Discussion**

Subjects Chol were in the ranged from 4.10 to 8.31mmol/L, in average  $5.88 \pm 1.19$ mmol/L. Such high values support the assertion that there is a high correlation between the value of Chol and BMI (Bhargava, 2006), since the majority of subjects had  $BMI \geq 25 \text{kg/m}^2$ . The greatest predictive capacity of 49.39% and standard error estimates of 0.76mmol/L for Chol, had a model using the all anthropometric variables (TM, TV and BMI) in the men population. In women population, neither model showed significant predictive capacity, since the R-squared values ( $R^2$ ) did not exceed 18%.

### **Conclusion**

Although predictive values of the presented models are relatively low and probably caused by a small number of subjects included in the study, they may predict serum cholesterol level, especially in men population. In order to find the best possible screening test future studies beside greater number of subjects, will be complemented with variables such as waist and hip circumference, skinfold thickness, systolic and diastolic blood pressure as well as questionnaires related to lifestyle factors (smoking, diet and physical activity).

### **References**

Bhargava A. (2006). Fiber intakes and anthropometric measures are predictors of circulating hormone, triglyceride and cholesterol concentrations in the women's health trial. *J. Nutr.* 136: 2249-2254.

## MATERIJALNI USLOVI ZA REALIZACIJU NASTAVNIH SADRŽAJA FIZIČKOG VASPITANJA SA UČENICIMA SA INVALIDITETOM

Sanela Pacic, Fadilj Eminović, Radmila Nikić

Fakultet za specijalnu edukaciju i rehabilitaciju, Beograd, Srbija

### Uvod

Fizičko vaspitanje ima poseban značaj za rast i razvoj dečijeg organizma. Dečiji razvoj predstavlja celovit proces i pod uticajem je mnogobrojnih faktora. Jedan od bitnih faktora svakako su uslovi u kojima se realizuje nastava fizičkog vaspitanja. Za nastavu fizičkog vaspitanja u radu sa učenicima sa invaliditetom škola u kojoj se sprovodi nastava mora da bude materijalno adekvatno opremljena. Materijalni uslovi škole podrazumevaju skup objekata, sprava i rekvizita, audio-vizuelnih sredstava, kao i mernih instrumenata koji se koriste u nastavi fizičkog vaspitanja za decu sa invaliditetom.

### Metode

Naš rad ima za cilj da ispita uslove, veličinu objekta zatvorenog i otvorenog tipa i njihove karakteristike u specijalnim školama. Istaživanjem je ispitano 25 specijalnih škola na teritoriji Srbije u kojima se sprovodi nastava za učenike sa nekim od oblika ometenosti. Za potrebe istraživanja konstruisali smo upitnik posebno konstruisan na osnovu normativa prostora koje u svom radu predlaže Nikolić S. (2009).

### Rezultati sa diskusijom

Rezultati istraživanja pokazuju: kada se radi o objektima zatvorenog tipa većina ispitanih škola ima salu površine između 288 m<sup>2</sup> i 450 m<sup>2</sup> (ni jedna škola nema salu dimenzije košarkaškog terena, odnosno minimalne veličine 450m<sup>2</sup>), manji broj škola ima bilo kakav prostor za fizičko vaspitanje a u 2 škole objekat za nastavu fizičkog vaspitanja ne postoji-nastava se izvodi u učionici. Kada se radi o otvorenim terenima većina škola ima samo školsko dvorište koje po nameni nije prilagođeno za realizaciju sadržaja fizičkog vaspitanja, 2 škole poseduju otvoreno igralište površine potrebne za košarku 14x26m, 2 škole imaju otvorenu površinu na kojoj je moguće realizovati neku programom predviđenu aktivnost i 1 škola ima otvoreno igralište. Što se tiče prostora za atletiku samo 5 škola poseduje nešto od prostora za atletiku. Većina škola (osim 2) imaju dve svačionice sa sanitarijama, samo 1 škola ima kabinet za nastavnika i prostoriju za stoni tenis, dok ni jedna ispitana škola nema spravarnicu, bazen ili teretanu.

### Zaključak

Dobra materijalna osnova omogućava potpunu realizaciju programa, punu angažovanost učenika i edukatora za primenu različitih nastavnih sadržaja, metoda i oblika nastavnog rada. Međutim, navedeni rezultati istraživanja koje smo sproveli ukazuju da su uslovi za realizaciju nastave u specijalnim školama koje smo ispitali uglavnom neadekvatni i da je u većini škola potrebno poboljšati te uslove.

### Literatura

- Eminović, F., Šakotić, N., Nikić, R., Nedović, G., (2009), "Teachers' attitudes about physical education realisation including students with developmental difficulties", *Internacional scientific journal of kinesiology Sport Science*, pages 90-95, ISSN 1840-3670, Vol. 2, Issue 2, Fakultety for kineziology, Travnik.
- Gajević, A., Eminović, F., (2010), "Differences in physical development and physical abilities of Serbian elementary school children", *Internacional scientific journal of kinesiology Acta Kinesiologica*, ISSN 1840-3700, Vol. 4, Issue 2, pages 15-23, Faculty for kineziology, Travnik.
- Nikolić, S. (2002). Predlog normativa prostora za nastavu fizičkog vaspitanja sa aspekta kategorizacije škola u Srbiji. *Fizička kultura*, 56 (2002), 1-4, 63-73.
- Japundža-Milisavljević, M. (2009). Metodika nastave veština za decu ometenu u intelektualnom razvoju. Beograd. Fakultet za specijalnu edukaciju i rehabilitaciju.
- Rychtecky, A. (2007): Active Lifestyles of Young People-Benefits and Outcomes. Chapter 11 in Brettschneider, W.D. & Naul, R. Obesity in Europe: young people's physical activity and sedentary lifestyles. *Sport sciences international*, vol. 4: Frankfurt am Main.



## MATERIAL CONDITIONS FOR TEACHING PHYSICAL EDUCATION TO STUDENTS WITH DISABILITIES

Sanela Pacic, Fadilj Eminović, Radmila Nikić

Faculty for Special Education and Rehabilitation, Belgrade, Serbia

### Introduction

Physical education is of special importance for growth and development of children's organism. Children's development is a holistic process and is influenced by many factors. One of the important factors are certainly conditions under which the implementing physical education instruction. For physical education in working with students with disabilities in schools where teaching is carried out must be equipped with adequate material. Material conditions of the school include a set of objects, devices and equipment, audio-visual equipment and measuring instruments used in physical education for children with disabilities.

### Methods

Our work aims to investigate the conditions, size of the object, open-ended and their properties in special schools. The study examines the 25 special schools in Serbia in which it conducts classes for students with some form of disability. For research purposes, we devised a questionnaire specially designed for the space norms in their work suggests Nikolić S. (2009).

### Results and Discussion

The results show: when it comes to the closed-type most of the surveyed schools have a gym area between 288 m<sup>2</sup> and 450 m<sup>2</sup> (no school has room size basketball court, or the minimum size of 450m<sup>2</sup>), a smaller number of schools have any space for physical education in 2 school facility for physical education does not exist-the classes are conducted in the classroom. In the case of open fields, most schools have only a school yard that the purpose is not adapted for the realization of the physical content education, 2 schools have an open playground area needed for basketball 14x26m, two schools have an open area where we could implement a program of planned activities and a school has an open field. As for the space for athletics only five schools have one or more of space for athletics. Most schools (except 2) have two dressing rooms with toilets, only one school has a classroom for teachers and a room for table tennis, while no one has examined school room with machines, pool or gym.

### Conclusion

Good material base allows full implementation of the program, the full engagement of students and educators to implement different teaching contents, methods and forms of teaching. However, given the results of research that we conducted indicate that the conditions for teaching in special schools we surveyed generally inadequate and that in most schools need to improve these conditions.

### Literature

- Eminović, F., Šakotić, N., Nikić, R., Nedović, G., (2009), "Teachers' attitudes about physical education realisation including students with developmental difficulties", *Internacional scientific journal of kinesiology Sport Science*, pages 90-95, ISSN 1840-3670, Vol. 2, Issue 2, Fakultety for kineziology, Travnik.
- Gajević, A., Eminović, F., (2010), "Differences in physical development and physical abilities of Serbian elementary school children", *Internacional scientific journal of kinesiology Acta Kinesiologica*, ISSN 1840-3700, Vol. 4, Issue 2, pages 15-23, Fakultety for kineziology, Travnik.
- Nikolić, S. (2002). Predlog normativa prostora za nastavu fizičkog vaspitanja sa aspekta kategorizacije škola u Srbiji. *Fizička kultura*, 56 (2002), 1-4, 63-73.
- Japundža-Milislavljević, M. (2009). Metodika nastave veština za decu ometenu u intelektualnom razvoju. Beograd. Fakultet za specijalnu edukaciju i rehabilitaciju.
- Rychtecky, A. (2007): Active Lifestyles of Young People-Benefits and Outcomes. Chapter 11 in Brettschneider, W.D. & Naul, R. Obesity in Europe: young people's physical activity and sedentary lifestyles. *Sport sciences international*, vol. 4: Frankfurt am Main.

## **PROCENA STATUSA BAZIČNIH MOTORIČKIH SPOSOBNOSTI KOD PREDŠKOLSKE DECE**

**Popović Ružena**

Univerzitet u Nišu, Fakultet Sporta i fizičkog vaspitanja, Niš, Srbija

### **Uvod**

Predmet ovog istraživanja je procena biomotoričkog statusa dece predškolskog uzrasta. Istraživanje je sprovedeno sa ciljem da se utvrdi razvojni nivo pojedinih segmenata motoričkih sposobnosti kod tri analogna subuzorka predškolske dece oba pola, uzrasta od 4-6 godina, koji hipotetski predstavljaju populaciju dece navedenog uzrasta.

### **Metod**

Istraživanje je sprovedeno na uzorku totala od 85 ispitanika (38 devojčica/47 dečaka), koji su bili podeljeni na 3 subuzorka prema godištu i polu ispitanika. Primenjena baterija mernih instrumenata za procenu bazičnih motoričkih sposobnosti sastoji se od 14 testova za ocenu pojedinih segmenata motorike: Repetitivni mišićni potencijal; Eksplozivna snaga; Agilnost; Frekvencija pokreta; Gipkost; Ravnoteža; Koordinacija. Primenjen je eksperimentalni program Ritmičke gimnastike u trajanju od 6 meseci (tri puta nedeljno/30 min). Rezultati ovog istraživanja podvrgnuti su statističkoj obradi, uz pomoć bazične i varijacione statistike (srednja vrednost, standardna devijacija, koeficijent varijacije, raspon), dok je razlika između grupa utvrđena primenom t-testa i diskriminativne analize.

### **Rezultati i diskusija**

Na osnovu sprovedene uporedne analize rezultata, inicijalni i finalni rezultati ukazuju da nisu utvrđene statistički značajne razlike između dečaka i devojčica u korespondentnim sub-uzorcima. Međutim, na inicijalnom i finalnom merenju utvrđene su statistički značajne razlike između pojedinih uzrasnih kategorija, kako kod devojčica, tako i kod dečaka.

### **Zaključak**

Utvrđeni su pozitivni efekti primene eksperimentalnog programa ritmičke gimnastike na harmonični motorički razvoj kod oba uzorka ispitanika (dečaka i devojčica) sa nekim specifičnim karakteristikama u odnosu na različiti pol i uzrast ispitanika.

## **THE BASIC MOTOR STATUS EVALUATION IN PRE-SCHOOL CHILDREN**

**Ruzena Popovic**

University of Nis, Faculty of Sport and Physical Education, Nis, Serbia

### **Introduction**

The main aim of this research is determination of developmental level of some segments of basic motor abilities in three analogue pre-school children sub samples, aged 4-6 years old, of both sex. For the realization of project task there was need to estimate the developmental level of some segments of basic motor abilities in analogues three sub-samples of children (aged four, five and six), which hypothetically represents the population of pre-school children.

### **Method**

The total sample consists of 85 examinees (38 girls/47 boys) divided in subsamples, according age and gender. The applied battery for the estimation of basic motor abilities consists of 14 tests for the evaluation of: Repetitive muscles potential; Explosive strength; Agility; Speed Frequency; Flexibility; Balance; Coordination. Experimental program consists of Rhythmic gymnastics exercises in duration of 6 month period (three times weekly per 30 minute). Results data were processed by basic statistics procedures (Mean; St.Dev; Co.Var.%; Range) and t-test for small non-linear sub samples, Univariate analysis of variance for groups differences and Discriminative analysis).

### **Results and Discussion**

On the base of canonical discriminative analysis, initial and final test results point out that there are not significant differences between girls and boys in age correspondent sub-samples. At the initial and final state there were established statistical significant differences between different age sub-samples among girls and boys.

### **Conclusion**

Research results analysis point out that Rhythmic gymnastics experimental program has contributed to the harmonious motor development in both sub samples (boys/girls) with some specific benchmarks, in relation to different age and sex of examinees.

## NASTAVNIK FIZIČKOG VASPITANJA U SPECIJALNOJ ŠKOLI

Fadilj Eminović, Sanela Pacić, Radmila Nikić

Fakultet za specijalnu edukaciju i rehabilitaciju, Beograd, Srbija

### Uvod

Primarnu ulogu u ostvarivanju ciljeva nastave fizičkog vaspitanja imaju nastavnici fizičkog vaspitanja. Edukator koji realizuje nastavu fizičkog vaspitanja za decu sa invaliditetom mora da bude kvalitetan stručnjak za tu nastavnu oblast što podrazumeva da mora da poznaje nastavu fizičkog vaspitanja ali i da poznaje pedagogiju i karakteristike učenika sa različitim oblicima ometenosti i njihove psihofizičke sposobnosti i vaspitno-obrazovne mogućnosti.

### Metode

Cilj rada je ispitati karakteristike i mogućnosti nastavnika koji realizuju nastavu fizičkog vaspitanja u specijalnim školama. Uzorak istraživanja čini 30 nastavnika. Istraživanje je sprovedeno tokom 2010 godine. Za potrebe istraživanja posebno je konstruisan upitnik.

### Rezultati sa diskusijom

Od ispitanih 30 nastavnika koji rade u specijalnim školama (u kojima se izvodi nastava sa učenicima sa posebnim obrazovnim potrebama) 2 nastavnika nastavu izvode po redovnom planu i programu, 14 po redukovanom planu i programu a 14 po specijalnom planu i programu. Svi nastavnici imaju završene osnovne studije na kojima nisu imali dovoljnu obuku za rad sa decom sa invaliditetom, većina nastavnika edukuje se putem dodatnih seminara ali smatra da to nije dovoljno za rad. Motivi rada sa ovom decom su u većini slučajeva nemogućnost pronalaženja posla u redovnoj školi a samo mali broj nastavnika ističe želju da radi sa učenicima sa posebnim potrebama. Većina nastavnika izvodi nastavu od V do VIII razreda ali ima nastavnika koji realizuju nastavu sa učenicima od I do VIII razreda.

### Zaključak

Realizacija fizičkog vaspitanja kao i obuka kadra za rad zavisi od aktuelnog sistema obrazovanja i vaspitanja osoba sa posebnim potrebama. Što znači da države poput Italije gde su ukinute specijalne škole i deca sa posebnim obrazovnim potrebama potpuno uključena u redovan sistem obrazovanja i vaspitanja, brinu i ulažu snage i u obuci kadra koji će raditi kao podrška nastavnicima koji rade sa ovom decom. Ovde pored osnovnog trogodišnjeg obrazovanja za nastavnika fizičkog vaspitanja (koja traje tri godine) postoji dodatna edukacija u trajanju dve godine. U nekim zemljama, kao što je Norveška postoji mogućnost pohađanja dodatnih kurseva za nastavnike koji rade fizičko vaspitanje sa učenicima sa posebnim obrazovnim potrebama. U zemljama, poput Češke, u toku osnovnih studija fizičke kulture postoji predmet ili predmeti o adaptiranoj fizičkoj aktivnosti koji se pohađaju kroz jedan ili više semestra (Valkova, 2010). I na žalost u najvećem broju država (među kojima je i naša zemlja) nema nikakve edukacije za nastavnike fizičke kulture pa su u radu sa decom sa posebnim obrazovnim potrebama prepušteni sami sebi u pronalaženju najboljeg načina za primenu prilagođenog fizičkog vaspitanja (Eminović i sar, 2008).

### Literatura

- Brettschneider, W.D. & Naul, R. (2007): Obesity in Europe: young people's physical activity and sedentary lifestyles. Sport sciences international, vol. 4: Frankfurt am Main.
- Council of Europe (1993): Eurofit: Handbook for the Eurofit Tests of Physical Fitness, ed. 2. Strasbourg. Council of Europe.
- Dolmann, J., Norton, K., Norton, L. (2005): Evidence for secular trends in childrens physical activity behaviour, British Journal of Sports Medicine, 39, 892-897.
- Eminović, F., Pacić, S., Nikić, R., Odović, G., (2010): "The realization of physical education cerebral palsy students in wheelchairs as determinants of sport", International Scientific Conference "Theoretical, Methodological and Methodical Aspects of Competitions and Athletes' Preparation" Book of works, page 285-292, ISBN 978-86-80255-61-3, Faculty of physical education and sport, Belgrade
- Eminović, F., Pacić S., Čukić, R., (2008): "Uloga sporta i adaptirane fizičke aktivnosti (APA) za osobe sa invaliditetom-osnove i istorijat, trendovi i kontraverze", Međunarodna naučna konferencija "Teorijski, metodološki i metodički aspekti fizičkog vaspitanja", Zbornik rezimeza, str. 93, Fakultet sporta i fizičkog vaspitanja, Beograd.

## PHYSICAL EDUCATION TEACHER IN THE SPECIAL SCHOOL

Fadilj Eminović, Sanela Pacic, Radmila Nikić

Faculty for Special Education and Rehabilitation, Belgrade, Serbia

### Introduction

The primary role in achieving the objectives of physical education with physical education teachers. Educator who realizes physical education for children with disabilities must be a quality expert in the field of education, which means that it must know the physical education and pedagogy and to know the characteristics of students with various forms of disability and their mental and physical capabilities and educational opportunities.

### Methods

The aim is to examine the characteristics and capabilities of teachers to implement physical education in special schools. Sample consisted of 30 teachers. The survey was conducted in 2010. For research purposes, specifically designed questionnaire.

### Results and Discussion

From the total of 30 teachers working in special schools (in which instruction for pupils with special educational needs) two teachers teaching following the regular curriculum, 14 at a reduced curriculum and 14 on special curriculum. All teachers have completed basic studies in which they had sufficient training to work with children with disabilities, most teachers are educated through additional seminars, but believes that it is not enough to work. Motives work with these children in most cases the impossibility of finding a job in a mainstream school and only a small number of teachers emphasizes the desire to work with students with special needs. Most teachers teach the lessons from the fifth to eighth grade, but there are teachers who implement classes with students from first to eighth grade.

### Conclusion

Physical education and training of personnel for work depends on the current system of education of persons with special needs. Which means that states such as Italy where the abolished special schools and children with special needs education fully included into regular education, care and invest in the training of forces personnel who will work to support teachers working with these children. Here, in addition to the three-year basic education for teachers of physical education (which lasts three years) there is additional training lasting two years. In some countries, like Norway there is opportunity to take additional courses for teachers who work with physical education students with special educational needs. In countries like the Czech Republic, during the basic studies of physical education a subject or subjects of adapted physical activities that are attended by one or more semesters (Valko, 2010). And unfortunately in most countries (including our country) has no education for teachers physical culture and are working with children with special educational needs are left on their own in finding the best ways to implement a custom physical education (Eminović et al, 2008 ).

### References

- Brettschneider, W.D. & Naul, R. (2007): Obesity in Europe: young people's physical activity and sedentary lifestyles. Sport sciences international, vol. 4: Frankfurt am Main.
- Council of Europe (1993): Eurofit: Handbook for the Eurofit Tests of Physical Fitness, ed. 2. Strasbourg. Council of Europe.
- Dolmann, J., Norton, K., Norton, L. (2005): Evidence for secular trends in childrens physical activity behaviour, British Journal of Sports Medicine, 39, 892-897.
- Eminović, F., Pacić, S., Nikić, R., Odović, G., (2010): "The realization of physical education cerebral palsy students in wheelchairs as determinants of sport", International Scientific Conference "Theoretical, Methodological and Methodical Aspects of Competitions and Athletes' Preparation" Book of works, page 285-292, ISBN 978-86-80255-61-3, Faculty of physical education and sport, Belgrade
- Eminović, F., Pacić S., Čukić, R., (2008): "Uloga sporta i adaptirane fizičke aktivnosti (APA) za osobe sa invaliditetom-osnove i istorijat, trendovi i kontraverze", Međunarodna naučna konferencija "Teorijski, metodološki i metodički aspekti fizičkog vaspitanja", Zbornik rezimeaa, str. 93, Fakultet sporta i fizičkog vaspitanja, Beograd.

## **POVREDE KOD PROFESIONALNIH BALETSKIH PLESAČA**

**Ana Pflug**

Fakultet sporta i fizičke kulture, Beograd, Srbija

### **Uvod**

Baletski plesači imaju svakodnevne visokointenzivne treninge, pa je rizik od povreda vrlo visok. U našoj zemlji se poklanja malo pažnje ovoj vrsti umetnosti i nisu rađena sistematska istraživanja o povredama u baletu. Ovaj rad se bavi istraživanjem povreda kod aktivnih profesionalnih baletskih plesača. Ima za cilj da utvrdi kvantitet, tip i vrstu povreda, delove tela koji se najčešće povređuju, period u sezoni i mesto povređivanja plesača u poslednjih pet godina.

### **Metod**

Istraživanje je rađeno na uzorku od 30 baletskih plesača, članova Narodnog pozorišta u Beogradu. Uzorkom su obuhvaćeni plesači oba pola, uzrasta od 19-49 godina, profesionalnog staža od 2-27 godina, svih statusa (prvak, solista, član ansambla). Ispitanici su popunjavali namenski sastavljen upitnik poluzatvorenog tipa.

### **Rezultati**

Rezultati pokazuju da su baletski plesači izloženi velikom fizičkom naporu i angažovanju tokom pozorišne sezone. U proseku igraju 58 predstava po sezoni. Dnevno u sali za vežbanje provode oko pet sati. Posledica ovako dugog i intenzivnog fizičkog angažovanja je da je 93,3% anketiranih plesača bilo povređeno bar jednom tokom baletske karijere, dok je čak dve trećine imalo više od jedne povrede. Kod polovine ispitanika u pitanju su hronične povrede. Utvrđeno je da su najučestalije povrede ligamenata, a ređe mišića i kostiju. Najugroženiji delovi tela su: stopalo, skočni zglob, kičmeni stub, koleno i vrat. Povrede se najčešće javljaju tokom početka i na kraju sezone, kao rezultat neadekvatnog doziranja fizičke aktivnosti. Zapaženo je i da se povrede češće dešavaju na probama, nego u toku predstave ili u sali za vežbanje.

### **Zaključak**

Učestale povrede plesača i neadekvatno doziranje fizičke aktivnosti, mogu da dovedu u pitanje realizaciju baletskih predstava, ali i dalju karijeru i život ovih umetnika. Povećano angažovanje stručnjaka iz oblasti medicine i sporta, moglo bi da pomogne u izgradnji zdravije i duže karijere ovih umetnika.

**Ključne reči:** povreda, balet, baletski plesač

## **INJURIES OF PROFESSIONAL BALLET DANCERS**

**Ana Pflug**

University of Sport and Physical Education, Belgrade, Serbia

### **Introduction**

Ballet dancers have very intensive daily training; therefore the risk for injuries is quite high. In our country, very little attention is being placed on this type of art and no systematic research has been done regarding ballet. This research is conducted by documenting the injuries of active professional ballet dancers. The goal is to determine the number and type of injuries, the body areas which are most frequently injured during the season, and the place of injuries (of dancers) during the last five years.

### **Method**

The research was conducted on 30 ballet dancers, members of the National Theatre in Belgrade. Taken into account were professional dancers of both sexes, between the ages of 19–49 years, with 2–27 years of service of all statuses (principal, soloist and member of ensemble). Each professional dancer had to complete a semi-closed type of questionnaire.

### **Results**

The results concluded that the ballet dancers are under great physical stress situations and engagements during the theater season. On the average, they perform 58 shows during the season. They train approximately five hours per day. This highly intensive physical training results in 93,3% of professional dancers are injured at least once during their carrier, and two-thirds have had more than one injury. One-half of the dancers have had chronic injuries. It was determined that most injuries are sustained of ligaments and less of muscles and bones. Most threatened parts of the body are: feet, ankles, spinal column, knees and neck. The injuries are incurred most frequently during and at the end of the season, due to inadequate dosage of physical activity. It was noted that the injuries occur most often during the rehearsals rather than during the actual performances or in the training studios.

### **Conclusion**

Frequent injuries of ballet dancers are due to inadequate physical activity, which could bring into question the ballet performances, further career and life of the artists. Engaging medical sport experts could help prolong careers and better health for these artists.

**Key Words:** injury, ballet, ballet dancer

## **NAVIKE U VEŽBANJU I STAV BALETSKIH PLESAČA O PRIMENI PILATES METODE U FIZIČKOJ PRIPREMI**

**Ana Pflug**

Fakultet sporta i fizičke kulture, Beograd, Srbija

### **Uvod**

Pilates metoda je jedinstven sistem vežbi gipkosti i snage, koje je razvio Jozef Pilates, u prvoj polovini XX veka. Pilates sve češće čini sastavni deo fizičke pripreme baletskih plesača. Doziranom i ciljanom primenom pilates vežbi mogu se usavršavati motoričke sposobnosti i uticati na prevenciju i rehabilitaciju od povreda baletskih plesača. U svetu je ustaljena primena pilates vežbi u fizičkoj pripremi baletskih plesača, naročito tehnika Flečer pilatesa, a u baletskim školama pilates se pohađa kao redovan predmet. U našoj zemlji, pilates je mnogo manje zastupljen, pogotovo u ovoj formi. Ovaj rad je imao za cilj da ispita kolika je upoznatost profesionalnih baletskih plesača sa ovim programom, kakav je njihov stav o korisnosti ovih vežbi i koliko koriste pilates vežbe u fizičkoj pripremi i rehabilitacionom procesu.

### **Metod**

Anketirano je 30 profesionalnih baletskih plesača, članova Narodnog pozorišta u Beogradu. Istraživanjem su obuhvaćeni plesači oba pola, različitog uzrasta, profesionalnog staža i statusa (prvak, solista, član ansambla).

### **Rezultati**

Većina profesionalnih baletskih plesača je slabo upoznata sa pilates metodom i malo je koristi u fizičkoj pripremi. Samo 10,0% je upoznato sa tehnikom Flečer pilatesa i upražnjava vežbe pilatesa, uglavnom u okviru organizovanih grupnih treninga. Većina profesionalnih baletskih plesača, pored baletskih vežbi, koristi i druge vežbe u fizičkoj pripremi, ali su to najčešće vežbe snage sa i bez opterećenja. Ispitanici pilates vežbe procenjuju korisnim u srednjoj meri, što govori da nisu upoznati sa svim prednostima ove metode vežbanja.

### **Zaključak**

Dobijeni rezultati istraživanja ukazuju na potrebu boljeg promovisanja pilates programa u našoj zemlji, utoliko pre jer su profesionalni baletski plesači izloženi čestim povredama, a ova metoda ima efekte kako u prevenciji, tako i u rehabilitacionom procesu. U prilog govori činjenica da u svim većim baletskim kompanijama u svetu, postoje zaposleni sertifikovani instruktori pilatesa.

**Ključne reči:** pilates, balet, stav, vežbanje, baletski plesač



## **PRACTICE HABITS AND ATTITUDE OF BALLET DANCERS APPLICATION METHODS OF PILATES DURING PHYSICAL PREPARATION**

**Ana Pflug**

University of Sport and Physical Education, Belgrade, Serbia

### **Introduction**

Pilates method is a unique training system of flexibility and strength which was developed by Joseph Pilates during the first half of XX century. Pilates is becoming a more frequent component of ballet dancers' training. Proper dosage and targeted application of pilates exercises can bring about better motor skills and at the same time influence in preventing injuries and help with rehabilitation of the injured areas of ballet dancers. There is a steady application of pilates exercises and physical preparation in the world today, especially the Fletcher pilates, and ballet dancer schools have implemented it as a regular curriculum. In our country, the pilates method is much less being represented, especially in this format. This paper has a goal to explore the depth of ballet dancers' familiarity with this program, what is their posture toward the benefits of these exercises, and how many of them utilize these exercises in their physical training and rehabilitation process.

### **Method**

30 professionals ballet dancers were interviewed who are members of the National Theater in Belgrade. The study encompassed dancers of both sexes, different ages, number of professional years of service and of all statuses (principal, soloist and member of ensemble).

### **Results**

The majority of professional ballet dancers has very little knowledge of pilates method and uses it very infrequently in their physical preparation. Only 10,0% of them have knowledge of Fletcher pilates and utilize these practice exercises mostly during organized group trainings. The majority of professional ballet dancers, aside of ballet exercises, utilize also other exercises during their physical preparation, but they mostly concentrate on strength but are not strenuous. The respondents feel pilates exercises to be moderately helpful which confirms that they are not familiar with the positive effects of these methods of exercise.

### **Conclusion**

The results of the research points to the need of better promotion of pilates program in our country, since the professional ballet dancers are exposed to frequent injuries. Pilates has a preventive method and also helps with the rehabilitation process. This is being supported by the fact that most ballet companies throughout the world are staffed with certified pilates instructors.

**Key Words:** Pilates, ballet, attitude, exercise, ballet dancer

## COMPARISON IN THE EFFECTIVENESS OF “EXTRA MAN” BETWEEN MEN AND WOMEN IN EUROPEAN CHAMPION 2010

Stavros Tsangozis, Petros Botonis, Theodoros Platanou

Department of Aquatic Sports, Faculty of Physical Education and Sports Science, University of Athens, Greece

### Introduction

“Extra man” is a situation, which is often repeated during a water-polo game and is considered to have a great participation in the result of the match. In this situation, one of the two teams plays with one player more because of removal of a player of the rival team lasting for 20 sec. This situation could change if the ball possession changes or if the team that plays with extra man achieves a goal. It has been found that a  $40.2 \pm 22.7\%$  of the total number of goals is achieved during this situation (Platanou 2004). The objective of this study was to compare the effectiveness of “extra man” between men and women of the two finals (men and women) that took part in the European Champion 2010. Moreover, to compare the number of passes and the total time for completion of effort for shot and the position that shots executed, as well.

### Methods

The two finals (men and women) of the European Champion were videotaped and analyzed in the “extra man situation”. T-test for independent samples was employed to detect differences between finals.

### Results and Discussion

In men final, “extra man” was repeated 17 times and totally 5 goals were achieved (29.4%), while in women final, “extra man” was repeated 10 times and 3 goals were scored (30%) by the two teams. In the two finals, most of the shots were executed from the extreme position. No differences were existed between finals in the number of passes and in the total time for completion of effort for shot ( $P > 0.05$ ). Particularly, in the men final the mean values for the passes and the total time for the final shot were  $7.0 \pm 2.0$  and  $17.41 \pm 2.59$  sec while the women respective values were  $8.5 \pm 3.2$  passes and  $17.80 \pm 4.2$  sec.

### Conclusion

From the above evidence, it seems that “extra man” was similar in terms of effectiveness and in the basic characteristics of this specific situation between men and women.

### References

Platanou T. (2004). Analysis of the “Extra man offence” in water polo: A comparison between winner and loser teams and players of different playing position. *Journal of Human Movement Studies*, 46, 205-211

## INDEKS TELESNE MASE I FIZIČKA AKTIVNOST ADOLESCENATA U BEOGRADU

Marina Đorđević-Nikić, Milivoj Dopsaj

Fakultet sporta i fizičkog vaspitanja, Beograd, Srbija

### Uvod

Tendencija povećane učestalosti prekomerne telesne mase i gojaznosti kod dece i adolescenata, vrlo su aktuelni medicinski problemi u razvijenim zemljama sveta i u Srbiji. Ove pojave ukazuju na povećani rizik od nastanka kardiovaskularnih, malignih i drugih oboljenja u odrasloj dobi. Upoznavanje sa načinom provođenja slobodnog vremena i odnosa prema fizičkim aktivnostima mladih treba da doprinese osmišljavanju strategije za usvajanje poželjnih životnih navika i smanji pojavu gojaznosti i drugih pridruženih oboljenja u odrasloj dobi.

### Metod

Istraživanje je sprovedeno na adolescentima uzrasta 15-16 godina i utvrđen je: 1) indeks telesne mase, kao pokazatelja uhranjenosti; 2) karakteristike fizičke aktivnosti i načina provođenja slobodnog vremena. Istraživanje je sprovedeno primenom validnog upitnika koji se odnosio na navike i mišljenje o fizičkoj aktivnosti u slobodnom vremenu. Vrednosti telesne visine i mase učenika dobijene su iz zdravstvenih kartona. Obuhvaćeno je 688 učenika oba pola, prvog razreda, beogradskih srednjih škola, koje obrazuju za različite profile zanimanja. Prosečan uzrast mladića iznosio je 15.9 a, devojaka 15.8 godina.

### Rezultati i diskusija

Prosečan indeks telesne mase (ITM) mladića i devojaka odgovarao je normalnoj uhranjenosti  $22.2 \pm 3.1$ , odnosno  $20.2 \pm 2.1$ . Prema standardima za uhranjenost dece (Cole TJ, et al., 2000) bilo je 21.2% mladića sa prekomernom telesnom masom i 3.3% gojaznih, a među devojka bilo je 5.3% u stanju prekomerne telesne mase, dok gojaznih nije bilo. Mladići su bili redovnije u fizičkim aktivnostima od devojaka, tokom cele godine, kontinuirano ( $F=17.14$ ;  $p=0.000$ ). Ipak, 50% devojaka je imalo redovnu fizičku aktivnost. Mladići su bili više uključeni u aktivnosti koje traju 4 i više sati tokom dana - 48%, dok je učešće devojaka iznosilo 28.9% ( $F=29.38$ ;  $p=0.000$ ). Devojke su značajnije bile uključene u aktivnosti koje traju 1-2 sata dnevno (devojke 32.4%, odnosno mladići 22.7%). Mladići su statistički značajnije provodili vreme baveći se sportom - 42%, a devojke su značajnije više slobodnog vremena provodile u šetnji i kupovini. Ovi podaci su vrlo slični sa rezultatima dobijenim, primenom istog upitnika, kod adolescenata u Italiji (Turconi, G., et al. 2005). Približno 50% devojaka i mladića je provodilo 3-4 sata dnevno, slobodnog vremena ispred TV/kompjuter/knjiga. Nastava fizičkog vaspitanja je od približno 50% učenika oba pola ocenjena dobrom. Približno četvrtina učenika oba pola misli da su časovi fizičkog vaspitanja dosadni.

### Zaključak

Visoka zastupljenost (jedna petina) mladića kod kojih se beleži ITM koji odgovara prekomernoj telesnoj masi, kao i činjenica da približno 50% učenika, oba pola, provodi 3-4 sata ispred TV/kompjuter/knjiga, zahteva osmišljavanje preventivnih programa. Škole su prepoznate kao najbolje mesto za sprovođenje zdravstveno-vaspitanog rada i interventnih programa, čiji je cilj unapređenje životnih navika (ishrana i fizička aktivnost) mladih.

**Ključne reči:** adolescenti / indeks telesne mase / fizička aktivnost / slobodno vreme / životne navike

## **BODY MASS INDEX AND PHYSICAL ACTIVITY OF BELGRADE ADOLESCENTS**

**Marina Đorđević-Nikić, Milivoj Dopsaj**

Faculty of Sport and Physical Activity, Belgrade, Serbia

### **Introduction**

The tendency of increased overweight and obesity prevalence in children and adolescents, are current medical problems in the developed countries in the world and in Serbia. These phenomena indicate an increased risk of cardiovascular, cancer and other diseases in adulthood. Getting to know how to spend your leisure time and relations to physical activity of the youth should contribute to devising of strategies for adoption of desirable lifestyle habits and reduce obesity and other related diseases in adulthood.

### **Methods**

The study was conducted on adolescents aged 15-16 years determined: 1) Body mass index as nutritional status indicator, 2) characteristics of physical activity and ways of spending leisure time. The study was conducted by applying a validated questionnaire related to habits and opinions about physical activity in free time. The values of body height and weight were obtained from students medical records. The survey involved 688 students of both sexes, attending the first grade of Belgrade high schools, educated for a variety of job profiles. The average age for boys was 15.9 and 15.8 years for girls.

### **Results and discussion**

The average body mass index (BMI) of boys and girls corresponded to the normal nutrition  $22.2 \pm 3.1$  and  $20.2 \pm 2.1$  respectively. According to standards for the nutritional status of children (Cole TJ, et al., 2000) 21.2% of the boys were overweight and 3.3% obese, while 5.3% of the girls were overweight, and no obese ones. The young men had more regular physical activities than the girls, throughout the year, continuously ( $F = 17:14$ ,  $p = 0.000$ ). However, 50% of girls had regular physical activity. Young men were more involved in activities lasting four or more hours during the day - 48%, while girls' participation was 28.9% ( $F = 29.38$ ,  $p = 0.000$ ). Girls were significantly more involved in activities that lasted for 1-2 hours a day (32.4% girls and boys 22.7%). Statistically more significantly, young men spent time in sports activities - 42%, while the girls significantly more free time spent in walks and shopping. These data are very similar to the results obtained, using the same questionnaire for the adolescents in Italy (Turconi, G., et al. 2005). Approximately 50% of the girls and boys spent 3-4 hours a day of their free time in front of TV/computer/books. PE classes were assessed by approximately 50% of students of both sexes as good. About one fourth of the students of both sexes thought that the PE classes were boring.

### **Conclusion**

High prevalence (one fifth) of young men with BMI that corresponds to overweight, as well as the fact that approximately 50% of students of both sexes who spend 3-4 hours in front of the TV/computer/books, requires designing of prevention programs. Schools are recognized as the best places to implement health-educational work and intervention programs aimed at improving living habits (Nutrition and Physical Activity) of the youth.

**Key words:** adolescents / body mass index / physical activity / leisure time / living habits

## **PROMOTE THE EQUALITY AND FAIRNESS FOR EVERYONE IN PHYSICAL EDUCATION ACTIVITY-THE CASE OF MIXED GROUP**

**Simona Petracovschi, Sorinel Voicu, Mihaela Faur, Felix Sinitean-Singer**

Faculty of Physical Education and Sport, West University, Timișoara, Romania.

### **Introduction**

Since the classes are mixed in Romania but the lessons of physical education are still practicing by using separated groups for male and female, especially for team sports (e.g. football, handball, etc) where the boys are playing against boys and girls against girls, the purpose of this study is to identify and combat gender stereotypes by using games and plays for mixed group in physical education activity. Also, using the mix group in the physical activity during all the school period will be a mean method to learn civic rules, the respect of difference and will encourage the process of socialization between boys and girls.

### **Methods**

The experiment was conducted between 15 October 2009 to 15 May 2010 by a group of 20 students (13 girls and 7 boys) at the age of 13 (class VII in Romanian system) using the sociometry method.

### **Results and discussion**

If the initial testing shows that the choice of partner is primarily based on gender, the results made after final testing (after 7 months of work carried out by groups combined) reveals that the partner's choice is made according to sporting skills and physical development.

### **Conclusions**

The conclusions highlight the importance of early work on mixed groups from the age of 9. The idea is to combat the stereotypes in so called "masculin" or "feminin" sports and to emphasize the respect for equality and fairness between students according to individual possibilities.

### **References**

- FAUR, M . (2004). Didactica educației fizice, Timișoara  
Cogérino, G. (2005). Filles et garçons en EPS. Paris : Ed. Revue EPS.

**Key words:** physical education, football, mixed group

# UTICAJ JEDNOGODISNEG PROGRAMIRANOG TRENAZNOG PROCESA NA MOTORICKE SPOSOBNOSTI I MOTORICKA ZNANJA PLIVACA PIONIRSKOG UZRASTA

**Thanopoulos Vassilios**

National and Kapodistrian University of Athens, Greece.

## Uvod

Dijagnostika u plivanju podrazmeva prikupljanje upotrebljivih informacija o inicijalnom i finalnom stanju mladih plivaca u prostoru sposobnosti i osobina koje su bitne za postizanje uspeha. Rezultati dobijeni mogu se koristiti: za selekciju mladih kandidata, definisanje stanje subjekata, sposobnosti i znanja koje mladu plivacu omogucuju natjecateljsku efikasnoscu i programiranje trenaznog procesa. Cilj ovog istrazivanja bio je da se utvrdi velicina uticaja predlozenog ekperimentalnog programa plivanje u trajanju godinu dana na motoricke sposobnosti i motoricka znanja mladih plivaca polaznika pionirske skole.

## Metode

Ispitivanje je sprovedeno na uzorku od 59 decaka koji su redovno poadjali nastavno – trenazni proces i koji na dan inicijalnog merenja su imali 8-10god.  $\pm 6$  meseci sa  $139.7 \pm 7.7$ cm visinom i sa  $34.4 \pm 6.0$ kg tezinom. Da bi se ustanovilo velicina uticaja programa plivanje, merenje je sprovedeno dva puta i to na pocetku i na kraju ekperimentalnog tretmana. Za analizu podataka ovog istrazivanja koriscen je t-test i regresiona analiza.

## Rezultati sa diskusijom

Analizom vrednosti aritmetickih sredina tretiranih motorickih sposobnosti uocava se da veci broj testova ukazuje da su primenjeni testovi motorickih varijabli dobro prilagodjeni ispitanicima ovog uzrasta a mogu biti znak pozitivnog uticaja jednogodisnjeg trenaznog tretmana. Prediktorski sistem varijabli na kriterijske pokazalo da jednogodisni trenazni tretman nije u istoj meri uticalo na razvoj pojedinih sposobnosti i motorickih znanja obuhvacenih ispitania.

## Zaključak

Generalni zakljucak rezultata ukazuju da u motorickom prostoru dobijene promene mogu biti u odredjenoj meri pod uticajem trenaznih opterecenja. Za decidirano zakljucivanje bilo bi neophodno visegodisnje pracenje ovih promena u populaciji mladih plivaca pri cemu bi pracenje i kontrolnih grupa dece istog uzrasta tome znacajno doprineli.

## Literatura

Bulgakova, N., Voroncov, A. (1980). Selekcija i trening mladih plivaca, Sportska praksa, br. 3, Beograd  
Matkovic, I. (1977). Validacija testova za selekciju mladih plivaca na bazi kvaliteta brzine, magistarski rad, Beograd.

## **THE IMPLEMENTATION OF BASIC ATHLETIC GAMES IN UNIVERSITY LEVEL PHYSICAL TRAINING**

**Marija Zegnal, Nevenka Breslauer**

Medimurje University of Applied Sciences in Čakovec, Croatia

### **Introduction**

The fact that the concept of a game symbolically implies the conflict between two parties, which satisfies the basic human need for competition and comparison, it gives any team game the preference over an individual game (Foretić N., Rogulj N., 2007.). Apart from the need to compete, there are many other needs that are in entirety satisfied, especially those connected to movement, aspiration, creative movement expression, social affirmation, self-confirmation, etc.

### **Method**

Games used in school curriculum, as well as in handball training, are divided into two groups: basic and modified games. The implementation of both basic games (used in educational process), and modified ones (implemented in any other sport, trained by young adults), has a great impact on the normal development of functional and motion competence, and technical knowledge acquisition. Furthermore, the healthy valorization will undoubtedly develop cognitive abilities and personality tentative dimensions.

### **Discussion**

The importance of basic athletic games in the entire psychophysical development of young adult, or an athlete, is immense. The games offer endless positive impact on personality development and forming. Through the consistent basic games practice, the students and athletes learn to respect the rules, learn the discipline and the concept of respect for both their teammates, as well as the opponents. The very important notions of fair play and integrity are best acquired through a game.

### **Conclusion**

The game represents a remarkably convenient basis for any physical training process. We can conclude that the basic games implementation plays a great role, and that it must not be in any way neglected. Quite the opposite, it must be given the preference over other methods, especially when working with young adults.

### **Literature**

1. Belančić, Z. (1999). Specifične igre u uvodno-pripremnom dijelu treninga, Zbornik radova
2. Foretić N., Rogulj N., (2007). Škola rukometa, Split

## USPEŠNOST USVAJANJA OSNOVNE TEHNIKE SKIJANJA KOD DECE POLAZNIKA ŠKOLE SKIJANJA

**Dragiša Mladenović**

Ski škola Kopaonik, Srbija

### Uvod

Potreba da se tehnika skijanja razvija podrazumeva poznavanje mehanizama ocenjivanja, sa svojim prepoznatljivim karakteristikama, kako bi pokreti tehničkog izvođenja bili pravovremeno usmeravani.

### Metode

Istraživanje je sprovedeno na uzorku od 105 ispitanika, podeljenom na dva subuzorka: decu starosti 4 i 5 godina i decu starosti 6, 7 i 8 godina koja nikad ranije nisu skijala. Usvojenost osnovne tehnike skijanja je procenjena nakon šestodnevne obuke sprovedene po istom planu i programu za sve ispitanike. Uspešnost usvajanja je ocenjena ekspertskom ocenom od strane tri nezavisna ocenjivača na skali ocena od 1 do 5 a statističkom obradom transformisana u odlično, vrlo dobro i dobro usvajanje osnovne tehnike skijanja. Za potrebe procenjivanja usvojenosti odabrana su tri elementa tehnike: zaustavljanje u plugu, zaokret ka padini, vijuganje oko postavljenih markacija. Putem posebno konstituisanog upitnika prikupljeni su podaci o rastu, razvoju i navikama deteta.

### Rezultati sa diskusijom

U subuzorku dece starosti 4 i 5 godina usvojenost osnovne tehnike skijanja je ocenjena odličnom kod 26,08%, vrlo dobrom kod 43,47%, a dobrom kod 30,43% dece. U subuzorku starije dece 44,06% je odlično, 27,12% vrlo dobro, a 28,81% dobro usvojilo. Među ispitanicima nema statistički značajne razlike u uspešnosti usvajanja u odnosu na pol. U odnosu na učestvovanje u organizovanim sportskim programima kod mladih ispitanika utvrđena je statistički značajna razlika u uspešnosti usvajanja u odnosu na vrstu sporta kojim se bave ( $p=0.055$ ) kao i od broja treninga nedeljno ( $p=0.054$ ). Kod starijih ispitanika utvrđena je statistički značajna razlika u odnosu na broj sportova kojim se bave ( $p=0.007$ ) kao i umeće vožnje bicikla ( $p=0.007$ ). Deca čiji roditelji skijaju, koja skijaju i posle časova u školi skijanja statistički značajno su uspešnije usvojila osnovnu tehniku skijanja.

### Zaključak

Nakon sprovedene obuke, svi ispitanici su ocenjeni prelaznom ocenom odnosno svi su u predviđenom vremenu usvojili osnovnu tehniku skijanja.

**Ključne reči:** škola skijanja, deca, uspešnost usvajanja.



## **SUCCESS IN ADOPTING BASIC SKI TECHNIQUES WITH CHILDREN ATTENDING SKI SCHOOL**

**Dragiša Mladenović**

Ski school Kopaonik, Serbia

### **Introduction**

The need to develop the ski technique implies being familiar with the assessment criteria, thus to direct the technical movements in a timely manner.

### **Method**

The research was conducted on the sample of 105 children, divided into two sub samples: children 4 and 5 years old and 6, 7 and 8-year olds, who had never skied previously. The degree of adopting the skiing techniques was assessed after six day training performed according to the same program for all the children. The success in adopting the technique was rated by experts, actually by three independent assessors- on the scale 1 to 5, and with statistical processing it was transformed into excellent, very good and good adoption of basic ski technique. For the purpose of the study in grading the adoption, three elements in basic skiing technique were selected: stopping in the plug, turn to the hill, and slalom along the set up marks. Information on their growth, development and habits were collected by using a specially designed questionnaire.

### **Results and discussion**

In the sub sample of children aged 4 and 5 the degree of adopting the basic skiing technique was rated as excellent with 26.08%, very good with 43.47%, and good with 30.43% of children. For older children- 44.06% were graded excellent, 27.12% very good and 28.81% as good in adopting. Among the children surveyed there exists no relevant statistical difference in regard to gender. As for participating in organized sports programs with younger children determined was a statistically important difference in successfully adopting the ski technique in regard to sports they train ( $p= 0.055$ ) and the number of trainings per week ( $p=0.054$ ). With the older children surveyed there is statistically important difference in successful adoption of skiing technique compared to the number of sports trained ( $p=0.007$ ) and also the ability of riding a bike ( $p=0.007$ ). Children whose parents ski, who also ski after classes at ski school were statistically significantly better at adopting the ski technique.

### **Conclusion**

After completing the skiing training, all the interviewers were rated with a passing grade that is with the timeline given, all the children adopted the basic skiing technique.

**Key words:** ski school, children, success in adopting

## RAVNOTEŽA SPORTISTA REPREZENTATIVACA OŠTEĆENOG VIDA

Ćosić Marko<sup>1</sup>, Koprivica Vladimir<sup>2</sup>

<sup>1</sup> AK „Crvena zvezda“, Beograd, Srbija,

<sup>2</sup> Univerzitet u Beogradu, Fakultet sporta i fizičkog vaspitanja, Beograd, Srbija

### Uvod

Veliki je broj razloga zbog kojih je potrebno osobe oštećenog vida u potpunosti uključiti u društvo. Jedna od mogućnosti je sportska aktivnost. Da bi se u tome uspelo na adekvatan način, potrebno je poznavati njihove specifičnosti.

U dostupnoj literaturi je mali broj radova koji za temu imaju osobe oštećenog vida, pogotovo sportiste i to na najvišem nivou sportskog rezultata u svojoj sporskoj grani u Srbiji.

Određeni broj autora (Grbović, 2005, 2006, 2007, 2009, Jablan, 2007, Vučinić, 2003, Eškirović, 2001) se bavi osobama oštećenog vida, ali se uglavnom radovi svode na školsku populaciju, odnosno na osobe koje nisu u trenažnom procesu.

Sposobnost ravnoteže je kod opšte populacije osoba oštećenog vida na niskom nivou.

Potrebno je utvrditi nivo sposobnosti ravnoteže kod sportista sa oštećenim vidom i eventualne međusobne razlike kako bi se bolje planirao i programirao njihov trenažni proces.

Cilj rada je da se utvrdi sposobnost ravnoteže sportista oštećenog vida, utvrde međusobne razlike u odnosu na stepen oštećenja, kao i nivo sposobnosti ravnoteže u odnosu na običnu populaciju i da se analizom dobijenih podataka upotpune saznanja o ravnoteži sportista oštećenog vida.

Do cilja će se doći ispunjavajući zadatke koji su sledeći:

- Analiza dasadasnjih radova koji se bave ovom problematikom.
- Prikaz protokola testiranja i aparature koja je korišćena.
- Analiza rezultata testiranja.
- Analiza rezultata testiranja u odnosu na određene referentne vrednosti osoba koje vide.

### Metodologija

U radu je korišćena deskriptivna metoda. Uzorak predstavljaju sportisti oštećenog vida reprezentativnog nivoa u atletici i golbalu. Testiranje je obavljeno na kompjuterizovanoj dinamičkoj platformi Balance pro-master, NeuroCom.

### Zaključci

Na osnovu teorijskih saznanja i izvršenog testiranja, može se zaključiti da ravnoteža sportista koji imaju oštećen vid, ima svoje specifičnosti u odnosu na osobe koje vide. Nedostatak vida utiče na sposobnost ravnoteže i ukazuje na određene specifičnosti kojima se treba služiti u trenažnom procesu kada su u pitanju sportisti oštećenog vida.

**Ključne reči:** sportisti oštećenog vida, slepi sportisti, ravnoteža, stabilnost, centar mase.

## **BALANCE OF ATHLETES OF REPRESENTATIVE LEVEL WITH VISUALLY IMPAIRED**

**Ćosić Marko<sup>1</sup>, Koprivica Vladimir<sup>2</sup>**

<sup>1</sup> AK „Crvena zvezda“, Belgrade, Serbia.

<sup>2</sup> University of Belgrade, Faculty of Sport and Physical Education, Belgrade, Serbia.

### **Introduction**

There are a vast number of reasons why it takes the visually impaired in fully to join our society. To have succeeded in an adequate manner, it is necessary to know their specifics. Among them are a significant number of athletes with visual impairments. Inclusion of this group in the sports activities often leads to several problems, some of which are related to professional work and inadequate education of professional staff.

In the current literature very few works that the topic of visually impaired persons, especially athletes at the highest, representative level.

A number of authors (Grbović, 2005, 2006, 2007, 2009, Jablan, 2007, Vučinić, 2003, Eškirović, 2001) deals with persons with impaired vision, but mainly works to reduce school population, or to persons who are not in the training process.

There are a lot of unknowns regarding the ability of visual impairment people, and one of them is balance. It is at low levels in the general population of people with visual impairment. The work examines the balance of visually impaired athletes.

The aim of this paper is to determine the ability of balance within the visually impaired athletes, determine the differences in the degree of impairment and the level of balance ability in relation to the ordinary population.

The goal will be reached by fulfilling the tasks as follows:

- Analysis of reference material that has been presented in the literature.
- Description the protocol and testing equipment used.
- Analysis of test results.
- Analysis of test results in relation to certain reference values of people who can see.

### **Methods**

Descriptive methods. Sample within the visually impaired athletes on representative level in athletics and goalball. The testing was done on computerized dynamic platform Balance pro-master, NeuroCom.

### **Conclusion**

Based on theoretical knowledge and testing performed, it can be concluded that the balance of athletes who have impaired vision has its specificity in relation to people with no visual impaired. The lack of vision affects to the ability of balance and points out some specifics that need to be served in the training process when it comes to athletes with visual impairment.

**Key words:** visually impaired athletes, blind athletes, specifics, balance, stability, center of mass.

## FIZIOLOŠKE I KINEMATIČKE DETERMINANTE RAZLIČITIH TEHNIKA HODA

**Milan Matic, Vladimir Ilic, Igor Ranisavljev**

Fakultet sporta i fizičkog vaspitanja, Beograd, Srbija

### Uvod

Hod kao osnovni oblik humane lokomocije predstavlja niz ravnomernih, cikličnih i naizmeničnih koordiniranih pokreta udova i trupa sa ciljem premeštanja tela sa jednom mesta na drugo u prostoru. Bipedalni hod se ostvaruje zahvaljući relativno krutom stavu nogu što za posledicu ima vertikalno oscilovanje centra mase (CM) u oba smera.

### Metode

Kako na ovim prostorima ne postoje studije koje se bave analizom različitih tehnika hoda, u radu su data relevantna saznanja iz oblasti fiziologije i kinematike hoda, prikupljena korišćenjem MEDLINE baze podataka. Deskriptivnom metodom analizirane su tri različite tehnike hoda.

### Rezultati sa diskusijom

Na osnovu visine i oscilacije CM, moguće je diferencirati tri različite tehnike hoda (Gordon i sar. 2009): klasičan hod, hod sa podignutim CM i kraćom dužinom koraka („bouncy“ tehnika) i hod sa spuštenim CM i većom fleksijom zglobova nogu tokom faza oslanjanja („flat“ tehnika). Prilikom pokretanja CM vertikalno na gore dolazi do usporavanja brzine tela i obrnuto, i pasivnog pretvaranja gravitacione potencijalne energije u kinetičku energiju. Na ovaj način smanjuje se mehanički rad potreban mišićima za podizanje i ubrzavanje CM, čime se smanjuje metabolički utrošak energije. Utrošak energije u toku ciklusa hoda determinisan je mnogobrojnim faktorima kao što su generisanje snage za podršku telesne mase, zamaha noge, dužine koraka i frekvence hoda pri određenoj brzini, kao i održavanja stabilnosti tela. Iako su doprinosi različitih faktora u ukupnom metaboličkom utrošku prilikom hodanja ispitivani u brojnim dosadašnjim istraživanjima, i dalje postoji naučna dilema u kojoj meri vertikalna oscilacija CM utiče na energetska potrošnju.

### Zaključak

U literaturi postoje kontroverzni rezultati. Starije studije pokazale su da se energetska potrošnja smanjuje tokom modifikovanih tehnika hodanja u odnosu na klasičnu tehniku usled smanjenog mišićnog rada potrebnom za podizanje trupa. Nasuprot tome, novija istraživanja pokazala su da smanjenje vertikalnog osciliranja CM povećava metabolički trošak pošto mišići moraju generisati snagu za održavanje krutog stava donjih ekstremiteta kako bi sprečili kolaps CM.

### Literatura

Gordon KE, Ferris DP, Kuo AD. (2009). Metabolic and mechanical energy costs of reducing vertical center of mass movement during gait. *Arch Phys Med Rehabil*; 90:136-44.

## **PHYSIOLOGICAL AND KINEMATICAL DETERMINANTS OF DIFFERENT WALKING TECHNIQUES**

**Milan Matić, Vladimir Ilić, Igor Ranisavljev**

Faculty of Sport and Physical Education, Belgrade, Serbia

### **Introduction**

Walking as a basic form of human locomotion is a set of uniform, cyclic and alternating coordinated movements of the limbs and trunk with the aim of moving bodies from one place to another in space. Bipedal walk is achieved thanks to the relatively rigid attitude of the legs, which results in vertical oscillation of the center of mass (CM) in both directions.

### **Methods**

Considering that in these areas there are no studies that analyze the different techniques of walk, this paper presents relevant information in the field of physiology and kinematics of walk, collected using the MEDLINE database. Descriptive method is used for the analysis of the three different walking techniques.

### **Results and Discussion**

Based on height and oscillations of CM, it is possible to differentiate three different techniques of walking (Gordon et al. 2009): classic walk, walk with elevated CM and shorter stride length ("bouncy" technique) and walk with lower CM and greater flexion in leg joints during phase of the suspension ("flat" technique). Increasing CM vertically upwards lowers the moving speed and vice versa, converting passive gravitational potential energy into kinetic energy. This minimizes the mechanical work required for muscles to lift and accelerate the CM, thus reducing the metabolic energy consumption. Energy consumption during the gait cycle is determined by many factors such as power generation to support body weight, leg swing, stride length and frequency of walking at a certain speed, as well as maintaining the stability of the body. Although the contributions of various factors in the total metabolic expenditure during walking are studied in numerous previous studies, there still remains a scientific dilemma of how much vertical oscillations CM affects energy consumption.

### **Conclusion**

There are controversial results in the literature. Older studies have shown that the energy consumption decreases in the modified technique of walking, compared to the classic technique while reducing muscle work necessary to raise trunk. In contrast, recent studies have shown that reducing vertical oscillation of CM increases the metabolic cost because the muscles must generate force to maintain a rigid attitude of the lower extremities to prevent the collapse of the CM.

### **References**

Gordon KE, Ferris DP, Kuo AD. (2009). Metabolic and mechanical energy costs of reducing vertical center of mass movement during gait. *Arch Phys Med Rehabil*, 90:136-44

## MOTIV SPORTSKOG POSTIGNUĆA I USPEŠNOST KOŠARKAŠA KADETSKOG UZRASTA

Radivoj Mandić, Milivoje Karalejić, Saša Jakovljević

Fakultet sporta i fizičkog vaspitanja Univerziteta u Beogradu, R. Srbija

### Uvod

Značaj motivacije za sportsku aktivnost, a naročito za postizanje uspeha u sportskom takmičenju je već ranije pokazana (Singer, 1972). Cilj ove studije je bio da istraži povezanost motiva sportskog postignuća i takmičarske uspešnosti košarkaša kadetskog uzrasta.

### Metode

Na uzorku od 90 košarkaša - kadeta (15 i 16 godina), učesnika četvrtfinala završnog turnira prvenstva Srbije 2009/2010. godine, primenjena je skala *Motiv sportskog postignuća* (Havelka i Lazarević, 1981), sa tri podskale: *motiv postignuća u sportu* (SP), *pozitivno emocionalno angažovanje* (PEA) i *negativne emocionalne reakcije* (NEA) – prediktorske varijable. Kriterijumska varijabla – *takmičarska uspešnost košarkaša* je procenjena kroz plasman timova: košarkaši prva tri plasirana tima – grupa G1 (N=35), sledeća tri po plasmanu (od 4. do 6. mesta) – grupa G2 (N=33) i dva poslednje plasirana tima – grupa G3 (N=22). Podaci su obrađeni deskriptivnom statistikom, a primenjeni su Post Hoc test i diskriminativna analiza.

### Rezultati sa diskusijom

Srednje vrednosti na sve tri skale su bliske srednjim vrednostima vrhunskih sportista (Havelka i Lazarević 1981), čak su i više. Rezultati diskriminativne analize su pokazali da se prva grupa G1 izdvaja od ostale dve na osnovu rezultata na skalama primenjenog upitnika. Rezultati Post Hoc analize su pokazali da se košarkaši grupe G1 značajno razlikuju (postigli bolje rezultate) u sve tri varijable od ostale dve grupe (izuzev u SP u odnosu na G3). Između G2 i G3 nisu pronađene nikakve razlike.

### Zaključak

Na osnovu veličina srednjih vrednosti na sve tri skale može se reći da je kod mladih košarkaša kadetskog uzrasta: veoma izražen motiv sportskog postignuća, izražena emocionalna stabilnost u situacijama sportskog postignuća, i slabo izražena emocionalna inhibicija. Najkvalitetniji košarkaši su postigli značajno bolje rezultate na svim skalama u odnosu na košarkaše iz ostale dve grupe (G2 i G3), što ukazuje da je motiv sportskog postignuća značajan faktor takmičarske uspešnosti mladih košarkaša.

### Literatura

Havelka, N. i Lazarević, Lj. (1981). *Sport i ličnost*. Beograd: Sportska knjiga.  
Singer, R.N. (1972). *Coaching, Athletics and Psychology*. New York: McGraw Hill Book.

**Ključne reči:** MSP / ponašanje / emocionalno / stabilnost / inhibicija

## SPORT ACHIEVEMENT MOTIVE AND SUCCESS OF MALE CADET BASKETBALL PLAYERS

Radivoj Mandić, Milivoje Karalejić, Saša Jakovljević

Faculty of Sport and Physical Education, University of Belgrade

### Introduction

Importance of motivation for sport activities and especially for sport success was pointed earlier (Singer, 1972). The aim of this study was to investigate relation between sport achievement motive and success of male cadet basketball players.

### Method

At the sample of 90 male basketball players – cadets (15 and 16 years old), which were participants of Serbian final tournament in quarterfinal 2009/2010., was applied *Sport achievement motive* scale (Havelka & Lazarevic, 1981) . It was three scales: sport achievement motive according to different forms of behavior (SP), positive emotional engage (PEA) and negative emotional reactions (NEA) – predictors. Criteria – success of basketball players was exam according to teams rang: players from the first three teams were group 1 (G1, N = 35), next three teams (ranked 4.–6.) were group 2 (G2, N = 33), and two last teams were group 3 (G3, N = 22). Data were calculated with descriptive statistics, Post Hoc test and discriminative analysis.

### Results and discussion

Means of all three scales were near to means of elite athletes (Havelka & Lazarevic, 1981), even more. The first group G1 segregated from other two groups according to results of discriminative analysis. Results of Post Hoc analysis shown that players from G1 significantly differ (better results) in all three scales from other groups (except in SP in relation with G3). Differences between G2 and G3 were not detected.

### Conclusion

On the base of means of three scales we can conclude that young basketball players have: much expressed sport achievement motive, emotional stability and low expressed emotional inhibition. The best players (G1) were achieved significant better results on all scales compare with other two groups (G2 and G3). That point sport achievement motive is important factor of young basketball players' success.

### References

Havelka, N. i Lazarević, Lj. (1981). *Sport i ličnost*. [*Sport and personality*]. Beograd: Sportska knjiga.  
Singer, R.N. (1972). *Coaching, Athletics and Psychology*. New York: McGraw Hill Book.

**Key words:** MSP / behavior / emotional / stability / inhibition

## **THE INVESTIGATION OF THE REACTION TIMES OF 14-16 YEARS OLD AGED TENIS AND VOLLEYBALL PLAYERS**

**Erkan Günay, Metin Polat, Nazmi Saritaş, Bekir Çoksevim**

Erciyes University, School of Physical Education and Sport Kayseri, Turkey

### **Introduction**

At this study, it was aimed to investigate the visual and auditory reaction times of 14-16 years old aged tennis and volleyball players.

### **Methods**

In this study, 12 tennis and 12 volleyball players who totally 24 healthy right handed athletes were voluntarily participated. Age, Height, Weight, Body mass index, visual and auditory reaction time parameters were measured. Measurements were done in Kayseri Tennis Club and Youth Sport Club. Data were recorded on computer environment by using a program called SPSS 15.0. For statistical analysis of Man Whitney U-test was performed. Significance level interval was accepted as  $p < 0,01$  and  $p < 0.05$ .

### **Results**

According to data; significant differences were found with the age parameters at the level of  $p < 0,01$  while no significant differences were found with Height, Weight, Body Mass Index, The Visual and Auditory reaction time parameters.

### **Conclusion**

Significant differences were not found at the visual and auditory reaction time parameters of tennis and volleyball players. The reason of that was thought that both of branches necessitate a rapid repling for stimulants.

**Key words:** Tennis, Volleyball, Reaction Time.



## ISPITIVANJE STAVOVA ADOLESCENATA PREMA ESTETSKIM KOMPONENTAMA UMETNIČKOG PLESA

Popović, R.\*, Kocić, J.\*\*\*, Dolga, M.\*\*\*, Nikolić, V.\*\*\*\*, Purenović, T.\*

Univerzitet u Nišu, Fakultet sporta i fizičkog vaspitanja, Niš, Srbija\*

Univerzitet u Prištini/Kos. Mitrovica, Fakultet za Sport i fizičko vaspitanje, Leposavić, (Kosovo) Srbija\*\*

Agencija za statističku obradu podataka „Smart-Line“, Novi Sad, Srbija\*\*\*

Osnovna škola „Ilija Garašanin“, Grocka, Srbija\*\*\*\*

**Uvod.** Pregled kvalitativnih istraživanja ukazuje da je ples izuzetno popularna rekreativna aktivnost među mladima, posmatran sa aspekta nastavnih sadržaja u godišnjim programima fizičkog vaspitanja koji najviše odgovara mladim uzrastima, kao i devojkama starijeg školskog uzrasta. Cilj ovog istraživanja je utvrđivanje pretpostavljenih razlika u stavovima adolescenata, različitog pola i uzrasta, prema estetskim komponentama plesne umetnosti. **Metod.** Mišljenja o pojedinim aspektima umetničkog plesa su tražena od relativno ujednačenih subuzoraka, dečaka i davoječica, uzrasta od 11-15 godina, koristeći upitnik koji je sadržao 4 segmenta ispitivanih stavova o plesu, sa tri modaliteta odgovora (prema Likertovoj skali). Primenjena MANOVA i DISCRA. Od univarijantnih postupaka primenjen je Roy-ev test. **Rezultati.** Utvrđena je razlika između učenika različitog pola u odnosu na stavove prema baletu kod svih segmenata upitnika; Utvrđena je razlika između razreda kod segmenta stavova (a) prema baletu-generalno (.013). **Zaključak.** Opšte je prihvaćeno da edukativna vrednost plesa, pre svega, leži u njegovom doprinosu *estetskom* razvoju, mada se malo zna o stavovima adolescenata prema plesu kao jednom *estetskom* *doživljaju*. Sprovedeno istraživanje je osmišljena tako da obezbedi ove informacije koje se odnose na populaciju mladih adolescenata u gradskim sredinama u Srbiji i tako pokrene pitanja koja se tiču izučavanju plesova, kao nastavno-školske aktivnosti, a relevantna su, pre svega, za mnoge pedagoge fizičke kulture, ali i pripadnike ostalih kulturnih institucija. Autori se nadaju sa će ova pilot studija provocirati dalji rad u ovoj oblasti, uključujući interkulturalne istraživačke programe.

## THE ESTIMATION OF THE ADOLESCENTS ATTITUDES TO THE AESTHETICAL COMPONENTS OF ART DANCE

Popovic R.\*, Kocic J.\*\*\*, Dolga M.\*\*\*, Nikolic V.\*\*\*\* Purenovic, T.\*

University of Nis, Faculty of Sport and Physical Education, Nis, Serbia\*

University of Pristine/Kos. Mitrovica, Faculty of Sport and Physical Education, Leposavic (Kosovo), Serbia\*\*

Agency for Statistics Data Procession „Smart-Line“, Novi Sad, Serbia\*\*\*

Elementary School „Ilija Garasanin“, Grocka, Serbia\*\*\*\*

**Introduction.** The review of qualitative researcher's indicates that dance is a very popular recreational activity with young people, often regarded as that aspect of the PE curriculum, most suited to young children and higher-primary school girls. The *aim* of this research was to estimate assumed differences in attitudes to aesthetical components of art dance with adolescents of both gender, and different age. **Method.** The opinions on the variety aspects of art dance were sought from relative unified sub samples of 11-15-year-old boys and girls, using questionnaire which included four segments of art dance attitudes (after Likert-type scales). Research data was analyzed using MANOVA and DISCRA, and Roy-test. **Results.** Analyses showed significant differences in attitudes between girls and boys in all segments of applied questionnaire, as well as between groups difference in first segment of questionnaire, considering the attitudes toward Ballet in general (0.13). Girls displayed more positive attitudes than boys on the first and second of the 4 applied scales. The virtual absence of change in age-related scale scores highlights the need for both: increased dance provision in schools and more focused teaching, with the specific nature of the gender-related attitude differences offers curriculum development opportunities. **Conclusion.** It is generally accepted that the educational value of dance lies predominantly in its contribution to *aesthetic development*, but little is known about adolescent attitudes to dance as an *aesthetic experience*: The pilot study report here was designed to provide such information in relation to Serbian urban school pre-adolescents, concerning dance as a curriculum activity in schools, which are relevant to many educationalists, first of all for physical education teachers, as well as for the other individuals of relevant culture institutions. The authors also hoped that the pilot study may provoke further work in the area, including cross-cultural research programs.

## **THEORETICAL STUDY ON BODILY COMMUNICATION**

**Gaetano Raiola**

University of Salerno, Italy

### **Introduction**

Bodily communication has got its own epistemological frame into which the message follows a process of coding, transmission and decoding. It establishes relations and contacts that become real thanks to the elaboration of data and to the evaluation of the content of the message. It could be relations (Shannon, Weaver), share facial expressions (Ekman), signs, symbols (Argyle), spaces (Hall). It could be also paradoxes of the word (Watzlawick), its dynamic flow formed by five basic elements: context, sender, receiver, channel, code (Jakobson) and enrichment of ethnic and social knowledge among individuals belonging to different cultures (Meharabian). Bodily Communication is also inside the paradigm of philosophical orientation such as Behaviorism, Cognitism, Gestalt and Phenomenology that help to enlarge the horizons around the body. The aim is to organize all knowledge on it and furthermore to know the neurophysiological and psychological according to the laws of movement (Latash) of motor control (Adams, Smith) and to the abstract processes of particular nervous structures, as mirror neurons (Rizzolatti, Iacoboni)

### **Methods**

Method is integrated: theoretical-argumentative approach for the human science and experimental one related to the field of life science

### **Results and discussion**

Neurophysiologic and Physiological knowledge give a wide explanation to understand completely the bodily communication. The movement nowadays has many theories: closed loop, open loop and motor imagery, everyone is correct to include every aspect on bodily communication. The philosophical paradigm of Gestalt, limited visual perception, and Phenomenology are in better correlation than of Cognitism and Behavior

### **Conclusion**

The results show the importance of the ecological vision of the phenomenon that helps to the understanding of knowledge and, at the same time, suggests the widening and the improving of the instrument of investigation.

### **References**

Latash M. 2008 Neurophysiological Basis of Movement, Human Kinetics, Champaign IL USA  
Schmidt, R., A., Wrisberg, G., A., 2008, Motor Learning and Performance, Human Kinetics, Champaign IL, USA

## DIFFERENT MODELS OF FEMALE BASKETBALL PLAYERS TRAINING POWER, SPEED, SKILL AND THE EFFECT OF ANAEROBIC CAPACITIES

Yilmaz Gürkan<sup>1</sup>, Iri Rüçhan<sup>1</sup>, Çözeli M.Serdar<sup>2</sup>

<sup>1</sup> Niğde University Department of Physical Education and Sports Niğde/Turkey

<sup>2</sup> Niğde University Institute of Social Science Niğde/Turkey

The aim of the study is, together with the general 16-week endurance training in men's basketball power, speed, talent, and to examine in terms of anaerobic capacity. 24 male basketball players participated in this study. Basketball players divided in two groups. Durability group and control group. The first group is control group. General basketball training. The second group is 2. Power Resistance group (PE) after general basketball training method of interval training three days a week for 16 weeks and 90 minutes, was applied. Participated in the study groups before and after they exercise; 20m sprint, shooting test, squat jump, countermovement jump, running based anaerobic sprint tests were performed. Nonparametric and Mann-Whitney U test was applied to the Groups to test the statistical evaluation. The first group pre-exercise (E.Ö) and after exercise (ES), evaluation of the twenty-meter sprint test, the number of milk is available, running based anaerobic sprint tests in all, it is connected to the power indices of endurance and fatigue after exercise in favor of the index value, the power endurance group twenty-meter sprint test, the number of discarded milk, milk is available on the number, mass sit-ups test, running-based anaerobic sprint test indices of exercise tolerance after all, and consequently the power in favor of the comparison of the two groups E.Ö. mass sit-ups test, anaerobic sprint tests 2, 3, 4 and 5 running values of power indices values 2, 4.5 and 6 PE in favor of the fatigue index is a significant difference in favor of the KG After Exercise) evaluation of the number of discarded milk, milk is available on the number, mass sit-ups test, sprint tests of anaerobic power indices, and values were statistically significant differences in favor of the entire PE.

As a result, the initial power and speed in both groups, a certain amount of skill and talent development to show extra values, interval-training group engaged. Groups that increased anaerobic capacity and the ability of PE, Therefore, the development of young basketball cardiovascular endurance and interval training method is useful in addition to metabolic factors are thought to be specific

**Key words:** basketball, training models, power, speed, talent

## THE EFFECT OF COMPETITION PERIOD TRAININGS ON SOME BLOOD AND PERFORMANCE PARAMETERS OF YOUNG FEMALE JUDOKAS

Iri Rüçhan<sup>1</sup>, Yilmaz Gürkan<sup>1</sup>, Çelik Muhammet<sup>2</sup>

<sup>1</sup> Niğde University Department of Physical Education and Sports Niğde/Turkey

<sup>2</sup> Niğde University Institute of Social Science Niğde/Turkey

The aim of the study was to investigate the effect of competition period trainings on the weight, aerobic power, anaerobic power, insulin, glucose and lactic acid parameters. Young female judokas (n = 16) whose mean age was between  $17.1 \pm 1.2$  year and mean height was between  $158.1 \pm 6.4$  cm, participated voluntarily to this study. A 6 week competition period training was conducted to the subjects. The body weight, height, anaerobic power (vertical jump test), aerobic power (20m shuttle run test), insulin, glucose and lactate values were obtained from the blood samples taken from venous blood vessels of each subject both before and after the training period. Arithmetic means and standard deviations of the data was calculated, and Wilcoxon test was conducted to the Z scores under  $p < 0.05$  significance level. As a result of the statistical calculations, statistically significant differences were observed in body weight values (-3.52), aerobic power (-3.52), anaerobic power (-2.43) and lactate values (-2.20) according to the pre and post measures of the training period ( $p < 0.05$ ). There was difference between pre-measures and post measures of the insulin (-0.57) and glucose (-0.34) values, but the difference was not statistically significant ( $p < 0.05$ ).

As a conclusion, it was observed that the conducted competition period training program had effects on the body weight, anaerobic power, aerobic power and lactate values of the athletes.

**Key Words:** glucose, lactate, insulin, female judokas

## **COMPARISON IN THE NUMBER OF OFFENSIVE ACTIONS AND SUCCESSFUL SHOTS IN WATER POLO GAME BEFORE AND AFTER THE RULES CHANGE OF 2005**

**Theodoros Platanou, Petros Botonis**

Department of Aquatic Sports, Faculty of Physical Education and Sports Science, University of Athens, Greece

### **Introduction**

The change in water polo rules in 2005 aimed to make the game more offensive. The most important changes were a) the game duration which changed from 7 to 8 min each period, and b) the period for keeping the ball which changed from 35 to 30 sec. According to the above mentioned alterations the game duration increased by 14.3% and the ball keeping period reduced by 14.3%. The purpose of the present study was to compare the number of offences that became in each playing period (7<sup>th</sup> vs 8<sup>th</sup> min.) and the ratio of successful shots during water polo games before (Montreal 2005) and after (Rome 2009) the rules change.

### **Methods**

The offensive actions and the successful shots were counted and compared in the final phase of a) the 2005 World Championship played with old rules and b) the 2009 World Championship played with new rules. T-Test for independent samples was employed to detect differences in each dependent variable. Statistical significance was set at  $P < 0.05$ .

### **Results and Discussion**

No differences were observed in the number of offensive actions when the duration of each period was 8 min ( $P > 0.05$ ). However, significant differences were seen in the number of offensive actions when the duration of each period was 7 min ( $P < 0.05$ ). Particularly, the number of offensive actions in the first 7<sup>th</sup> min ( $7.7 \pm 1.06$ ) was higher compared to the third 7<sup>th</sup> min of the game ( $6.2 \pm 1.4$ ,  $P < 0.02$ ). The total percentage of successful shots with old rules (Montreal 2005) was  $31.86 \pm 7.85\%$ , while the respective value in Rome 2009 was  $33.17 \pm 10.67$  ( $P > 0.05$ ). Accordingly, no differences were found when each period of the game lasted 8 min ( $P > 0.05$ ). Similarly, the ratio (goals/shots) was no different between old and new rules ( $P > 0.05$ ).

### **Conclusion**

In conclusion, it seems that when the game period is 7 min, the greater intensity contributes to the reduced number of offensive actions. The successful shots do not seem to be affected by the rules change.

## UČESTALOST IZDUBLJENIH GRUDI KOD DVANESTOGODIŠNJIH UČENIKA OSNOVNIH ŠKOLA U TUTINU

**Admira Koničanin**

Gimnazija i Tehnička škola, Tutin, Srbija

Državni Univerzitet u Novom Pazaru, Departman: Sport i Rehabilitacija, Novi Pazar, Srbija

### Uvod

Izdubljene grudi su deformitet koji karakteriše udubljenje donjeg dela grudne kosti.

### Metode

Procena učestalosti i veličina izdubljenosti grudi procenjena je kombinacijom metoda posmatranja i testa "voljne" kontrakcije mišića grudnog koša.

### Rezultati sa diskusijom

Uzorak je brojao 459 učenika oba pola prosečne starosti 12 godina  $\pm$  6 meseci. Uzorak je slučajno odabran iz populacije.

### Zaključak

Rezultati istraživanja su pokazali da je učestalost izdubljenih grudi relativno velika kod učenika oba pola. Procenat zastupljenosti je znatno veći kod dečaka nego kod devojčica.

### Literatura

1. Živković, D. (1988). Teorija i metodika korektivne gimnastike, SIA, Niš.

2. Koturović, Lj., Jeričević, D. (1988). Korektivna gimnastika, IGRO. Sportska knjiga. Beograd

## THE FREQUENCY OF HOLLOWED BREASTS AT PUPILS OF TWELVE YEARS OLD IN THE PRIMARY SCHOOLS IN TUTIN

**Admira Konicanin**

High school and technical school <sup>1</sup>, Tutin, Serbia

State Univerzitet in Novi Pazar<sup>1</sup>, Department of Sport and Rehabilitation, Novi Pazar, Serbia

### Introduction

The hollowed breast's (pectus excavatum) are the deformities which characterize the hollowed down of the breast's bone.

### Methods

The estimate of the frequency and the size of the hollowed breasts is estimated by the combination of the methods of observation and the test of "at ease" contractions of the muscle of the breast's bone.

### Results and discussion

The sample consists of 459 pupils from both sexes of average age of twelve years old  $\pm$  6 months. The sample is chosen by chance from the population.

### Conclusion

The results showed that the incidence of excavated chest is relatively large for both students. Procenat representation is significantly higher in boys than in girls.

### References

1. Živković, D. (1988). The theory and methodology of corrective gymnastics, SIA, Nis.

2. Koturović, Lj., Jeričević, D. (1988). Corrective gymnastics, IGRO. Sportska knjiga. Beograd

3. Radisavljević, M. (1992): Corrective gymnastics with basic kinesitherapy, Faculty of Physical Culture, Belgrade.

## STAVOVI UČESNIKA MEĐUNARODNOG PLIVAČKOG MITINGA SERBIA GRAND PRIX 2010. O KVALITETU ORGANIZACIJE TAKMIČENJA

**Vladimir Anušić**

Plivački savez Srbije, Beograd, Srbija

### Uvod

Stavovi učesnika veoma su bitni u postupcima ocene kvaliteta organizacije nekog sportskog događaja. Do sada u plivačkom sportu nisu rađene takve vrste istraživanja, jer organizacioni i marketinški aspekt takvog vida povratne informacije nije našao pravo mesto u ukupnom sistemu rukovođenja. Cilj ovog rada je da ispita stavove randomizirane grupe učesnika plivačkog takmičenja Serbia Grand Prix 2010. Kao jednog od najvažnijih takmičenja u zimskom delu sezone.

### Metod

Osnovni metod korišćen u ovom radu je metod anketiranja, kao dodatna metoda korišćen je intervju sa predstavnicima PSS i oficijelnim licima klubova. Za utvrđivanje stavova ispitanika korišćen je posebno konstruisan anketni list sa deset pitanja i petostepenom skalom odgovora. 35 Anketnih listova je podeljeno svim rukovodiocima klubova učesnika pre početka takmičenja, a prikupljeno je 34 nakon završetka takmičenja. Na taj način može se tvrditi da je 97,1 % populacije klubova učesnika dalo svoje stavove. Za obradu sirovih podataka korišćena je osnovna deskriptivna statistika.

### Rezultati i diskusija

Vodeni sportovi, a pogotovo plivanje, kod nas je jako malo promovisano. Samim tim javnost je slabo informisana i ne zainteresovana za praćenje ovog sporta, iako je po mnogim stručnjacima najzdraviji. Rezultati ankete pokazali su da se skoro 91% ispitanika slaže da ovako značajno takmičenje zaslužuje veću masovnost i učešće većeg broja klubova, tačnije 90,91%, a čak 93,94% je potvrdilo da bazen ispunjava sve tehničke uslove za organizaciju ovako značajnog takmičenja. Već iz ova dva pitanja možemo naslutiti da se većina ispitanika složila da sami uslovi i postavka bazena ispunjavaju sve kvalitete za organizaciju velikog plivačkog takmičenja. Ono što je takođe bitno, jeste podatak da 87,88% ispitanika pozitivno odgovara, odnosno se slaže i delimično slaže, da je zadovoljno kvalitetom prisutnih plivača, što opet zahteva visok stepen same organizacije ovako značajnog takmičenja. Još jedan deo, koji je mnogo bitan za sam tok takmičenja vezan je za samo suđenje i delioce pravde, 81,82% ispitanika složilo se da je suđenje na takmičenju bilo zadovoljavajuće. Najveći procenat pozitivnih odgovora 96,97% je dobijen na pitanje: Uzećemo učešće i sledeće godine, dok je najveći procenat negativnih odgovora 54,55% dobijen na pitanje: Trebalo bi uvesti plaćanje kotizacije kao na svim ostalim takmičenjima, i 30,30% na pitanje: Odlično promovisano takmičenje, gledalište je bilo puno.

### Zaključak

Iako na uzorku samo jednog takmičenja, ipak na inicijalnom nivou ispitivanja stavova plivačkih radnika su pokazala da je najveći stepen nezadovoljstva utvrđen kod pitanja plaćanja kotizacije, kao lokalne materijalne obaveze klubova prema Plivačkom savezu Srbije kao organizatoru takmičenja, kao i same medijske promocije takmičenja, odnosno mogućnosti promocije takmičenja, i samih klubova kroz to takmičenje. U budućnosti potrebno je izvršiti ovakva ispitivanja i na drugim važnim takmičenjima u R Srbiji, kako bi se utvrdilo potpuno stanje sa aspekta stavova i potreba učesnika plivačkih takmičenja, da bi se organizacija istih u budućnosti podigla na viši nivo, a u skladu i sa potrebama takmičara i klubova.

### Literatura

- Anušić, V. (2007). Analiza menadžment structure plivačkih klubova Srbije. Magistarska teza, F@M Fakultet za menadžment, Univerziteta Privredna Akademija, Novi Sad.
- Velić, J., Anušić, V. (2005). Analiza promocije sportske manifestacije na primeru PK Vojvodina, I međunarodna konferencija Univerziteta BK, Beograd, Srbija, oktobar 2005.

## **NARODNI PLES U SISTEMU OBRAZOVANJA KROZ KULTURNE AKTIVNOSTI U GRČKOJ**

**Samuilidu Evdokia<sup>1</sup>, Kakogevrgos Ilias<sup>1</sup>, Eminović Fadilj<sup>2</sup>**

Piramatiko Gimnasio Evagelikis Sholis Smirnis. Atina Grčka<sup>1</sup>

Fakultet za specijalnu edukaciju i rehabilitaciju, Beograd, Srbija<sup>2</sup>

### **Uvod**

U Grčkoj svake godine škole mogu učestvovati na kulturnim aktivnostima. U našem slučaju istraživali smo narodni ples iz škola ostrva Egejskog Mora.

### **Metode**

U našem istraživanju bile su aktivnosti plesa sa ostrva na kojima je učestovalo 45 učenika i 4 nastavnika iz Gimnazije N. Smirne u Atini. U metodologiji je korišćena Opšta Metoda i Parcijalna Metoda (Pradjidis2003).

### **Rezultati sa diskusijom**

Narodni ples je pokretna aktivnost u kojoj čovek učestvuje psihički, fizički i duhovno. Narodni ples je oblik izraza, jezik tela, ispoljava razna osećanja, stvara psihičko raspoloženje i sastavni je deo tradicionalnog društva.(Karfis .,2009).

Korišćene metode su omogućile učenicima da preko njih efikasnije ulaze na pokretne motive i muziku koja prati ples. Aktivnosti moraju biti podeljene na četiri faze. Program je pored povezanosti sa programom Fizičke kulture pokazao povezanost i sa drugim predmetima kao što su Geografija, Istorija, Biologija , Književnost-Poezija.

### **Zaključak**

Fizička kultura učestvuje značajno na ovim aktivnostima i pomaže Analitičke Programe koji strogo vode računa o učenju Grčkih Narodnih Plesova u školi.

### **Literatura**

Gfeller, K. (1988). Musical components and styles preferred by young adults for aerobic fitness activities. *Journal of Music Therapy*,

Thaut, M. H. (1999). Music therapy for children with physical disabilities. Music therapy in neurological rehabilitation. In Davis, W. B., Gfeller, K. E., Thaut, M. H. (Eds.), *An introduction to music therapy: Theory and* (2nd ed.).

Boldt, S. (1996). The effects of music therapy on motivation, psychological well-being, physical comfort, and exercise endurance



## FOLK DANCE IN EDUCATION THROUGH CULTURAL ACTIVITIES IN GREECE

Samuilidu Evdokia<sup>1</sup>, Kakogevrgos Ilias<sup>1</sup>, Eminović Fadilj<sup>2</sup>

Piramatiko Gimnasio Evagelikis Sholis Smirnis. Athens Greece<sup>1</sup>  
Faculty for Special Education and Rehabilitation, Belgrade, Serbia<sup>2</sup>

### Introduction

In Greece each year, schools can participate in cultural activities. In our case, we explored folk dance from the islands of the Aegean Sea School.

### Methods

In this research, were the activities of dance from the island on which it took part 45 students and four teachers from High School N. Smyrna in Athens. The methodology we used general method and partial method (Pradjidis2003).

### Results and Discussion

Folk dance is a moving activity in which man participates mentally, physically and spiritually. Folk dance is a form of expression, body language, expressed various emotions, creating a psychological mood and is an integral part of traditional society. (Karfis., 2009).

The methods used have allowed students to enter through them more efficient at moving the motives and the music accompanying the dance. Activities should be divided into four stages. The program is in addition to connection with a program of physical culture and showed correlation with other subjects such as Geography, History, Biology, Literature-Poetry.

### Conclusion

Physical Education to participate substantially in these activities and Analytical Programs that help keep a close eye on the learning of Greek folk dances in the school.

### Literature

Gfeller, K. (1988). Musical components and styles preferred by young adults for aerobic fitness activities. *Journal of Music Therapy*,

Thaut, M. H. (1999). Music therapy for children with physical disabilities. Music therapy in neurological rehabilitation. In Davis, W. B., Gfeller, K. E., Thaut, M. H. (Eds.), *An introduction to music therapy: Theory and* (2nd ed.).

Boldt, S. (1996). The effects of music therapy on motivation, psychological well-being, physical comfort, and exercise endurance

## **KORIŠTENA SUPLEMENTACIJA U ČETVOROMESEČNOM CIKLUSU PRIPREME SLABOVIDOG BACAČA KOPLJA ZA SVETSKO PRVENSTVO - NOVI ZELAND, JANUAR 2011. GODINE**

**Srdan Jovović, Marko Ćirković, Miloš Mudrić, Goran Kasum**

Univerzitet u Beogradu, Fakultet sporta i fizičkog vaspitanja, Beograd, Srbija

### **Uvod**

Suplementi imaju široku primenu u savremenom sportu. Fizička naprezanja i opterećenja, koja vrhunski sportisti podnose u cilju ostvarivanja visokih rezultata, praktično u mnogo čemu zavise od dodatka ishrani. Radi postizanja velikih rezultata ne retko sportisti posežu i za nedozvoljenim sredstvima.

### **Metod**

Pravilan i sistematičan unos dozvoljenih suplemenata rezultiraju napretkom kako u snazi tako i u izdržljivosti sportiste. U zavisnosti koji je period pripremnog ciklusa i šta je cilj tog dela priprema koriste se različiti preparati iz široke ponude proizvođača koja se može naći na tržištu. Treba voditi računa o verodostojnosti sastojaka koji suplement sadrži i birati proizvođače čiji proizvodi nisu bili umešani u doping afere.

### **Rezultati sa diskusijom**

Naš najbolji slabovidni bacač koplja bio je podvrgnut čitavom sistemu korišćenja različitih suplementa u četvoromesečnom ciklusu. Zapažen je značajan napredak u povećanju izdržljivosti i gubitku masnih naslaga u prva dva meseca priprema, a takođe i napredak u parametrima snage, brzine i skočnosti u naredna dva meseca.

### **Zaključak**

Suplementacija je sastavni deo savremenog sporta. Ima široku primenu kako u atletici tako i u ostalim sportovima. Predstavlja samo jedan od faktora koji utiču na rezultat ali je bez iste nemoguće postići visoke ciljeve.

### **Literatura:**

1. Đorđević-Nikić, M. (2004). Doping u sportu. Beograd; FSFV
2. Đorđević-Nikić, M. (2002). Ishrana sportista. Beograd; Todra

## **FOOD SUPPLEMENTS USED IN A FOUR MONTHS PREPARATION PERIOD OF A JAVELIN THROWER WITH VISUAL DISABILITY FOR A WORLD CUP - NEW ZELAND, JANUARY 2011.**

**Srdan Jovović, Marko Ćirković, Miloš Mudrić, Goran Kasum**

Faculty of sport and physical education, Belgrade, Serbia

### **Introduction**

Food supplements are widely used in modern sport. Professional athletes are exposed to extreme efforts and training and thus are strongly dependable on food supplements. In order to achieve their goals athletes are very often tempted to use illegal sport drugs.

### **Method**

Correct and controlled use of legal food supplements can improve both stamina and power of an athlete. Depending on the phase and the final goal of the preparation cycle different supplements that can be found on the market are used. One should pay attention about the credibility of the company that produces and sells supplements, as well as the verity of the elements found in the supplements.

### **Results**

Our best javelin thrower with visual disability used specific combination of different supplements during four months cycle. The result was improvement in the stamina and loss of fat in first two months, and improvement in power, speed and jumping ability in next two months.

### **Conclusion**

Food supplements are part of the modern sport. They are widely used in athletics as well as in other sports. Supplements are just one of the factors that form good result, but without them it is almost impossible to achieve high goals.

### **Literature:**

1. Đorđević-Nikić, M. (2004). Doping u sportu. Beograd; FSFV
2. Đorđević-Nikić, M. (2002). Ishrana sportista. Beograd; Todra

## ДИФЕРЕНЦИРАНИ ПРОГРАМСКИ ДИЗАЈН СПОРТСКИХ ШКОЛА КАО ФАКТОР МОТОРИЧКЕ ЕФИКАСНОСТИ ОСМОГОДИШЊИХ ДЕЧАКА

Дејан Савичевић<sup>1</sup>; Драгољуб Вишњић<sup>2</sup>; Дејан Сузовић<sup>2</sup>; Бранислав Драгић<sup>3</sup>

<sup>1</sup>Висока школа струковних студија за образовања васпитача, Сремска Митровица, Србија

<sup>2</sup>Факултет спорта и физичког васпитања, Београд, Србија

<sup>3</sup>Факултет спорта и физичког васпитања, Ниш, Србија

### Увод

Истраживачки рад представља анализу ефеката програма физичких активности у форми спортске школе фудбала, кошарке и универзалне спортске школе на ситуационо-моторичке способности дечака узраста од 8 година ( $\pm 6$  месеци). Предмет рада чини утицај диференцираних програмских модела спортских школа на моторичку ефикасност осмогодишњих дечака. Циљ истраживања био је усмерен на испитивање утицаја три програма физичких активности на моторичко постигнуће у специфичним тестовима техничких елемената фудбала и кошарке и тестовима координационих способности. Хипотетски оквир истраживања заснива се на формулацији да модел структуралног дизајна спортске школе доприноси статистички значајној разлици у моторичкој ефикасности осмогодишњих дечака.

### Метод

Истраживање је спроведено на узорку од осамдесеторо деце узраста 8 година ( $\pm 6$  месеци) који је подељен на три субузорка. Први субузорак обухватио је 30 дечака школе фудбала ФК Срем из Сремске Митровице, други је чинило 27 дечака школе кошарке КК Срем из Сремске Митровице, док је трећи чинило 23 дечака укључених у програме универзалне спортске школе "Олимпикс" из Сремске Митровице. Мерне инструменте чинила су 3 теста за процену техничких елемената у фудбалу, 3 теста за процену кошаркашке технике и 2 теста за процену координационих способности. Значајност разлика испитиваних структуралних модела спортских школа процењена је мултиваријантном анализом варијансе (МАНОВА). Појединачне разлике сваког сегмента структуралних модела су испитиване применом униваријантне анализе варијансе (АНОВА).

### Резултати са дискусијом

Применом мултиваријантне анализе варијансе (МАНОВА) утврђена је статистички значајна разлика у специфично моторичким и координационим способностима између програмских модела спортских школа. На униваријантном нивоу уочене су статистички значајне разлике ( $p = 0,05$ ) у специфичним моторичким способностима кошаркаша и фудбалера у смислу бољих резултата кошаркаша у сету који карактерише техничке елементе кошарке и фудбалера у сету који карактерише техничке елементе фудбалске игре. У оба координациона теста дечаци који су укључени у програм универзалне спортске школе имали су статистички значајно боље резултате у односу на дечаке фудбалске и кошаркашке школе спорта на нивоу значајности  $p < 0,05$ .

### Закључак

Резултати специфично моторичких способности дечака обухваћених генерализованим моторичким стимулансима карактеристични за дизајн универзалне спортске школе статистички значајно се не разликују од постигнутих резултата дечака укључених у програме раног спортског усмерења, што наводи на закључак да су програми фундаменталних моторичких знања и вештина у овом узрачном периоду најприхватљивије решење једначине спецификације успешности у дечјем спорту.

### Литература

Крстуловић С, Малеш, Б., Жувела, Ф., Ерцег М. и Милетић, Ђ. (2010). Разликовити учинци тренинга јуда, ногомета и атлетике на антрополошка обиљежја седмогодишњих дечака. *Кинезиологија*. 42 (1), 56-64  
Шаботић, Б (2004). *Релације неких антрополошких карактеристика са ситуационо-моторичким способностима у спортским играма код ученика првог разреда средњих школа*, докторска дисертација, Ниш, Факултет спорта и физичког васпитања.

## DIFFERENTIATED PROGRAMMING DESIGN OF SPORTS SCHOOLS AS A FACTOR OF MOTOR EFFICACY OF EIGHT YEAR OLD BOYS

Dejan Savičević; Dragoljub Višnjic<sup>2</sup>; Dejan Suzović<sup>2</sup>; Branislav Dragić<sup>3</sup>

<sup>1</sup> Preschool Teacher Training College, Sremska Mitrovica, Serbia

<sup>2</sup> Faculty of Sports and Physical Education, Belgrade, Serbia

<sup>3</sup> Faculty of Sports and Physical Education, Niš, Serbia

### Introduction

The research paper presents analysis of effects of physical education programmes in the form of football, basketball and universal sports schools upon situational and motor abilities of eight year old boys ( $\pm 6$  months). Effects of different programming models of sports school on motor efficacy of eight year old boys represent subject matter of this paper. The goal of the research was to investigate effects of three programmes of physical activities on motor achievement in specific tests of technical elements of football and basketball as well as in the tests of coordination skills. Hypothetical frame of the research is based upon following formulation: model of structural design of sports school contributes to statistically significant difference in motor efficacy of eight year old boys.

### Methods

The research included the sample of 80 children aged 8 ( $\pm 6$  months). This sample was divided in three sub samples. The first sub sample included 30 boys who attended football school Srem in Sremska Mitrovica. The second sub sample included 27 boys who attended basketball school Srem in Sremska Mitrovica. The third sub sample included 23 boys included in programmes of universal sports school "Olympics" in Sremska Mitrovica. Three tests for the evaluation of football technical elements, three tests for the evaluation of basketball technique and two tests for evaluation of coordination skills were used as measuring instruments. Significance of difference between examined structural models of sports schools was estimated according to multivariate analysis of variance (MANOVA). Individual differences of each segment of structural models were examined according to univariate analysis of variance (ANOVA).

### Results and discussion

Multivariate analysis of variance (MANOVA) showed there was statistically significant difference between specific motor and coordination skills between programme models of ( $p = 0,05$ ) between specific motor abilities of basketball and football players. Basketball players had better results in the set characterized by technical elements of basketball. Football players had better results in the set characterized by technical elements of football. Boys who are included in sports programmes of universal sport school have statistically better results in comparison to the boys who attend football and basketball sports schools at the level of significance  $p < 0,05$ . in both coordination tests.

### Conclusion

The results of specifically motor skills of boys subjected to generalized motor stimuli typical for design of universal sports school are not statistically significantly different from the achieved results of the boys included in the programmes of basketball and football sports schools. Thus, we can conclude that programmes of fundamental motor skills and abilities in this age represent the best solution of the equation of efficacy specification in children's sports.

### References

Крстуровић С, Малеш, Б., Жувела, Ф., Ерцег М. и Милетић, Ђ. (2010). Разликовити учинци тренинга јуда, ногомета и атлетике на антрополошка обилежја седмогодишњих дечака. *Кинезиологија*. 42 (1), 56-64.  
Шаботић, Б (2004). *Релације неких антрополошких карактеристика са ситуационо-моторичким способностима у спортским играма код ученика првог разреда средњих школа*, докторска дисертација, Ниш, Факултет спорта и физичког васпитања.

## NASTANAK, RAZVOJ I FUNKCIONISANJE ORGANIZACIJE ZA FIZIČKO VASPITANJE I REKREACIJU „PARTIZAN“ JUGOSLAVIJE

Petar Stakić<sup>1</sup>, Zoran Mašić<sup>2</sup>

<sup>1</sup> Asocijacija „Sport za sve“, Beograd, Srbija

<sup>2</sup> Fakultet za menadžment u sportu, Alfa Univerzitet, Beograd, Srbija

### Uvod

Sledeće, 2011. godine navršiće se šezdeset godina od osnivanja „Partizana“ Jugoslavije. To je prilika, ali i obaveza, da se sagleda mesto i uloga koju je ta organizacija imala, kao i da se ukaže na značaj generacija stručnjaka, sportskih radnika i aktivista koji su sebe ugradili u ovaj masovni pokret fizičkog vaspitanja i rekreacije.

### Metode

Primenom istorijskog metoda u radu su razmotreni preduslovi za formiranje Saveza za telesno vaspitanje "Partizan" daleke 1951. godine, te razvoj i funkcionisanje ove organizacije.

### Rezultati sa diskusijom

Adekvatne vežbovne aktivnosti, vođenje računa o resursima i razvoju organizacije doprinose dinamičnom razvoju STV "Partizan" Jugoslavije. Tako je već 1958. godine radilo 1126 društava "Partizan" sa 215000 aktivnih članova. Osim vežbanja u društvima, organizuju su i zajednički sletovi, smotre, logorovanja i druge brojne akcije.

Nisu sva opredeljenja bila produktivna po sam Partizan. Tako je orijentacija na tri vida aktivnosti: fizičko vaspitanje, sport i rekreaciju, imala za posledicu osnivanje sportskih sekcija "Partizana" koje kasnije prerastaju u sportske klubove.

Raspadom SFRJ definitivno nestaje Saveza za sportsku rekreaciju „Partizan“ Jugoslavije (rad nastavlja Savez za sportsku rekreaciju Jugoslavije). „Partizan“ Srbije nastavlja rad kao Savez za rekreativni sport Republike Srbije. Jedan broj društava je zadržao naziv „Partizan“, a mnoga društva nastavljaju rad u okviru Saveza Soko Srbije.

### Zaključak

Raznovrsnim aktivnostima i odgovarajućim formama rada, disperzijom po celoj teritoriji tadašnje države, uz kontinuirano praćenje i razvoj organizacije, te predanošću rukovodstva i članova „Partizan“ je uspešno iznalazio načine da odgovori potrebama velikog broja građana, različite dobi i pola, u oblasti fizičke kulture. Nesumljivo se može okarakterisati kao organizacija koja je ostavila pečat, kako na pojavne oblike fizičke kulture, tako i na veliki broj pojedinaca koji su u njenom okrilju vežbali, radili, živeli.

### Literatura

Ilić, S. , Mijatović S. (2006.) Istorija fizičke kulture, Beograd

### Abstract

The reason for this item was the anniversary of "Partizan" Yugoslavia, 60 years since its founding. The fact that this organization is no more nor the state of Yugoslavia, which disintegrated in the last decade of the 20<sup>th</sup> century. During the 2011th sixtieth anniversary will be celebrate by issuing publications and on the other modest ways.

There were two important organizations in 20th century in former Yugoslavia: "SOKO" which had functioned until 1941. (until the beginning of World War II in this area) and the "Partizan" of Yugoslavia, which functioned as an organization since 1951. till 1992.

Association for Physical Education and Recreation "Partizan" was founded in Ljubljana in the 1951st and during four decades has grown into the largest organization of physical culture which existed in almost all republics, and most municipalities and cities of Yugoslavia.

Despite the fact that the "Partizan" was the product of socio-political circumstances at the time of communism, we must conclude that the organization is actively functioning organizational, programmatic and personnel from local to federal level and contribute to physical education and physical capabilities of the nation.

## **THE EFFECTS OF EIGHT WEEKS BASIC STEP AEROBIC TRAININGS ON PHYSICAL AND MOTORIC ABILITIES OF 30–35 YEARS AGED SEDANTERY WOMEN**

**Pepe Osman<sup>1</sup>, Pepe Kadir<sup>2</sup>, Gevat Cecilia<sup>3</sup>, Kaya Mustafa<sup>1</sup>, Yildiz Kadir<sup>1</sup>**

<sup>1</sup> Erciyes University, School of Physical Education and Sport Kayseri, Turkey

<sup>2</sup> Mehmet Akif Ersoy University, Education Faculty Physical Education and Sports Teaching Department, Burdur, Turkey

<sup>3</sup> Faculty of Physical Education and Sport, Ovidius University of Constanta, Romania

In this study, it is aimed to investigate the effects of eight-week basic step aerobics training on physical and motoric abilities of sedentary women aged 30-35.

For this study, 15 sedentary women, aged 30-35, voluntarily participated in an 8-week basic step aerobics training of Erciyes University Continuous Education Centre (ERSEM). Age, Height, Weight, Body fat percentage, Body mass index, Max VO<sub>2</sub>, Handgrip, Systolic and Diastolic Blood Pressure, Heart Rate and Vertical Jump parameters were measured pre & post 8-week training program.

Data were recorded on computer environment by using a program called SPSS 15.0. For statistical analysis of Paired Samples T-test was performed. Significance level interval was accepted as  $p < 0.05$ .

According to data; no meaningful differences were found with the Max VO<sub>2</sub>, Systolic and Diastolic Blood Pressure, Handgrip, Heart Rate and Vertical Jump parameters, while meaningful differences were found with the Body Weight, Body Fat Percentage, Body Mass Index parameters at the level of  $p < 0.05$ ,

As a result of the study, it was thought that decreasing body fat percentage through step aerobic trainings is important for protecting from cardiovascular risk factors.

**Key words:** Sedentary Women, Motoric Ability, Body Composition

## RESEARCHING THE REASONS AND FREQUENCY OF INDIVIDUALS' PHYSICAL ACTIVITIES

Kadir Pepe<sup>1</sup>, Mesut Kozan<sup>1</sup>, Osman Pepe<sup>2</sup>

<sup>1</sup> Mehmet Akif Ersoy University , Educational Faculty , Physical Education and Sports Department, Burdur, Turkey

<sup>2</sup> Erciyes University Physical Education and Sports College, Kayseri, Turkey

The research has been carried out with the aim of defining the reasons why individuals take part in physical activities and what their frequency is and what kind of exercises they carry out.

The population of the research is Antalya city, the sampling group of the research, on the other hand, is composed of individuals having physical activities in different places. The research is in survey model and a questionnaire according to the purpose was developed. After the comprehensibility, content validity and reliability of the questionnaire were tested it was applied to the participants by face to face interview.

The questionnaire forms of a total of 472 individuals, 207 of whom are male and 265 female, who completed them without any mistakes, were taken into evaluation. The Cronbach's Alpha reliability parameter of the questionnaire has been found out as 0,62. According to the researchers this parameter is a valid parameter.

To the data obtained, frequency (f) and percentage (%), Crosstable (crosstab) and to define the differences  $\chi^2$  (X-square) were applied as statistical operations. After these operations, each question was interpreted to define the percentage distribution and the differences between opinions by accepting 0,05 as the confidence interval.

After the evaluation of data, we can say that;

A total of 472 individuals, 207 of whom are male and 265 female participated in the research. The participants are of the age range between 31 and 51, mostly married and housewives, others are clients, or have self employments or have other occupations. They are mostly university, high school and college graduates and they didn't use to do sports actively.

They have sportive exercises generally to keep healthy, to lose weight, to protect themselves from high cholesterol and lipoidosis, muscle and joint pains and the other illnesses. They have exercises 1-2 hour(s) in every two days, 1-2 hour(s) every day or 1-2 hour(s) in every three days. The exercises are generally taking for a walk on slow tempo, gymnastic and fitness, and taking for a walk on high tempo.

On X -square analysis, which is used to define the differences between the genders , it has been found out that there are meaningful differences on 0,05 significance level in their regular exercising, exercising types, and their place and reasons for exercising. ( $P < 0,05$ ).

**Key words:** Physical Activity, Individual, Frequency



## **CILJEVI POSTIGNUĆA STUDENATA U NASTAVI KROSA I TRČANJA NA SREDNJIM DISTANCAMA**

**Irina Juhas, Ana Vesković, Nenad Janković, Milan Matić**

Univerzitet u Beogradu, Fakultet sporta i fizičkog vaspitanja, Beograd, Srbija

### **Uvod**

Hodanje i trčanje predstavljaju azbuku zdravog načina života. U programu edukacije studenata Fakulteta sporta i fizičkog vaspitanja nalazi se trčanje na srednjim distancama i trčanje u prirodi – kros. U istraživanju se pošlo od pretpostavke da percepcija ciljeva postignuća predstavlja značajan faktor od koga zavisi kako će se studenti tokom nastave angažovati pri njihovom ostvarivanju. Teorija ciljeva postignuća pretpostavlja dve vrste ciljeva: prema zadatku i usavršavanju veština i prema izvođenju i rezultatu. Ključni faktor akademskog postignuća jeste jačina usmerenosti na ciljeve, a ne vrsta cilja po sebi.

### **Metode**

Na uzorku od 91 studenta ispitana je ciljna orijentacija postignuća na nastavi krosa i trčanja na srednjim distancama. Prvi cilj istraživanja je bio da se utvrdi stepen orijentacije na zadatak i usavršavanje veština i stepen orijentacije na izvođenje i rezultat. Drugi cilj istraživanja je bio da se utvrdi da li procene studenata u kom stepenu sprovedena nastava može da pomogne: (a) njihovom ličnom treningu, (b) budućem stručnom radu i (c) podsticajnom delovanju na dalju primenu trčanja, predstavljaju prediktore ciljne orijentacije. Primijenjena su dva instrumenta: za procenu individualnih razlika u ciljnoj orijentaciji - TEOSQ, autora Duda i Nicholasa (1991) koji su adaptirali Barić i sar. (2002) i upitnik konstruisan za potrebe ovog istraživanja.

### **Rezultati sa diskusijom**

Rezultati istraživanja pokazuju da su studenti u većem stepenu orijentisani na zadatak i lično usavršavanje, nego na izvođenje i rezultat. Rezultati regresione analize su pokazali da linearna kombinacija tri varijable: procene da nastava može da pomogne ličnom treningu studenata, budućem stručnom radu i da će podsticajno delovati na dalju primenu trčanja, predstavlja značajan prediktor ciljne orijentacije na lično usavršavanje/napredovanje. Procenat objašnjene varijanse je 26,9%. Kombinacija tri navedne prediktorske varijable nije značajan prediktor orijentacije ka takmičenju/rezultatu.

### **Zaključak**

Istraživanje je potvrdilo pretpostavku da su studenti tokom nastave krosa i trčanja na srednjim distancama bili u većem stepenu usmereni na zadatak i usavršavanje veština, nego na izvođenje i rezultat. Istraživački nalaz je u saglasnosti sa ishodima nastavnog programa iz predmeta Teorija i metodika atletike. Pretpostavlja se da je ovakvim rezultatima istraživanja doprineo i individualan pristup na času.

### **Literatura**

Barić, R. & Horga, S. (2006). Psychometric properties of the Croatian Version of Task and Ego Orientations in Sport Questionnaire (CTEOSQ). *Kinesiology* 38(2),135-142.

Stefanović, Đ., Juhas, I. & Janković, N. (2007). *Praktikum atletike*. Beograd: Fakultet sporta i fizičkog vaspitanja.

## THE AIMS OF STUDENT'S ACHIEVEMENT IN CROSS-COUNTRY AND MIDDLE DISTANCE RUNNING INSTRUCTION

Irina Juhas, Ana Vesković, Nenad Janković, Milan Matić

Universtiy of Belgrade, Faculty of Sport and Physical Education, Belgrade, Serbia

### Introduction

Walking and running are the alphabet of healthy lifestyle. The educational curriculum of the Faculty of Sport and Physical Education includes running at middle distances and cross country running. This research was started from the presumption that the perception of achievement aims is a significant factor on which it depends how the students shall be involved in their realization during the course of the instruction. The theory of achievement aims presumes two types of aims: according to tasks and skills improvement and according to performance and result. The key factor of academic achievement is the strength of aims orientation and not the type of aim itself.

### Methods

The aim orientation in the classes of cross-country and middle distance running was examined in the sample of 91 students. The first aim of the research was to determine the level of task orientation and skills improvement and the level of performance and result orientation. The second aim of the research was to determine weather the students' assessments about the level of help by the implemented instruction: (a) to their personal training, (b) future professional work and (c) motivating action on further running application, represent the predictors of the aim orientation. Two instruments for assessment of individual differences in the aim orientation were applied: TEOSQ, by Dude and Nichols (1991) adapted by Barić et al. (2002) and the questionnaire constructed for the purpose of this research.

### Results and discussion

The results of the research indicate that students are task and personal improvement oriented to a greater extent than to performance and result. The regression analysis results have indicated that linear combination of the three variables: evaluation that instruction can help personal training of the students, future professional work and that it will have motivating action to further running application, represent significant predictor of the aim orientation towards personal improvement/progress. The percentage of the explained variance is 26,9%. The combination of the three stated predictor variables is not a significant predictor of the competition/result orientation.

### Conclusion

The research has confirmed the presumption that students during their cross-country and middle distance running classes were more oriented towards the task and skills improvement than towards performance and result. The research findings are fully compliant to the outcome of the syllabus of the course Track and field. It is presumed that such research results were also contributed by the individual class approach.

### References

- Barić, R. & Horga, S. (2006). Psychometric properties of the Croatian Version of Task and Ego Orientations in Sport Questionnaire (CTEOSQ). *Kinesiology* 38(2),135-142.
- Stefanović, Đ., Juhas, I. & Janković, N. (2007). *Praktikum atletike. (Track and Field Work Book)*.Belgrade: Faculty of Sport and Physical Education.

## RAZLIKE IZMEĐU POLOVA U STAVOVIMA I MIŠLJENJIMA ZAPOSLENIH U ADMINISTRACIJI O SLOBODNOM VREMENU I SPORTSKOJ REKREACIJI

**Nikovski Goran, Prokovič Dušan, Aceski Aleksandar**

Univerzitet Sv. Kiril i Metodij, Skopje, Fakultet za fizička kultura, Republika Makedonija

### Uvod

Primena pravih sadržaja, oblika i metode aktivnosti, usaglašeni sa vidom i karakterom rada predstavljaju značajan elemenat u prevenciji zaćuvanja zdravlja i produktivnosti. Sportska rekreacija je postala sve značajniji faktor u zaćuvanju biološko-zdravstvene i socijalno-psihološke ramnoteže. Cilj ovog istraživanja je utvrđivanje razlika između stavova i mišljenjima o slobodnom vremenu i sportskoj rekreaciji između ispitanika oba pola.

**Metode:** Istraživanje je sprovedeno na primerku od 77 ispitanika oba pola na uzrastu od 25 do 35 godina starosti zapošljenih u administraciji na teritoriji opštine Aerodrom, Skopje. Sprovedena je anonimna anketa sastavljena od šest pitanja koja se odnose na iskorišćavanje slobodnog vremena i ućešće u sporskoj rekraciji, metodom grupnog popunjavanja. Za obradu podataka korišten je hi'kvadrat ( $\chi^2$ ) test za jednim primerkom i  $\chi^2$  test za dva ili više nezavisnih primeraka.

**Rezultati i diskusija:** Na osnovu primenjenog  $\chi^2$  testa za jednim primerkom kod većeg dela pitanja kod muškaraca i kod žena, konstatovana je statistički značajna razlika na nivo značajnosti od (.05). Na osnovu primenjenog  $\chi^2$  testa za dva i više nezavisnih primeraka konstatovana je statistički značajna razlika u nekim pitanjima na nivo značajnosti od (.05).

**Zaključak:** Ispitanici muškog pola pokazuju dominaciju u odnosu na redovno vežbanje i izboru sportsko-rekreativnih aktivnosti u odnosu na suprotni pol.

### Literatura

1. Donald, N., Roberson, Jr. (2005). The potential of recreation and leisure for personal learning how older adults use free time for personal learning.4th International Scientific Conference on Kinesiology, Opatija, Croatia
2. Misigoj-Durakovic, M., Heimer, S., Matkovic R. B., Ruzic, L. Prskalo,I. (2005). Physical activity level in regard to age, gender and educational level in croatian population.4th International Scientific Conference on Kinesiology, Opatija, Croatia

## **GENDER DIFFERENCES IN ATTITUDES AND BELIEFS ON LEISURE TIME AND SPORTS RECREATION AMONG PUBLIC ADMINISTRATION EMPLOYEES**

**Nikovski Goran, Prokovič Dušan, Aceski Aleksandar**

University Ss. Cyril and Methodius, Skopje, Faculty of Physical Education, Republic of Macedonia

### **Introduction**

Implementation of proper content, mode and methods of activities, aligned with the type and character of workload represent a significant element in promotion and prevention of health and productivity. Sports recreation has emerged as an important factor in maintaining biological, health, social and psychological balance. The goal of this research is to canvas gender differences in attitudes and beliefs on leisure time and sport recreation.

### **Methods**

Survey has been performed on a sample of 77 subjects of both genders, public administration employees in municipality Aerodrom, aged 25 to 35. Self-administered questionnaire with 6 questions asking about utilization of leisure time and participation in recreational activities was distributed to various groups employed in the administration. Data analysis has been performed with  $\chi^2$  test form one sample and  $\chi^2$  test for 2 or more independent samples.

### **Results and discussion**

Statistically significant difference has been shown with  $\chi^2$  test for one sample in most of the questions in both genders (.05).  $\chi^2$  test for 2 or more independent samples has also shown statistically significant differences in some of the questions (.05).

### **Conclusion**

Male responders show greater interest with regards to regular exercise and selection of recreational activities compared to female respondents.

### **References**

1. Donald, N., Roberson, Jr. (2005). The potential of recreation and leisure for personal learning how older adults use free time for personal learning.4th International Scientific Conference on Kinesiology, Opatija, Croatia
2. Misigoj-Durakovic, M., Heimer, S., Matkovic R. B., Ruzic, L. Prskalo,I. (2005). Physical activity level in regard to age, gender and educational level in croatian population.4th International Scientific Conference on Kinesiology, Opatija, Croatia.

## **ANALIZA MIŠLJENJA I STAVOVA O SLOBODNOM VREMENU I SPORTSKOJ REKREACIJI KOD OBA POLA ZAPOSLENIH U ADMINISTRACIJI U OPŠTINI AERODROM, SKOPJE**

**Proković Dušan, Nikovski Goran, Klinčarov Ilija**

Ss. Cyril and Methodius University in Skopje, Faculty of physical culture, Republic of Macedonia

### **Uvod**

Sportska rekreacija u svim njezinim formama djelovanja na čitavu populaciju pretstavlja najširu oblast u fizičkoj kulturi koja ne prepoznaje nikakve granice u cilju njene primene. Angažovanost na radnom mestu, materijalno stanje su samo deo nekih činilaca koji negativno deluju i narušavaju biološku strukturu čoveka. Cilj ovog istraživanja je da se analiziraju stavovi i mišljenja o slobodnom vremenu i sportskoj rekreaciji kod oba pola zaposlenih u administraciji na području opštine Aerodrom, Skopje.

### **Metode**

Istraživanje je sprovedeno na primerku od 77 ispitanika oba pola na uzrastu između 25 i 35 godina starosti i pritom je primenjena anonimna anketa sastavljena od šest pitanja povezanim sa slobodnim vremenom i sportskom rekreacijom. Da bi se uvideli stavovi i mišljenja ispitanika o svakom pitanju posebno i za svaku kategoriju napravljena je procentualna zastupljenost.

### **Rezultati i diskusija**

Na postavljeno pitanje: Dali smatrate da imate dovoljno slobodnog vremena?, 46% muškaraca i 51% ženske populacije su negativno odgovorili. Vežbanje tri-četiri puta nedeljno ide u prilog muškoj populaciji (19%), dok od ženskih ispitanika dominantno (42%) nikada ne vežbaju. Rezultati ukazuju da nedostatak navika je svojstven ispitanicima muškog pola, dok nedostatak vremena je karakterističan za nežniji pol.

### **Zaključak**

Obe grupe ispitanika su na mišljenju da su nedostatak vremena i nedovoljne navike najveći faktori za nekvalitetno ispunjavanje slobodnog vremena i izostanak u sportsko-rekreativnim aktivnostima.

## **ANALYSIS OF KNOWLEDGE AND ATTITUDES ON LEISURE TIME AND RECREATION AMONG MALE AND FEMALE PUBLIC ADMINISTRATION EMPLOYEES IN MUNICIPALITY AERODROM, SKOPJE**

**Proković Dušan, Nikovski Goran, Klinčarov Ilija**

Ss. Cyril and Methodius University in Skopje, Faculty of physical culture, Republic of Macedonia

### **Introduction**

Sports recreation in all its forms and effects on population represents the broadest category in physical education that does not acknowledge limits in its implementation. Workload and living standards are some of the factors that have negative influence and impair biological structure of human beings. The goal of this survey is to analyze attitudes and beliefs on leisure time utilization and recreation among male and female public administration employees in municipality Aerodrom, Skopje.

### **Methods**

Survey has been performed on a sample of 77 public administration employees aged 25 - 35, using self-administered questionnaire with 6 questions related with leisure time and recreation.

### **Results and discussion**

46% males and 51% females have answered NO at the question *Do you think you have sufficient leisure time?* Exercising 3-4 times a week is in favor of male population (19%), while most of the females never exercise (42%). Results show that lack of routine is more likely in males, while lack of time is dominant in females.

### **Conclusion**

Both genders think that lack of time and insufficient routine are most important factors for poor quality of leisure time utilisation and deficiency of sports and recreational activities.

## UTICAJ PROGRAMIRANIH SPORTSKO'REKREATIVNIH AKTIVNOSTI NA MORFOLOŠKE KARAKTERISTIKE I MOTORNE SPOSOBNOSTI KOD UČENICA ČETVRTIH RAZREDA OSNOVNIH ŠKOLA

**Klincarov, I., Nikovski, G., Aceski A.**

Ss. Cyril and Methodius University in Skopje, Faculty of physical culture, Republic of Macedonia

### Uvod

Fizička neaktivnost i prekomerna telesna težina sve više se ističu kao problem ne samo kod nas nego i u zemljama Evropske Unije. Prema nekim istraživanjima 14 miliona dece imaju problem sa viškom telesne težine, od kojih 3 miliona su ugojeni (World Health Organization, 2006). Potiknuti problemom fizičke neaktivnosti, sprovedili smo programiranu četiri mesečnu eksperimentalnu sportsko-rekreativnu programu za učenice četvrtih razreda osnovnih škola u Skopju. Cilj ovog istraživanja je utvrđivanje uticaja četiri mesečnih programiranih sportsko-rekreativnih aktivnosti (štafetne i elementarne igre, sportske igre i moderni plesovi i kola) na neke morfološke karakteristike i motoričke sposobnosti kod učenica četvrtih razreda osnovne škole.

### Metode

Istraživanje je sprovedeno u sklopu većeg eksperimentalnog istraživanja (Nikovski, G., 2003), na primerku od 70 učenica od kojih u program je bilo uključeno 40 učenica iz eksperimentalne grupe koje su bile angažovane u vančasovnim aktivnostima dva puta nedeljno, dok 30 učenica iz kontrolne grupe je posećivalo redovne časove fizičkog vaspitanja. Primenjene su 5 varijable koje definišu morfološki prostor (visina tela, težina tela, srednji obim grudnog koša, potkožno masno tkivo i vitalni kapacitet) i 6 varijabli koje određuju motorički prostor (40 metri brzo trčanje, 4 minuta istrajnog trčanja, skok u dalj iz mesta, izdržaj u zgibu, bacanje loptice i bacanje medicinke s dve ruke iznad glave). Za utvrđivanje razlika u inicijalnom merenju primenjene su ANOVA i MANOVA, a za utvrđivanje razlika u finalnom merenju između grupa primenjena je ANKOVA i MANKOVA.

### Rezultati

Na osnovu primenjenih statističkih analiza u inicijalnom merenju, utvrđeno je da ne postoji statistički značajna razlika u celom analiziranom prostoru. Posle sprovođenja eksperimentalnog programa primenjivanjem MANKOVE utvrđene su značajne međugrupne razlike u analiziranom morfološkom i motornom prostoru. Primenom ANKOVE konstatovana je značajna razlika u varijablama: istrajno trčanje; skok u dalj; i bacanje medicinke, u korist eksperimentalne grupe, što proizlazi od veće angažovanosti eksperimentalne grupe u nekim sportskim igrama, kao o rezultat učešća u aktivnostima gde je akcenat stavljen na angažovanost donjih ekstremiteta.

### Zaključak

Dobijeni rezultati ukazuju na pozitivan uticaj eksperimentalnog programa u odnosu na redovan čas fizičkog vaspitanja.

### Literatura

1. World Health Organization (2006). Diet and Physical Activity: a public health priority. Geneva: World Health Organization.
2. Nikovski, G. (2003). Influence of programmed sport and recreational activities on morphological characteristics and motor abilities in 3<sup>rd</sup> and 4<sup>th</sup> grade primary school students. Unpublished doctoral dissertation, Skopje: Faculty for Physical Culture.

## **INFLUENCE OF PROGRAMMED SPORT-RECREATIONAL ACTIVITIES ON MORPHOLOGICAL CHARACTERISTICS AND MOTOR ABILITIES IN FORTH GRADE PRIMARY SCHOOL FEMALE STUDENTS**

**Klincarov, I., Nikovski, G., Aceski, A.**

Ss. Cyril and Methodius University in Skopje, Faculty of physical culture, Republic of Macedonia

### **Introduction**

Physical inactivity and overweight are on increase in both Macedonia and countries of the European Union. Research shows that more than 14 million children are overweight and 3 million are obese (World Health Organization, 2006). Triggered by the growing problem of physical inactivity, the goal of this study was to document the influence of 4-month programmed sports-recreational activities (elementary games, relay games, sport games and modern and folk dances) on the development of morphological characteristics and motor abilities in 4th grade female students in primary schools.

### **Methods**

This survey is part of larger experimental study (Nikovski G., 2003) on a sample of 70 female students, of which 40 in the experimental group who were engaged in extracurricular activities 2 times/week and 30 students in the control group attending regular physical education classes. Morphological measures such as height, weight, mean chest circumference, abdominal skin fold thickness, vital capacity, and 6 tests for measuring motor performances (40 meters fast run, 4 minutes running, standing broad jump, bent arm hang, throwing small ball, throwing medicine ball over head) were applied. ANOVA and MANOVA have been utilized for testing the differences at the initial measurement, and testing of differences at the final measurement has been performed with ANKOVA and MANKOVA.

### **Results and discussion**

Statistical analysis at the initial measurement has not detected statistically significant differences for all variables. Following the implementation of experimental program, ANOVA has detected significant statistical differences in the analyzed morphological and motoric space among groups. ANOVA has detected statistically significant differences in participants in the experimental group for the following variables: long run, standing broad jump and throwing medicine ball over head, as a result of greater involvement of participants in the experimental group in some sport games, as well as participation in activities with an accent on lower limbs.

### **Conclusions**

Results indicate the positive influence of the experimental program compared to regular physical education classes.

### **References**

1. World Health Organization (2006). Diet and Physical Activity: a public health priority. Geneva: World Health Organization.
2. Nikovski, G. (2003). Influence of programmed sport and recreational activities on morphological characteristics and motor abilities in 3<sup>rd</sup> and 4<sup>th</sup> grade primary school students. Unpublished doctoral dissertation, Skopje: Faculty for Physical Culture.



## **BIOMEHANIČKIH KARAKTERISTIKA FUNDAMENTALNIH MOTORNIH VEŠTINA MANIPULATIVNOG TIPA**

**Aleksandar Aceski, Aleksandar Tufekčievski, Ilija Klinčarov, Dušan Proković**

Univerzitet „Sv. Kiril i Metodij“, Fakultet fizičke kulture - Skopje

### **Uvod**

Fundamentalnih motornih veština se uobičajeno pojave kod dece na uzrast od prve do sedme godine života (Barton & Miller 1998). One predstavljaju osnovu za nadgrađivanje novijih i složenijih veština koje su prisutne u sportu i sportsku rekreaciju. Uglavnom njihova podela je na tri grupe: nelokomotornog, lokomotornog i manipulativnog tipa (Brotherson 2006).

Osnovna karakteristika fundamentalni motornih veština manipulativnog tipa je sam rekvizit koji predstavlja predmet manipulacije.

Cilj istraživanja je bio utvrđivanje biomehaničkih karakteristika fundamentalnih motornih veština manipulativnog tipa.

### **Metode**

U istraživanju uzete su 8 veština manipulativnog tipa: hvatanje loptice, bacanje loptice iznad ramena, forhend udarac palicom, kotrljanje loptice, vođenje lopte sa rukom u mjesto, prijem loptu stapalom, šut lopte kratkim zaletom i šut lopte sa podbacivanjem. Grupa manipulativnih veština definirana je sa 68 biomehaničkih varijabla.

Na početku svaka motorna veština je analizovana metodom kvalitativne biomehaničke analize, gde jedinice daju informacije za posedovanje, a nule za neposedovanje određene biomehaničke karakteristike. Iz početne binarne matrice sa primenom algoritma ALPROBI utvrđeni su najpre koeficijenti biomehaničke intersličnosti analiziranih veština a zatim je određena biomehanička sličnost celog sistema kao i sila biomehaničke povezanosti jedne veštine sa ostalim.

### **Rezultati i diskusija**

Biomehnička sličnost celog sistema ima koeficijent 0.392, što ukazuje da motorne veštine imaju izražena heterogenost. Najviši koeficijent sile biomehničkog povezanosti sa ostalim veštinama je prisutan kod veštine šut lopte kratkim zaletom (0.430) i kotrljanje loptu (0.429). što ukazuje da ove motorne veštine su biomehnički najbliži sa ostalima.

### **Zaključak**

Ovo predstavlja samo jedan od pristupa u utvrđivanju karakteristika manipulativnih veština. Vakav se pristup može koristiti u određivanje biomehničkih karakteristika i strukturi i drugih segmenata antropološkog statusa čoveka.

### **Literatura**

Burton, A.& Miller, D. (1998). Movement skill assessment. Champaign IL: Human Kinetics.  
Brotherson, S. (2006). Understanding physical development in young children. North Dakota State University. [online]. FS-632, Available at: <http://www.ag.ndsu.edu/pubs/yf/famsci/fs632w.htm>

**Ključne reči:** Kvalitativna biomehnička analiza, manipulativne veštine, ALPROBI.

## **BIOMECHANICAL CHARACTERISTICS OF FUNDAMENTAL MOTOR SKILLS OF MANIPULATIVE TYPE**

**Aleksandar Aceski, Aleksandar Tufekčevski, Ilija Klinčarov, Dušan Proković**

Ss. Cyril and Methodius University, Faculty of physical culture - Skopje

### **Introduction**

Fundamental motor skills usually emerge between 1 to 7 years of age (Barton & Miller 1998). There are fundament for upgrading new and more complex skills which are present in sport and sports recreation. They are divided mainly into three groups: nonlocomotor, locomotor and manipulative skills (Brotherson 2006).

The basic characteristic of fundamental motor skills of manipulative type is the requisite which is object of manipulation.

The aim of this research was to determine biomechanical characteristics of these skills.

### **Methods**

Research includes 8 fundamental motor skills of manipulative type: receiving the ball, throwing ball, forehand drop and hit, underhand roll ball, stationary dribbling with hand, receiving a rolling ball, kicking stationary ball and kicking punt. This group of motor skills is defined by 68 biomechanical variables.

At the beginning each motor skill is analyzed by the method of qualitative biomechanical analysis where the sign one mean possession but zero lacks of that characteristic. By the initial binary matrix using algorithm ALPROBI, are determined biomechanical characteristics of movement skills, and then is determined biomechanical similarity of whole system and force of biomechanical connection of one skill with other.

### **Results and discussion**

Biomechanical similarity of whole system has a coefficient 0.392 and that means the fundamental motor skills of manipulative type have heterogeneous biomechanical structure.

The highest coefficient of biomechanical similarity is present in kicking stationary ball (0.430) and underhand roll ball 0.429. This means that these motor skills are most similar to other.

### **Conclusion**

This is just one of the ways of determining the biomechanical characteristics of manipulative skills. This kind of approach can be used to determine the biomechanical characteristics and structure of other segments of the anthropological human status etc.

### **References**

- Burton, A.& Miller, D. (1998). Movement skill assessment. Champaign IL: Human Kinetics.  
Brotherson, S. (2006). Understanding physical development in young children. North Dakota State University. [online]. FS-632, Available at: <http://www.ag.ndsu.edu/pubs/yf/famsci/fs632w.htm>

**Key words:** Qualitative biomechanical analysis, manipulative skills, ALPROBI.

## PROCENA POUZDANOSTI TESTOVA SPECIFIČNIH FUDBALSKIH VEŠTINA

**Bojan Leontijević, Aleksandar Janković, Aleksandar Nedeljković, Bojan Šiljegović, Branimir Mićović, Veselin Jelušić**

Fakultet sporta i fizičkog vaspitanja, Beograd, Srbija

### Uvod

Testovi za procenu fudbalske veštine predmet su interesovanja, kako stručnjaka koji su direktno povezani sa trenaznim aktivnostima sportista, tako i istraživača koji teže da eksperimentalnim putem pronađu kvalitetnije načine provere trenutnog stanja fudbalera. Validnost i jednostavnost u sprovođenju te vrste testova su prednost u odnosu na druge testove. Cilj ove studije je procena nivoa pouzdanosti predložene baterije testova, koji procenjuju veštinu fudbalera, na različitim nivoima uzrasta i uspešnosti. Postavljena hipoteza glasi da će rezultati starijih, selektiranih fudbalera pokazati viši stepen pouzdanosti.

### Metode

Istraživanjem je obuhvaćeno 37 ispitanika, 20 polaznika škole fudbala "DIF" ( $11.4 \pm 0.7$  godina) i 17 selektiranih fudbalera FK "RAD" ( $12.8 \pm 0.4$  godina). Ispitanici su izvodili 3 uzastopna ponavljanja svakog procenjivanog testa: žongliranje sa loptom (ŽL), preciznost (udarac po lopti nakon "vođenja lopte" - PV), preciznost (udarac po lopti koje dolaze bočno od ispitanika, iz "prve" - PP), "vođenja lopte" (VM), "vođenja lopte" sa dodavanjem (VCC), preciznost (udarac po lopti koja miruje - PM) i preciznost (udarac po lopti u dubinu - PD). Od statističkih procedura primenjena je analiza varijanse (ANOVA) sa ponovljenim merenjem, intraklasni korelacioni koeficijent (ICC) i koeficijent varijacije (CV).

### Rezultati sa diskusijom

Kod mlađe, ne selektirane grupe, zapažena je visoka povezanost, prilikom tri uzastopna pokušaja, kod PD, ŽL, i VM testova (ICC = 0.96, 0.95, 0.83), umerena kod VCC i PV (ICC = 0.74, 0.63), dok kod PP i PM testova povezanost je bila veoma mala (ICC = 0.15, 0.4). Slični rezultati dobijeni su i kod selektirane, starije grupe, gde je visok stepen povezanosti pored VM testa pokazao i VCC test (ICC = 0.86, 0.85), dok je PDL test pokazao umerenu povezanost (ICC = 0.72). U odnosu na dobijenu vrednost koeficijenta varijacije (CV = 9.5-88.1% mladi, i 6.7-44.8% stariji) zapaža se da većina testova, primenjenih na mladoj, ne selektiranoj grupi, ima nešto manju senzitivnost za procenu malih promena koje se mogu desiti u testovima.

### Zaključak

Na osnovu rezultata ove studije zaključuje se da su testovi žongliranja sa loptom i "vođenja lopte" pokazali kao pouzdani u proceni obučenosti fudbalskih veština, dok su testovi preciznosti pokazali nizak stepen pouzdanosti. U odnosu na uzrast i selekciju mladih fudbalera, procenjeni testovi su senzitivniji kod starije i selektirane grupe.

### Literatura

- Ali, A., Williams, C., Hulmse, M.A., Strudwick, A., Reddin, J., Howarth, L., Eldred, J.E., Hirst, M., McGregor S.J. (2007). Reliability and validity of two tests of soccer skill. *Journal of Sports Sciences* 25, 1461-1470.
- Mirkov, D., Nedeljkovic, A., Kukulj, M., Ugarkovic, D., Jarić, S. (2008). Evaluation of the reliability of soccer-specific field tests. *Journal of Strength and Conditioning Research*, 22 (4), 1046-1050

## THE EVALUATION OF RELIABILITY OF SPECIFIC FOOTBALL SKILLS TESTS

**Bojan Leontijević, Aleksandar Janković, Aleksandar Nedeljković, Bojan Šiljegović, Branimir Mićović, Veselin Jelušić**

Faculty of Sport and Physical Education, Belgrad, Serbia

### Introduction

Tests for football skills estimation are in the focus of interest both of experts who are in direct connection with training activities of sportsmen, and of researchers who tend to find higher quality ways to test the current state of players in training process using experimental way. Validity and simplicity of these tests are the advantages over other types of tests. The aim of this study is estimation of reliability of suggested compilation of tests, which evaluate the skills of football players, at different age and of different success. The given hypothesis says that the results of older selected players will show higher degree of reliability.

### Methodology

The research comprised 37 respondents, 20 attendees of school of football 'DIF' ( $11.4 \pm 0.7$  years) and 17 selected football players of FC RAD ( $12.8 \pm 0.4$  years). The respondents were asked to do each of the evaluated test 3 different times. The tests included: Juggling the ball (ZL), Precision (shot after running with the ball-PV), precision (instant shot on the ball coming from aside- PP), running with the ball (VM), running with the ball with passes (VCC), precision (shot on the ball standing still-PM), and precision (shot on the ball deep in the field-PD). Of all the statistical procedures we applied the analysis of the variance (ANOVA) with repeated measuring, intraclass coefficient of correlation (ICC) and coefficient of variance (CV).

### Results with Discussion

In younger, non-selected group, high level of correlation, for three attempts in a row, was noticed for PD, ZL and VM tests (ICC=0,96; 0,95; 0,83), medium for VCC and PV (ICC= 0,74; 0,63), whereas for PP and PM tests the correlation was very low (ICC=0,15; 0,4). Similar results were obtained in selected, older group, where high level of correlations was noticed in VCC test (ICC=0,85) apart from VM test (ICC=0,86) while PDL tests showed medium correlation (ICC=0,72). In relation with obtained values of coefficient of variance (CV=9,5-88,1% for younger and 6.7-44,8% for older) it can be noticed that majority of tests, applied on the younger group, non-selected group, is a bit less sensitive for evaluation of small changes that can occur during the tests.

### Conclusion

Based on the results of this research it can be concluded that ball juggling tests and running with the ball tests showed as reliable in evaluation of football skills training, whereas the precision tests showed lower level of reliability. With reference to age and selection of young football players, the evaluated tests are more sensitive in older and selected group.

### Reference:

- Ali, A., Williams, C., Hulmse, M.A., Strudwick, A., Reddin, J., Howarth, L., Eldred, J.E., Hirst, M., McGregor S.J. (2007). Reliability and validity of two tests of soccer skill. *Journal of Sports Sciences* 25, 1461-1470.
- Mirkov, D., Nedeljkovic, A., Kukulj, M., Ugarkovic, D., Jarić, S. (2008). Evaluation of the reliability of soccer-specific field tests. *Journal of Strength and Conditioning Research*, 22 (4), 1046-1050

## **RAZVOJ MOTORIČKIH SPOSOBNOSTI POLAZNIKA ŠKOLE FUDBALA „DIF“**

**Aleksandar Janković, Bojan Leontijević, Dejan Suzović, Slađana Rakić, Branimir Mićović, Veselin Jelušić**

Fakultet sporta i fizičkog vaspitanja, Beograd, Srbija

### **Uvod**

Identifikacija talentovanih fudbalera predstavlja važan faktor u ostvarivanju vrhunskih sportskih rezultata, u okviru koje su motoričke sposobnosti jedan od pet osnovnih kriterijuma selekcije (Aleksić, Janković, 2006). Cilj ove longitudinalne studije je utvrditi uticaj specifično fudbalskih sadržaja rada (utvrđen trenažni plan i program) na razvoj motoričkih sposobnosti polaznika Škole fudbala „DIF“

### **Metode**

Na uzorku ispitanika, polaznika Škole fudbala „DIF“, ukupno 23 (od  $8.2 \pm 0.7$  do  $10.4 \pm 0.6$  godina), dinamika razvoja motoričkih sposobnosti ispraćena je u dvogodišnjem i trogodišnjem ciklusu treninga. Eksperiment je podrazumevao tri, odnosno četiri termina testiranja organizovanih u razmaku od dvanaest meseci između kojih je sproveden organizovan fudbalski trening, usmeren ka obučavanju osnovnih elemenata tehnike i razvoju motoričkih sposobnosti. U testiranju su bili uključeni testovi za procenu brzine (10S, 10LS i 20S), opšte i specifične agilnosti (CC i CCL), fleksibilnosti (PRET) kao i indirektni testovi za procenu snage nogu (CMJ i CMJZ) (Mirkov i sar., 2008). Rezultati su obrađeni deskriptivnom (srednja vrednost i standardna devijacija) i komparativnom statistikom (ANOVA sa ponovljenim merenjima).

### **Rezultati sa diskusijom**

Najveći napredak ostvaren je u testovima agilnosti, a posebno kod testa specifične agilnosti (sa kontrolom lopte). Kod testova za procenu snage nogu primećuje se veći napredak u testu za procenu snage nogu, što se obrazlaže razvojem koordinacije i samog učenja fudbalske veštine. Kod rezultata testa fleksibilnosti dobijeni su rezultati koji ukazuju na velike razlike u kompoziciji tela ispitanika u ovom periodu, pa su i rezultati prilično nekonzistentni. Praćenje razvoja motoričkih sposobnosti ima za cilj da pruži povratnu informaciju stručnjacima koji se bave trenažnim procesom. Na osnovu rezultata dobijenih ovakvim studijama potrebno je izvršiti određene modifikacije trenažnih sadržaja i prilagoditi sredstava rada efikasnim metodama učenja i razvoja određenih sposobnosti.

### **Zaključak**

Rezultati dobijeni višegodišnjim praćenjem razvoja motoričkih sposobnosti, ukazuju da je došlo do progresivnog napredka u motoričkim sposobnostima, polaznika Škole fudbala „DIF“, kod ispitivanih uzrasnih kategorija.

### **Literatura**

- Janković, A., Leontijević, B. (2010). Godišnja dinamika razvoja motoričkih sposobnosti polaznika Škole fudbala „DIF“. Fizička kultura (u štampi).
- Mirkov, D., Nedeljkovic, A., Kukulj, M., Ugarkovic, D., Jarić, S. (2008). Evaluation of the reliability of soccer-specific field tests. *Journal of Strength and Conditioning Research*, 22 (4), 1046-1050

## THE DEVELOPMENT OF MOTOR ABILITIES OF STUDENTS OF DIF SCHOOL OF FOOTBALL

**Aleksandar Janković, Bojan Leontijević, Dejan Suzović, Slađana Rakić, Branimir Mićović, Veselin Jelušić**

Faculty of Sport and Physical Education, Belgrad, Serbia

### Introduction

The identification of talented football players represents a significant factor in achieving top sport results, where motor abilities are one of five key criteria for selection (Aleksic, Jovanovic, 2006). The aim of this longitudinal study is to determine the influence of specific football work content (determined plan and programme of training) on the development of motor abilities of students of DIF School of football

### Methodology

On the sample of respondents, students of DIF School of Football, 23 in total (from  $8.2 \pm 0.7$  to  $10.4 \pm 0.6$  years old), the dynamics of the development of the motor abilities have been observed during two-year and three year training cycles. The experiment comprised 3 or 4 rounds of testing each organised after 12 months from the previous, between which organised football training was undertaken, focused on training of basic technical elements in the development of motor abilities. The following tests were included in the process of testing: Test for speed evaluation (10S, 10LS and 20S), general and specific agility tests (CC and CCL), flexibility tests (PRET), as well as indirect tests for evaluation of legs' power (CMJ and CMJZ) (Mirkov and co, 2008). The results were processed using descriptive (mean value and standard deviation) and comparative statistics (ANOVA with repeated measurements)

### Results with Discussion

The biggest progress was made in the tests of agility, especially in the test of specific agility (with ball control). In test for evaluation of legs' power we can notice bigger progress in test for evaluation of legs' power, which can be explained by development of coordination and the very acquiring of football skills. Flexibility tests show the results that point out to big differences in composition of respondents' bodies in this period, so the results are very inconsistent. The purpose of observation of the development of motor abilities is to provide a feedback for experts who are in charge of the training process. On the basis of the results obtained in this kind of research it is necessary to undertake certain modifications of training contents and adapt needs of work to efficient methods of acquiring and development of certain skills.

### Conclusion

Results obtained during several years of observation of development of motor abilities point out that there has been constant progress in motor abilities of students of DIF School of Football, in researched age groups.

### References

- Janković, A., Leontijević, B. (2010). Godišnja dinamika razvoja motoričkih sposobnosti polaznika Škole fudbala „DIF“. *Fizička kultura* (u štampi).
- Mirkov, D., Nedeljkovic, A., Kukulj, M., Ugarkovic, D., Jarić, S. (2008). Evaluation of the reliability of soccer-specific field tests. *Journal of Strength and Conditioning Research*, 22 (4), 1046-1050

## УТИЦАЈ ВАННАСТАВНИХ АКТИВНОСТИ НА ТРАНСФОРМАЦИЈУ МОТОРИЧКИХ СПОСОБНОСТИ УЧЕНИКА СРЕДЊЕШКОЛСКОГ УЗРАСТА

Живорад Марковић<sup>1</sup>, Зоран Богдановић<sup>2</sup>, Александар Игњатовић<sup>1</sup>, Сандра Милановић<sup>1</sup>

<sup>1</sup> Педагошки факултет, Јагодина, Србија

<sup>2</sup> Универзитет у Новом Пазару, Департман за спорт и рекреацију, Нови Пазар, Србија

### Увод

Програм наставе физичког васпитања предвиђа и факултативне ваннаставне активности које се планирају са једним часом недељно изван редовних часова. У већини случајева избор ученика су активности у виду школских спортских секција. Циљ истраживања је био да се утврде евентуални позитивни утицаји додатног физичког вежбања, у виду истрајног трчања, на трансформацију моторичких способности средњешколског узраста.

### Метод

Истраживање је лонгитудинално експерименталног карактера (педагошки експеримент са паралелним групама, реализовано у Пољопривредно-ветеринарској школи у Свилајнцу, у другом полугодишту школске 2008/2009. Узорак је обухватио 46 испитаника подељених у два посебна субузорка - према критеријуму додатног физичког вежбања. Моторичке способности процењене су помоћу четири варијабле. Поред поступака дескриптивне статистике у обради података добијених емпиријским истраживањем примењена је мултиваријантна и униваријантна анализа варијансе, дискриминативна анализа, мултиваријантна и униваријантна анализа коваријансе.

### Резултати и дискусија

Мултиваријантном и дискриминативном анализом констатована је статистички значајна разлика и јасно дефинисана граница између експерименталне и контролне групе испитаника у односу на моторичке способности, а униваријантном анализом варијансе, статистички значајна разлика између група по варијаблама. Мултиваријантном анализом коваријансе констатоване су статистички значајне разлике између третмана експерименталне и контролне групе у односу на моторичке способности. Униваријантном анализом коваријансе и интервалима поверења констатоване су статистички значајне разлике за све процењиване варијабле, у односу на третман. У истраживањима (Келер, 1984; Петковић, 1985; Марковић и Богдановић 2009) констатовани су, такође, позитивни утицаји додатног физичког вежбања, у виду истрајног трчања на побољшање моторичких способности основношколског и средњешколског узраста.

### Закључак

На основу добијених резултата и разлика иницијалних и финалних процена, као и ефеката третмана можемо констатовати позитивне утицаје ваннаставних активности у виду истрајног трчања која су изазвала позитивне трансформације у простору моторичких способности ученика средњешколског узраста.

### Литература

1. Келер, Б. (1984). *Прилог проучавању развоја морфолошких карактеристика и моторичких способности ученица виших разреда основне школе након примене десетомесечног програма рада пионорске атлетске школе*. Непубликовани магистарски рад. Београд: Факултет физичког васпитања.
2. Марковић, Ж., Богдановић, З. (2009). *Утицај ванчасовних активности на моторичке способности ученица средњешколског узраста*. У Б. Бокан (Ур.), Зборник радова са Међународне научне конференције „Теоријски, методолошки и методички аспекти физичког васпитања“, 11-12. децембар 2008, (76-83). Београд: Факултет спорта и физичког васпитања.

## THE INFLUENCE OF EXTRA CURRICULAR ACTIVITIES ON MOTOR ABILITIES OF SECONDARY SCHOOL MALE STUDENTS

Zivorad Markovic<sup>1</sup>, Zoran Bogdanovic<sup>2</sup>, Aleksandar Ignjatovic<sup>1</sup>, Sandra Milanovic<sup>1</sup>

<sup>1</sup> Pedagogical Faculty, Jagodina, Serbia

<sup>2</sup> University in Novi Pazar, Department for sport and recreation, Novi Pazar, Serbia

### Introduction

The programme of physical education lessons predicts facultative extracurricular activities which are planned with one lesson per week apart from regular lessons. In most cases the choice of students are activities connected with school sport sections. The goal of this research was to determine eventual positive influences of additional physical exercise, in the form of steady running, on transformation of motor abilities of the secondary school students.

### Method

This research is of longitudinal experimental character (pedagogical experiment with parallel groups, realized in Agricultural-veterinary school in Svilajnac, in the second term of 2008/2009 school year. The sample consisted of 46 examinees divided into two special sub samples – according to the criterion of additional physical exercise. Motor abilities were evaluated by the use of four variables. Descriptive statistics, multivariant and univariant analysis of a variance, discriminative analysis and multivariant and univariant analysis of covariance were applied for the processing of the data which were acquired by empirical research.

### Results and discussion

By the use of multivariant analysis and discriminative analysis statistically significant difference was determined and clearly defined border between experimental and control group in relation to motor abilities, and by the use univariant analysis of covariance there were statistically significant differences between the treatment of experimental group and control group in relation to motor abilities. By the use of univariant analysis of covariance and by the use of intervals of trust there were statistically significant differences for all evaluated variables in relation to the treatment. In the researches (Keler 1984; Petkovic, 1985; Markovic and Bogdanovic 2009) there were also positive influences of additional exercise, as steady running for the improvement of motor abilities for primary school and secondary school students.

### Conclusion

On the basis of the results and the differences of initial evaluations, as well as the treatment it can be stated that there are positive affects of extracurricular activities as a steady running which influenced positive transformations on motor abilities of secondary school students.

### References

1. Keler, B. (1984). *Прилог проучавању развоја морфолошких карактеристика и моторичких способности ученица виших разреда основне школе након примене десетомесечног програма рада пионерске атлетске школе* [An annex to the study of development of morphological characteristics and motor abilities of secondary school female students after the application of a ten-month programmes of work of pioneer athletic school] Unpublished masters paper. Belgrade: Faculty of physical education.
2. Markovic, Z., Bogdanovic, Z. (2009). *Утицај ванчасовних активности на моторичке способности ученица средњешколског узраста*. [The influence of extracurricular activities on motor abilities of secondary school female students]. In B. Bokan (Ed), *Compilation of works from international scientific conference "Theoretical methodological and methodic aspects of physical education"*, 11-12<sup>th</sup> December 2008, (76-83). Belgrade: Faculty of sport and physical education.



## UČEŠĆE RODITELJA U SPORTSKO-REKREATIVNIM AKTIVNOSTIMA I PRISUSTVO KIFOTIČNOG DRŽANJA TELA KOD DECE

Zoran Bogdanović<sup>1</sup>, Vladimir Čolović<sup>2</sup>, Živorad Marković<sup>3</sup>

<sup>1</sup>Državni univerzitet u Novom Pazaru, Departman za Bio-hemijske i medicinske nauke; Novi Pazar, Srbija

<sup>2</sup>O.Š. Dragiša Mihailović, Kragujevac

<sup>3</sup>Pedagoški fakultet, Jagodina, Srbija

### Uvod

Istraživanja ukazuju da veliki procenat učenika u osnovno-školskog uzrasta ne uzima učešće u sportskim aktivnostima, a poznato je da brz i asimetričan rast u dečjem uzrastu uz ostale spoljašnje faktore, su veoma bitan element u nastajanju deformacije kičmenog stuba. Procenat prisutnosti istraživanog posturalnog poremećaja kod učenika, pokušali smo utvrditi kroz korelaciju sa nivoom učešća njihovih roditelja u sportu i sportsko-rekreativnim aktivnostima.

### Metode

Istraživanje je sprovedeno na teritoriji grada Kragujevca u više osnovnih škola uzrasta 12 godina,  $\pm$  6 meseci, na uzorku od 299 učenika i njihovih roditelja. Za procenu kifotičnog lošeg držanja tela, korišćena je metoda somatoskopije i somatometrije, a učešće roditelja u sportsko-rekreativnim aktivnostima utvrđivano je na osnovu anketnog upitnika popunjenog od strane roditelja učenika, obuhvaćenih ovim istraživanjem. Postojanje i veličinu povezanosti između istraživanih prostora izračunato je Pirsonovim Hi-kvadrat testom i koeficijentom kontingencije.

### Rezultati sa diskusijom

Najveće prisustvo istraživanog deformiteta je u grupi učenika čiji roditelji nikada i povremeno u toku godine učestvuju u sportsko-rekreativnim aktivnostima. Kod ispitanika muške populacije, loše držanje tela najviše je prisutno kod učenika čiji roditelji nikada ne učestvuju, a kod ženske populacije, najveće prisustvo deformiteta je kod učenika čiji roditelja mesečno i nikada ne učestvuju u sportsko-rekreativnim aktivnostima, dok kod onih učenika čiji roditelji svakodnevno uzimaju učešće u sportsko-rekreativnim aktivnostima, nema uopšte prisutnog deformiteta.

### Zaključak

Rezultati istraživanja i drugih autora (Protić--Gava, Čokorilo i Karanov, 2006), potvrđuju da deca čiji roditelji učestvuju u sportsko-rekreativnim aktivnostima, imaju bolji stav. To potvrđuje, da roditelji koji vježbaju redovno, utiču na svoju decu da to isto čine, a samim tim utiču pozitivno i na njihov pravilan posturalni status.

**Ključne reči:** Kifoza, Sportska rekreacija, Roditelji, Učenici

### Literatura

Bogdanović, Z. (2006): Prisustvo lošeg držanja tela učenika mlađeg školskog uzrasta u zavisnosti od vrste sporta kojima se bave, Spisanie za naučni i stručni prašanja od fizičkata kultura, Fizička kultura br.2, 186 - 188, Skopje, Republika Makedonija.

Protić-Gava, B., Čokorilo, R., Karanov, B. (2006). Socijalni status roditelja i posturalni status predškolske dece Vojvodine. U G. Bala (ur.) Antropološki status i fizička aktivnost dece i omladine (213-219). Novi Sad: Fakultet sporta i fizičkog vaspitanja.

## PARENT INVOLVEMENT IN SPORTS ACTIVITIES AND IRREGULAR KIFOT POSTURE IN CHILDREN

Zoran Bogdanović<sup>1</sup>, Vladimir Čolović<sup>2</sup>, Živorad Marković<sup>3</sup>

<sup>1</sup>Državni univerzitet u Novom Pazaru, Departman za Bio-hemijske i medicinske nauke; Novi Pazar, Srbija

<sup>2</sup>O.Š. Dragiša Mihailović, Kragujevac

<sup>3</sup>Pedagoški fakultet, Jagodina, Srbija

### Introduction

Research indicates that, a large percentage of students the elementary-school age do not take part in sports activities, and it is known that rapid and asymmetrical growth in children along with other external factors are very important element of an emerging strain of the spinal column. Percentage presence of the study of postural disorders in students, we tried to determine the correlation with the level of participation of their parents in sports and sports and recreational activities.

### Methods

The survey was conducted in Kragujevac in several elementary school aged 12 years - six months, a sample of 299 students and their parents. For the evaluation of irregular kifotic bad posture, we used the method somatoscopy and somatometry and parent involvement in sports and recreational activities, was determined based on a questionnaire completed by parents of students in this research. The existence and size of the connection between these areas was calculated by Pearson Chi-square test and coefficient of contingency.

### Results and Discussion

The largest presence of deformities was investigated in a group of students whose parents never and occasionally during the year sport-recreative participate in activities. In the male population, poor posture than it is shared by students whose parents never participate, and the female population, the largest presence of deformities in the children whose parents a month and never participate in sports and recreational activities, while those students whose parents daily take part in sports and recreational activities, there are no present deformities.

### Conclusion

Research results and other authors (Protic - Gava, Cokorilo and Karanov, 2006), confirm that children whose parents participate in sports and recreational activities, have a better attitude. This confirms that the parents who exercise regularly, influence their children to do the same, and thus positively influence and their proper posture status.

**Keywords:** kifosis, Sport Recreation, Parents, Students

### References

- Bogdanovic, Z. (2006): The presence of poor posture, junior school, depending on the type of sports, Magazine on scientific and technical issues in the fizical Culture, Sport and Physical Education No.2, 186 - 188, Skopje, Macedonia.
- Protic-Gava, B., Cokorilo, R., Karanov, B. (2006). The social status of parents and postural status of children of. In G. Bala (ed.) Anthropological status and physical activity of children and adolescents (213-219). Novi Sad: Faculty of Sport and Physical Education.

## **РАЗЛИКЕ У САДРЖАЈИМА ПОЈМОВА МОТОРИЧКО УМЕЊЕ – МОТОРИЧКА НАВИКА – МОТОРИЧКИ СТЕРЕОТИП**

**Небојша Ранђеловић, Ненад Живановић, Даница Пиршл**

Факултет спорта и физичког васпитања, Ниш

### **Увод**

Проблем навика и умења је увек актуелан јер они леже у основи било ког учења. Познавање њихове суштине и путеви њиховог формирања је важно за теорију и праксу обучавања.

### **Методe**

За решавање задатака, постављених у раду, при општем индуктивно-дедуктивном прилазу истраживаном материјалу, коришћене су општенаучне методе: опсервација, дескрипција, поређење, уопштавање научно-методске литературе домаћих и страних аутора.

### **Резултати и дискусија**

При аутоматизацији кретања, њиховом претварању у навике у структури активности долази до низа трансформација. Најпре, аутоматизована кретања се сливају у један непрекидан акт који означавамо као умење (на пример, сложени систем кретњи човека који изводи физичку вежбу, који пише, који израђује неки предмет и сл.). У оквиру тога сувишни покрети се губе и број грешака се смањује. Надаље се контрола извођења кретања премешта са процеса на резултат, а спољашња сензорна контрола се замењује унутрашњом, проприоцептивном. Брзина извођења кретања се повећава, достижући неки оптимум или максимум. Ово долази као резултат вежбања. Развој и усавршавање кретања може се схватити као прелаз од умења на ниво навике. Са њима је тесно повезан и појам моторичког стереотипа који означава стабилан систем условљених нервних путева који обезбеђују одређени интензитет и редослед реакција организма на утицај спољашње средине.

### **Закључак**

Важан значај за схватање процеса формирања навика има њихов пренос, тј. ширење и коришћење навика које су се формирале у процесу извођења једних те истих кретњи и врста активности, на друге. Да би се такав пренос остварио, потребно је да навика постане универзална, усаглашена са другим навикама, кретањима и врстама активносит које су доведене до аутоматизма.

### **Литература**

Rodić, N. (2009): Didaktika fizičkog vaspitanja – elektronsko izdanje (udžbenik). Novi Sad: Fakultet za sport i turizam.

Холодов Ж.К., Кузнецов В.С. (2000). Теория и методика физического воспитания и спорта: Учебное пособие для вузов. – Москва: Издательский центр «Академия».

## **DIFFERENCES IN THE CONCEPTS OF MOTOR LEARNING– MOTOR HABIT– MOTOR STEREOTYPE**

**Nebojsa Randjelovic, Nenad Zivanovic, Danica PirsI**

Faculty of sport and physical education, Nis

### **Introduction**

The problem of habits and skills is a current one and underlies any type of learning. The knowledge of its essentials and the manners of its formation is important for the theory and practice of instruction as well.

### **Methods**

To solve the tasks set in the paper within the general inductive-deductive approach to the researched material one used also general scientific methods of observation, description, comparison, generalizing of scientific and methodics literature of the local and international authors.

### **Results and discussion**

In automatization of movements and their transformation into habits the structure of activities undergoes numerous transformations. First of all automatized movements form one continuous act that we denote as skill or knowledge (for example, a complex system of human movements to perform an exercise, to write, to make some objects and the like). In the course of time excess movements are lost and the number of mistakes decreases. Control of process shifts from the process towards the result, and the external sensory control is exchanged by the internal proprioceptive one. Speed of movement performance is increased aspiring to the optimal or maximal one. This comes as a result of exercising. Development and perfection of movements can be understood as a passage from the knowledge to the level of habit. This incorporates the notion of motor stereotype that denotes stabile system of conditioned nervous paths that provide for some intensity and the order of body reactions to the external conditions.

### **Conclusion**

Important significance for the grasping of the habit formation process has their transfer that is, broadening and use of habits formed during the performance one pattern of movements to the other ones. To provide for such a transfer it is necessary for a habit to become universal and tuned with other habits, movements and types of activities brought to the level of automation.

### **References**

Rodić, N. (2009): Didactics of physical education – internet edition (textbook ). Novi Sad: Faculty of sport and tourism

Холодов Ж.К., Кузнецов В.С. (2000). Теория и методика физического воспитания и спорта: Учебное пособие для вузов. – Москва: Издательский центр «Академия

## DOES THE ASSESSMENT OF BODY COMPOSITION IN YOUNG ATHLETES MAY BE A INDICATOR OF REDOX BALANCE STATE?

Vladimir Jakovljević<sup>1</sup>, Vladimir Živković<sup>1</sup>, Milena Vuletić<sup>1</sup>, Nevena Barudžić<sup>1</sup>, Marija Macura<sup>2</sup>, Marija Slavić<sup>3</sup>, Duško Blagojević<sup>3</sup>, Mihajlo Spasić<sup>3</sup>, Dejan Čubrilo<sup>1</sup>

Department of Physiology, Faculty of Medicine, University of Kragujevac, Kragujevac<sup>1</sup>

Faculty of sport and physical education, University of Belgrade, Belgrade<sup>2</sup>

Institute for Biological Research, Department of Physiology, Bulevar despota Stefana 142, Belgrade, Serbia<sup>3</sup>

### Introduction

Excessive inflammation and oxidation are possible biochemical links between obesity and cardiovascular events in adults. Last Research shows that obesity significantly correlated with the appearance of oxidative stress in children. In the literature there are few and controversial studies related to physically active children, particularly in terms of age or length of sports experience. The aim of our study was to determine the difference between parameters of body composition in relation to age and sport experience, as well as, possible association of oxidative status and parameters of body composition in young soccer players

### Methods

Parameters of oxidative stress (NO, TBARS, superoxide and H<sub>2</sub>O<sub>2</sub>) and antioxidant enzymes activities (superoxide dismutase – SOD, catalase – CAT, glutathione peroxidase – GSH-Px and glutathione reductase – GR) were measured in the blood plasma and erythrocytes of young soccer players (N=94) and correlated with the body composition variables. The body composition measurements were obtained using bioelectrical impedance analysis (BIA). The players were divided in two subgroups according to the age: teen TG (14 and 15 years old) and premature PG (16 and 17 years old).

### Results and discussion

Fat free mass (%FFM) and fat mass (%FM) did not differ between examined group. BMI resulted higher in PG compared to TG (p<0.01). However, correlations of measured parameters are age specific. (%FM) were positively correlated to TBARS levels (R=0.77, p<0.01), H<sub>2</sub>O<sub>2</sub> (R=0.63, p<0.05) in PG; BMI were positively correlated to SOD levels (R=0.61, p<0.05) and negatively correlated to CAT levels (R=-0.79, p<0.01), GPx levels (R=-0.82, p<0.01) in PG. (%FFM) was positively correlated to H<sub>2</sub>O<sub>2</sub> (R=0.83, p<0.01) in TG.

### Conclusion

The present study suggests that fluctuations of BMI and %FM could induce disruption of redox balance in young active children. Further investigations should be directed to the programming of antioxidant supplementation in relation to the parameters of body composition.

### References

- Shimomura I, Funahashi T, Matsuzawa Y (2006). Metabolic syndrome, adiponectin and fat ROS. *Biomed Rev*, 17, 1-10
- Holvoet P (2008). Relations between metabolic syndrome, oxidative stress and inflammation and cardiovascular disease. *Verh K Acad Geneesk Belg*, 70(3), 193-219.

## WHETHER THE INCLUSION OF L-ARGININE IN ANTIOXIDANT SUPPLEMENTATION CHANGES NITRIC OXIDE AND OXIDATIVE STRESS PARAMETERS DYNAMICS DURING MAXIMAL EXERCISE TESTING: FOCUS ON DIFFERENT TRAINING TYPES

Dejan Čubrilo<sup>1</sup>, Vladimir Živković<sup>1</sup>, Milena Vuletic<sup>1</sup>, Nevena Barudžić<sup>1</sup>, Marija Macura<sup>2</sup>, Vladimir Jakovljević<sup>1</sup>

Department of Physiology, Faculty of Medicine, University of Kragujevac, Kragujevac<sup>1</sup>  
Faculty of sport and physical education, University of Belgrade, Belgrade<sup>2</sup>

### Introduction

Physical activity of sufficient intensity and duration can result in increased generation of reactive oxygen/nitrogen species. The supplementation of exogenous substances may provide support for endogenous antioxidant defense system. There are a large number of investigations that are controversial regarding using supplements to suppress exercise-induced oxidative stress. The obvious limitation of current research in this area is the lack of studies dealing with the examination of a combination of multiple antioxidants and combinations of antioxidants and amino acids.

### Methods

Eligible participants were 43 top level competitors in rowing, cycling and taekwondo sport. The first maximal progressive exercise test was done in preseasonal period and the second test was repeated after 8 weeks of supplementation applied. The players were divided in two subgroups according to applied supplementation: Amino acid group (combination of 2 amino acids and 4 antioxidants), Vitamin group (combination of 11 vitamins and 10 minerals). Plasma nitrites ( $\text{NO}_2^-$ ), TBARS (Thiobarbituric Reactive Substances), and superoxide ( $\text{O}_2^-$ ) were determinate before test, after maximal workload (at the end of the test), and in the first 10 minutes of recovery (in 4<sup>th</sup> and 10<sup>th</sup> minute) and these measures were compared between two examined groups in each sport, as well as, between the same supplemented group in relation to different sports.

### Results and discussion

After 8 weeks of supplementation in cyclists, there were statistically significant lower TBARS concentration in all measured times (before test, after maximal workload, and in the first 10 minutes of recovery (in 4<sup>th</sup> and 10<sup>th</sup> minute) in amino acid group compared to vitamin group. In rowers and taekwondo fighters, there were no difference in TBARS concentration after applied supplementation. Also, the results indicate a lack of statistically significant differences in the effects of application of certain supplementation on the  $\text{O}_2^-$  and NO dynamics in all examined sports. On the other hand, there was statistically significance difference in  $\text{O}_2^-$  and TBARS dynamics, comparing vitamin subgroups in different sports with the highest values in cyclists in all measured times. Furthermore, NO concentration dynamics (at rest and in 4<sup>th</sup> minute of recovery) differed only between amino acids subgroups with the highest values in rowers compared to cyclists and taekwondo fighters.

### Conclusion

The results of our research show that the inclusion of amino acids in the antioxidant supplementation may result in suppression in macromolecular oxidation after acute bouts of exercise. Also, our results suggest that specific training loads of different sports could play a major role in response to antioxidant supplementation during and after exercise.

### References

- Knechtle B, Bosch A (2008). The influence of Arginine supplementation on performance and metabolism in athletes. *International Sport Med Journal*, 9, 22-31.
- Dorđević D, Jakovljević V, Čubrilo D, Zlaktković M, Živković V and Đurić D (2010). Coordination between nitric oxide and superoxide anion radical during progressive exercise in elite soccer players. *TOBioChemJ*, 4

## ANKLE INJURIES IN SOCCER: FOCUS ON AGE AND LEVEL OF COMPETITION

Miroslav Nešić<sup>1</sup>, Vladimir Jakovljević<sup>1</sup>, Duško Spasovski<sup>3</sup>, Zoran Obradović<sup>2</sup>, Dejan Čubrilo<sup>1</sup>

Department of Physiology, Faculty of Medicine, University of Kragujevac, Kragujevac<sup>1</sup>  
Faculty of sport and physical education, University of Belgrade, Belgrade<sup>2</sup>  
Institute of Orthopedic and Surgery Diseases, Banjica, Belgrade, Serbia<sup>3</sup>

### Introduction

Soccer is one of the most widely played sports in the world. The ankle injury risk in soccer is high, but little is known about causes of injury. The aim of our study was to examine the incidence of ankle injuries and to identify risk factors for soccer injuries. Older players are at higher risk of injury in general and the most frequent in competition.

### Methods

Five soccer teams of different competition level participated in this study. A total of 73 players were followed as injured athletes. The players were divided into two subgroups according to age criteria. Group I, under 18 years old; N=35 and Group II, above 18 years old; N=38. Ultrasound examination was performed on (Sono online Elegra, Siemens, Logic 500, GE Medical Systems), linear sound frequency from 7.5 to 10 MHz. Body composition was assessed by Biospace In Body 720. Maximal oxygen uptake ( $\text{VO}_2$  max) was measured directly on the equipment (Fitmate Pro Cosmed, Italy). The differences between proportions of small groups were assessed by  $\chi^2$ -nonparametric test. Wilcoxon matched pairs test was used in the case where the samples are relatively small with significant dispersion of values. The significance level was set at  $p < 0.05$ .

### Results and discussion

There is no difference between number of injured athletes in different age groups ( $p < 0.05$ ). According to the place of injury the greatest number of injuries in both group of athletes occur at training period. In relation to the type of terrain where injury happened, the highest percentage of injuries took place on the bumpy and slippery field. According to the mechanism of injury, the highest percentage of injuries in both groups of athletes is the result of stroke. In relation to the type of ankle injury according to clinical findings in both groups of athletes there were no statistically significant difference of occurrence of certain types of injuries in relation to the rank of competition ( $\chi^2_e < \chi^2_t$ ).

### Conclusion

The results of our research show that age of the athletes will not affect the percentage of injuries. The largest number of injuries happening during training on bumpy and slippery field, where the main cause of ankle injury is kicking. Distension distortions are most frequently type of ankle injuries.

### References

1. Junge A and Dvorak J (2004). Soccer injuries. Review on incidence and prevention. *Sports Med*, 34(13), 929-938.
2. Arnason A, Sigurdsson SB, Gudmundsson A, Holme I, Engebretsen L, Bahr R (2004). Risk factors for injuries in football. *Am J Sports Med*. Jan-Feb;32(1 Suppl):5S-16S.

## RAZLIKE U KOORDINACIJI PREDŠKOLSKE DECE OBUHVAĆENE REDOVNIM AKTIVNOSTIMA I DOPUNSKIM PLESNIM PROGRAMOM

Jelica Stojanović Tošić

Kragujevac, Srbija

### Uvod

Problem istraživanja su razlike u koordinaciji između dece predškolskog uzrasta iz Kragujevca koja su pohađala redovan program fizičkih aktivnosti – „neplesači” i dece koja su imala dopunski tromesečni program plesnih aktivnosti „Igrati, pevati, stvarati plesom” – „plesači”. Formulirane su sledeće hipoteze:

H<sub>1</sub> Postoji statistički značajna razlika u koordinacionim sposobnostima između dece „plesača” i dece „neplesača”. H<sub>1,1</sub> Postoji statistički značajna razlika u sposobnosti izvođenja ritmičkih kretnih struktura (školica – MSKOL). H<sub>1,2</sub> Postoji statistički značajna razlika u koordinaciji kretanja celog tela (poligon natraške – MPOLIGO). H<sub>1,3</sub> Postoji statistički značajna razlika u sposobnosti istovremene realizacije motoričkih struktura ekstremitetima (puzanje sa loptom – MPUZ).

### Metode

Istraživanjem je obuhvaćen uzorak deca predškolskog uzrasta starosti šest godina ( $\pm$  šest meseci) iz Kragujevca. Učestvovalo je 30 dečaka i devojčica. Grupu „plesača” i „neplesača” je činilo po 15 ispitanika. U istraživanju su korišćeni testovi koji utvrđuju koordinaciju: školica (MSKOL), poligon natraške (MPOLIGO) i puzanje sa loptom (MPUZ). U cilju utvrđivanja razlika u koordinaciji između „plesača” i „neplesača”, za obradu dobijenih rezultata merenja su korišćeni T-test na univarijantnom nivou i kanonička diskriminativna analiza na multivarijantnom nivou.

### Rezultati sa diskusijom

Rezultati dobijeni T-testom pokazuju da postoji statistički značajna razlika u varijabli školica (MSKOL)  $p=0.000$ , poligon natraške (MPOLIGO)  $p=0.005$  i  $p=0.000$  u puzanju loptom (MPUZ). Primenom diskriminativne analize na multivarijantnom nivou može se primetiti da u celom sistemu primenjenih varijabli koordinacije između „plesača” i „neplesača” postoji statistički značajna razlika ( $p=0.000$ ). Moguće je konstatovati da pokreti koje se koriste u primenjenom plesnom programu, a koji su po svojoj strukturi složeniji i raznovrsniji u odnosu na svakodnevne aktivnosti dece, predstavljaju značajan činiac koji doprinosi koordinacionim sposobnostima dece „plesača”. Koreografске celine koje se u programu primenjuju su različitog sadržaja za svaku plesnu numeru što obogaćuje program i daje značajan doprinos koordinaciji dece „plesača”.

### Zaključak

Na osnovu rezultata istraživanja može se zaključiti da su sve postavljene hipoteze potvrđene. Rezultat takođe može poslužiti kao realna osnova u planiranju i programiranju aktivnosti dece predškolskog uzrasta.

### Literatura

1. De Privitellio S., Marić Ž., i Mijan J. (2006). Razlike u motoričkim sposobnostima djevojčica i dječaka predškolske dobi. U G. Bala (Ur.), *Interdisciplinarna naučna konferencija sa međunarodnim učešćem: Antropološki status i fizička aktivnost dece i omladine (57-65)*. Novi Sad: Fakultet sporta i fizičkog vaspitanja.
2. Kundrat, V. (1979). *Problemi intenziteta opterećenja u fizičkom vežbanju dece u predškolskim ustanovama kao faktor usavršavanja nekih funkcionalnih i motoričkih sposobnosti*. Doktorska disertacija, Beograd: Fakultet fizičke kulture.



## COORDINATION DIFFERENCES BETWEEN PRE-SCHOOL CHILDREN INCLUDED TO REGULAR PHYSICAL ACTIVITIES AND COMPLEMENT DANCING PROGRAM

Jelica Stojanovic Totic

Kragujevac, Serbia

### Introduction

Problem of research are differences in coordination between pre-school children from Kragujevac who attended regular program of physical activities – “non-dancers” and children who had complement dancing program “To play, to sing, to create with dance” – “dancers”. Dancing program lasted three months. Next hypotheses are formulated: H<sub>1</sub> There is statistic significant difference in coordination abilities between children „dancers“ and children „non-dancers“. H<sub>1,1</sub> There is statistic significant difference in ability of performing rhythmic movement structure (skolica – MSKOL). H<sub>1,2</sub> There is statistic significant difference in coordination of whole body (poligon backward – MPOLIGO). H<sub>1,3</sub> There is statistic significant difference in ability of simultaneously realisation of locomotory structures by extremities (creep with ball – MPUZ).

### Methodes

Research included pre-school children, six years old ( $\pm$  six months) from Kragujevac. Thirty boys and girls participated in this research and were divided in two groups of „dancers“ and „non-dancers“. Each group had fifteen respondents. Tests which determine the coordination used in this research are: skolica (MSKOL), poligon backward (MPOLIGO) and creep with ball (MPUZ). Measurement results are processed by T-test (univariate level) and canonical discriminant analysis (multivariate level).

### Results and discussion

Results obtained by T test indicate there was statistic significant difference in variable skolica (MSKOL) which was confirmed by coefficient of statistical significance  $p=0.000$ , poligon backward (MPOLIGO)  $p=0.005$  and  $p=0.000$  in variable creep with ball (MPUZ). Using canonical discriminant analysis whole system of applied variables of coordination can be observed. Coefficient of statistical significance  $p=0.000$  indicate there is statistic significant difference between „dancers“ and „non-dancers“. It can be ascertained that movements which were used in complement dancing program contributed to the coordination of „dancers“. Movements are more complex and varied compared to daily physical activities. Choreographies in complement dancing program are different for each dance song which enriches activity.

### Conclusion

According to the results of this research it can be concluded that all defined hypotheses were confirmed. Also, result can be used as realistic basis in planning and programming activities of pre-school children.

### Literature

1. De Privitellio S., Marić Ž., i Mijan J. (2006). Razlike u motoričkim sposobnostima djevojčica i dječaka predškolske dobi. U G. Bala (Ur.), *Interdisciplinarna naučna konferencija sa međunarodnim učešćem: Antropološki status i fizička aktivnost dece i omladine (57-65)*. Novi Sad: Fakultet sporta i fizičkog vaspitanja.
2. Kundrač, V. (1979). *Problemi intenziteta opterećenja u fizičkom vežbanju dece u predškolskim ustanovama kao faktor usavršavanja nekih funkcionalnih i motoričkih sposobnosti*. Doktorska disertacija, Beograd: Fakultet fizičke kulture.

## **THE PERCEPTION OF SPORT AMONG JUNIOR VOLLEYBALL PLAYERS OF BELGRADE**

**Antonio Saccone**

### **Introduction**

Why do the young participate in sport? What is the perception of sport among sportsmen and sportswomen? In our global society, sport can be considered a multi-faceted phenomenon: different organizations use sport as too to achieve a deeply heterogeneous gamma of goals. My aim is to study the perception of sport among young athletes in Belgrade.

### **Methods**

The research is quantitative, the form measures six concepts: competition, education, fun, health, socialization and participation. Each concept has four items, divided in five batteries, related to game, regular season, training, "champion" and value of sport. The form includes a part related to sport idols. All the Junior volleyball players from Belgrade – season 2008/09 – filled the form.

### **Results and discussion**

According to respondents opinion, education and socialization are very important, health, competition and participation are relevant, fun is relatively important. An healthy lifestyle is the most important benefits of participating in sports. During training it is very important to improve skills and communication. "To play well for the team" is the main quality of the "champion" and it is also the most important aspect during the game. Important goals during the regular season are those of participating in the championship and getting a good position in the final ranking. The main sport-idols are Serbs and males.

### **Conclusion**

Nevertheless sport includes several problematic aspects, the results of the analysis show a good awareness of the social value of sport. The good performance of education, socialization and health clearly show this evidence. These signals seems to be encouraging to promote social inclusion and intercultural dialogue through sport. The good performance of health is encouraging also to spread the sport activity in the society. The decision makers and the policy makers should consider this element in their daily job.

## **THE PERCEPTION OF SPORT AMONG PUPILS OF HIGH SCHOOLS OF CLUJ NAPOCA**

**Antonio Saccone**

### **Introduction**

How the pupils perceive a complex phenomenon as sport? In our global society, sport can be considered a multifaceted phenomenon: different organizations use sport as tool to achieve a deeply heterogeneous gamma of goals. The aim of this research is to show the perception of sport among pupils of high school of Cluj Napoca.

### **Methods**

The research is quantitative, the form measures six concepts: competition, education, fun, health, socialization and participation. Each concept has eight items, divided in nine batteries, related to game, regular season, training, "champion" (X2), value of sport (X2), physical education and to be spectator of sport events. The form includes a part related to sport idols. The respondents are divided in two groups: athletes and non-athletes.

### **Results and discussion**

422 pupils of last year of nine high schools of Cluj Napoca – selected through sampling cluster procedure – filled the form. According to their opinion, health is the main aspect of sport. Education, competition and socialization are important. Participation and fun are less considered. During the game is important "to play well for the team and to help team-mates". The main aspect of training is the skills improvement. Thinking at the regular season, to participate in the championship is very important. Physical education in school is "useful to develop body and mind". While spectators of sport events, the pupils are focused on technical and tactical plans. "The champion" is a winner and the healthy lifestyle is the main benefit of participating in sport. The sport idols are "national sport heroes", "global sport icons" or "number one" in their discipline.

### **Conclusion**

The results show a good awareness of the social value of sport among youth: the pupils, consider health as main benefit of sport. The consideration of health, education and socialization are very interesting elements. The decision makers should consider these elements in their daily work.

## UTICAJ LETNJEG PROGRAMA "ČIGOTICA" NA DECU UZRASTA 12 GODINA

Jelena Ševkušić<sup>1</sup>, Dušan Mitić<sup>2</sup>

<sup>1</sup>Specijalna bolnica "Čigota", Zlatibor, Srbija

<sup>2</sup>Fakultet sporta i fizičkog vaspitanja, Beograd, Srbija

### Uvod

Povećana telesna masa najčešće nastaje kao nesklad energetske unosa i energetske potrošnje. Nekretanje u dečjem uzrastu pokazuje ozbiljne probleme, jer deca koja se ne bave fizičkim aktivnostima imaju veći rizik da postanu gojazna. Deca sa povećanom telesnom masom preko 97 percentila, uzrasta od 12–18 godina, na osnovu procene lekarske komisije, borave na programu tri nedelje o trošku Zdravstvenog fonda Srbije, podvrgnuti smanjenom kalorijskom unosu i povećanim fizičkim aktivnostima.

**Cilj** ovog istraživanja je da utvrdimo promene telesne kompozicije i fizičkih sposobnosti kod dece od 12 godina posle tronedelnog programa u specijalnoj bolnici Čigota na Zlatiboru.

### Metode

Primenjen je eksperimentalni metod bez kontrolne grupe. U istraživanju je učestvovalo 45 dece oba pola uzrasta 12 god, sa BMI preko 25 kg/m<sup>2</sup>. Svi polaznici su bili na programu redukovane ishrane od 1500cal i povećanim fizičkim aktivnostima (tri puta dnevno po 45 min). Aktivnosti su dozirane (umereni intezitet) i sastoje se od šetnji, vežbi u bazenu, sportskih igara, vežbi u sali. Pre i po završetku dvadesetjednodnevnog programa utvrđuje se telesna kompozicija (vaga Inbody 230, santimetarska pantljička) i fizičke sposobnosti (EUROFIT testovi za decu). Pored deskriptivne analize razlike su testirane studentovim t-testom.

### Rezultati sa diskusijom

Svi parametri antropometrijskog merenja pokazali su promene u smislu smanjenja vrednosti sa inicijalnog merenja. Telesna masa smanjena je prosečno za 5,39 kg, BMI je smanjen za 2,1 sa 29,14 na 27,04 a količina masti merena metodom BIM smanjena je za 1,42%. Program redukovane ishrane uz povećanu fizičku aktivnost je najviše uticao na smanjivanje obima struka za 7,22 cm, kukova za 5,43 cm i obima grudnog koša za 4,75 cm.

Rezultati fizičkih sposobnosti takođe ukazuju na promene u smislu poboljšanja u odnosu na inicijalno merenje. Na Shuttle run testu ispitanici su popravili rezultat za skoro 70 sekundi, povećali su repetitivnu snagu trbušnog zida za skoro četiri trbušnjaka, rezultat na testu duboki pretklon za više od tri santimetra, skok udalj za 5,5cm i u visu u zgibu poboljšali snagu ramenog pojasa za više od dve sekunde. Primenjeni program povećane fizičke aktivnosti uz redukovanu ishranu radi regulisanja telesne mase kod 12-godišnjaka pokazao je značajne rezultate kako u telesnoj kompoziciji, tako i u fizičkim sposobnostima ispitanika.

### Zaključak

Tronedeljni program povećane fizičke aktivnosti uz smanjeni unos kalorija postižu se statistički značajne razlike kod telesne kompozicije i fizičkih sposobnosti dece uzrasta 12 godina.

### Literatura

Goran MI, Reynolds KD, Linquist CH (1999). Role of physical activity in the prevention of obesity in children. *Int J Obes*; 23:S18-33.

Ševkušić J (2010). Efikasnost letnjeg i zimskog modela fizičkih aktivnosti u redukciji telesne mase kod gojazne dece u programu „Čigotica”, (projekat doktorske disertacije) Beograd

Kimm SY, Obarzanek E (2002). "Childhood obesity: a new pandemic of the new millennium". *Pediatrics* 110 (5):1003–7.

Zaciorski, V.M., (1975) Fizička svojstva sportiste; Savez za fizičku kulturu Jugoslavije, Beograd

## EFFECT OF SUMMER PROGRAMME, “CIGOTICA” ON 12 YEARS OLD CHILDREN

Jelena Ševkušić<sup>1</sup>, Dušan Mitić<sup>2</sup>

<sup>1</sup> Specialists Hospital “Čigota”, Zlatibor, Serbia

<sup>2</sup> Faculty for Sports and Physical Education, Belgrade, Serbia

### Introduction

Increased body weight often is the result of unbalanced energy intake and energy consumption. Lack of activities during child's growing results in serious problems, because the children who don't participate in physical activities have greater risk in becoming overweight. Children with increased body mass over 97 percentiles, 12-18 years old, based on the assessment of medical committee, re entered into a programme over a of three weeks the expense of The Fund Health Serbia, and are put on a diet food with reduced calorie intake and increased physical activities. The aim of this research is to establish the change in their body weight and physical abilities, in our case, shown below, for 12 years old children after three weeks programme in The Special hospital “Čigota” on Zlatibor.

### Method

The experimeted metod was applied without control group. Before and after the twenty-one day programme body composition is measured (scales “Inbody 230” and decimal tape), as well as physical abilities (EUROFIT- tests for children). Beside descriptive analysis the differences were tested by student's t-test. In this research 45 children have participated of both sexes and were all 12 years old, who had BMI over 25 kg/m<sup>2</sup>. All participants are subjected to a diet food of 1500 kcal and increased physical activities (three times a day of 45 min.). The activities are carefully worked out to be of moderate intensity and are composed of walks, exercises in the swimming pool, ground exercises, as well as sports and plays. Before and after the twenty-one day programme body composition is measured (scales “Inbody 230” and decimal tape), as well as physical abilities (EUROFIT- tests for children). Beside descriptive analysis the differences were tested by student's t-test.

### Results

All anthropometrical parameters measured have shown changes in the direction of decrease of values of the initial measurements. Body mass was lower for 5,39 kg, BMI was lower for 2,1 (29,14 - 27,04 ), % fat was lower for 1,42%. Programme a diet food and increased physical activities was mostly influenced by the reduction of waist circumference for 7,22 cm, hips for 5,43 cm end chest for 4,75 cm.

The results obtained for physical abilities also show the improvements in relation to the initial measurements. To Shuttle run test the improved result for 70 sec, Sit-Ups in 30 seconds the improved result almost 4 times, Sit-and-Reach more for 3cm, long jump for 5,5cm, and Bent Arm Hang for 2,28sec. This, introduced, programme for regulation of body mass of 12 year old children has proven to be successful in achieving a significant improvement in body composition, as well as physical abilities of the participants.

### Conclusion

Three weeks programme with the reduced calories intake in food and increased physical activities a considerable results anthropometrical parameters and physical abilities 12 year old children.

### References

- Goran MI, Reynolds KD, Linqvist CH (1999). Role of physical activity in the prevention of obesity in children. *Int J Obes*; 23:S18-33.
- Ševkušić J (2010). Efikasnost letnjeg i zimskog modela fizičkih aktivnosti u redukciji elesne mase kod gojazne dece u programu „Čigotica”, (projekat doktorske disetacije) Beograd
- Kimm SY, Obarzanek E (2002). "Childhood obesity: a new pandemic of the new millennium". *Pediatrics* 110 (5):1003–7.
- Zaciorski, V.M., (1975) Fizička svojstva sportiste; Savez za fizičku kulturu Jugoslavije, Beograd

## **OPTIMALIZACIJA PROGRAMA OBUKE U KARATEU KOD DECE MLAĐEG ŠKOLSKOG UZRASTA**

**Srećko Jovanović, Miloš Mudrić, Marko Ćirković, Srđan Jovović**

Fakultet sporta i fizičkog vaspitanja, Beograd, Srbija

### **Uvod**

Pojava velikog interesovanja dece za karate verovatno proističe iz primamljivosti ovog sporta kao trenažnog sadržaja. U vezi sa tim, karate je možda najpozitivniji primer jednog takvog sporta, koji ima ubedljivo najširu takmičarsku bazu u populaciji dece mlađeg školskog uzrasta. Sa druge strane, sadržaj i metode učenja i treninga u karateu danas još uvek nisu bitno promenjeni u odnosu na klasični model obuke, koji više odgovara polaznicima starijih uzrasta. Jasno je, dakle, da postoje višestruki stručni razlozi za koncipiranje novog metodičkog pristupa u obuci dece u karateu koji uvažava karakteristike psihofizičkog razvoja polaznika ovog izuzetno osetljivog uzrasta.

### **Metode**

U radu je primenjen metod teorijske analize rezultata dobijenih u stručnim i istraživačkim radovima, koji su tretirali problematiku tehničko-taktičke obuke u karateu. Pored metode teorijske analize, u radu su korišćeni rezultati eksperimentalnog praćenja efekata inovacionog pristupa u obuci dece u karateu.

### **Rezultati i diskusija**

Programom obuke obuhvaćena su deca od I do V razreda osnovne škole. Svaka godina ima poseban program sa jasno definisanim ciljem i sadržajem obuke, u skladu sa uzrasnim karakteristikama dece. Na kraju svakog ciklusa obuke u trajanju od jedne školske godine, predložen je inovirani program za proveru efekata učenja (ispitni program) za odgovarajući nivo, koja je po ciljevima i sadržajima usklađena sa inoviranim programom učenja. Kao deo inoviranog programa, za svaki ciklus obuke predviđen je i odgovarajući program takmičenja. Ovaj program je posebno važan, jer u praksi danas susrećemo veoma česte pojave da se deca u ranim uzrastima uključuju u preterano veliki broj takmičenja u toku jedne godine, a da pri tom njihovo znanje i sposobnost nisu u skladu sa zahtevima takmičenja.

### **Zaključci**

Optimalizacija programa obuke zasniva na pretpostavci da je krajnji cilj edukativnog procesa u savremenom karateu sticanje tehničke osnove i svih drugih oblika pripremljenosti za ostvarivanje takmičarskih rezultata u ovom sportu. Pri tom, program obuke mora biti prilagođen uzrasnim karakteristikama sportista i programu takmičenja za aktuelni uzrast.

### **Literatura**

- Jovanović, S., Ćirković, Z., Kasum, G. (2001): Savremene tendencije u borilačkim sportovima, Godišnjak, FFK, Beograd, 67-73.  
Mudrić, M. (2007): Inovacija programa obuke dece u karateu, Diplomski rad, FSFV, Beograd.

**Ključne reči:** sport, karate, obuka, mlađi školski uzrast

## OPTIMALIZATION OF KARATE TRAINING PROGRAM IN JUNIOR ELEMENTARY SCHOOL CHILDREN

Srećko Jovanović, Miloš Mudrić, Marko Ćirković, Srđan Jovović

Faculty of Sport and Physical Education, University of Belgrade, Belgrade, Republic of Serbia

### Introduction

The advent of significant interest of children in karate probably comes from this sport being an attractive training activity. In relation to that, karate is perhaps the most positive example of such a sport, which has by far the broadest competitive base within junior elementary school children. On the other hand, the content and methods of learning karate today have still not undergone significant changes when compared to the classical method of training more fitting for older age group trainees. It is therefore clear, that there are multiple expert reasons for configuring a new methodical approach in training children in karate, a method that will accommodate all the characteristics of mental and physical development of trainees of this extremely sensitive age group.

### Methods

In practice we have applied a method of theoretical analysis of results attained from expert and research papers which dealt with the subject of technical-tactical training in karate. In addition to the method of theoretical analysis, we have also used results of experimental observation of effects of an innovated approach in training children in karate.

### Results and discussion

In the training program, we have included elementary school children enrolled in 1st through to 5th grade. Each grade has a separate program with clearly defined goals and training content, in accordance with age characteristics of the children. At the end of each cycle of training, corresponding to a school year, we have suggested an innovated program for evaluating effects of training (a program of testing) for the appropriate level, which is, in its objectives and content, harmonized with the innovated program of training. As part of the innovated program, we have also planned an appropriate program of competition. This program bears special importance, as we have very often experienced in practice that children of an early age engage in an excessively large number of competitions during a single year, while at the same time their proficiency and ability do not conform to the requirements of competition.

### Conclusions

Optimization of the training program is based on the assumption that the end goal of the educational process in modern day karate is the acquiring of a technical basis and all other forms of preparedness to achieve competitive results in this sport. In doing so, the training program must be adjusted to age characteristics and the competition program for the age group in question.

**Key words:** sport, karate, training, junior elementary school age group

### References

- Jovanović, S., Ćirković, Z., Kasum, G. (2001): Savremene tendencije u borilačkim sportovima, Godišnjak, FFK, Beograd, 67-73.  
Mudrić, M. (2007): Inovacija programa obuke dece u karateu, Diplomski rad, FSFV, Beograd.

# FAKTORSKA ANALIZA INDIKATORA PRIPREMLJENOSTI VRHUNSKIH BIKIKLISTA TESTIRANIH U LABORATORIJSKIM USLOVIMA PRIMENOM SPECIFIČNOG TESTA

Radoje Milić<sup>1</sup>, Milivoj Dopsaj<sup>2</sup>

<sup>1</sup>Fakultet za sport Univerziteta u Ljubljani, Ljubljana, Slovenija.

<sup>2</sup>Fakultet sporta i fizičkog vaspitanja Univerziteta u Beogradu, Beograd, Srbija.

## Uvod

U odnosu na proceduru utvrđivanja pripremljenosti biciklista metod laboratorijskog testiranja pripada kategoriji najčešće korišćenih, odnosno standardnih procedura merenja. Savermene tehničko-tehnološke mogućnosti bicikl ergometara kao mernih instrumenata pružaju mogućnosti dobijanja velikog broja podataka i parametara o stanju razvijenosti nekog fizičkog svojstva ili funkcionalne sposobnosti testiranog bicikliste, što sve upotpunjuje informativnu složenost praćenih parametara. Cilj ovog rada je da utvrdi koji indikator o pripremljenosti biciklista sadrži najreprezentativnije informacije o merenom svojstvu da bi se metodološki koristio kao kriterijum procene nivoa radne pripremljenosti vrhunskih biciklista a u funkciji datog testa.

## Metode

Istraživanje je imalo retrospektivni karakter. Rezultati su preuzeti iz ličnih kartona 76 vrhunskih biciklista R Slovenije (Uzrast:  $21.8 \pm 4.2$  godine, Trenažni staž:  $8.8 \pm 3.9$  godine) koji su testirani u Laboratorija za fiziologiju sporta, Instituta za sport, Fakulteta sporta, Univerziteta u Ljubljani u okviru redovne procedure provere nivoa utreniranosti u periodu od 2005 do 2009. godine. Ispitanici su testirani primenom protokola „Stepenasto linearno rastućeg opterećenja na specijalno pripremljenom bicikl ergometru”, gde je početno opterećenje bilo 150 W i povećavalo se linearno za po 20W po minutu do otkaza. Definisano je devet Indikatora pripremljenosti i to: Dostignuti maksimalni nivo vati na testu u odnosu na apsolutnu (W), relativnu (W/kg), LBM (W/kg LBM) i alometrijsku vrednost ( $W/kg^{0.667}$ ). Indeks Performanse u odnosu na apsolutna, relativnu, LBM i alometrijsku vrednost, i dostignuti nivo maksimalne potrošnje kiseonika na testu. Svi podaci su analizirani primenom konfirmativne faktorske analize.

## Rezultati i Diskusija

Rezultati su pokazali da je na prvom faktoru izdvojeno 66.52% kumulativno objašnjene varijanse. Indikator koji u sebi sadrži najreprezentativnije informacije o pripremljenosti biciklista testiranih datim testom (jednokratno naprezanje do otkaza) je vrednost dostignutog maksimalnog nivoa vati na testu percijalizovana alometrijskom metodom, odnosno podatak koliko vati po kilogramu telesne mase alometrijski parcijalizovane biciklista može da realizuje ( $27.12 \pm 2.51 W/kg^{0.667}$ ), sa nivoom saturacije od 0.95 na prvi izdvojeni faktor. Najniži informativni nivo pripremljenosti je imala varijabla nivo maksimalne potrošnje kiseonika ostvarena na testu ( $71.23 \pm 4.64 ml/min/kg$ ), sa nivoom saturacije od 0.27 na prvi izdvojeni faktor.

## Zaključak

Na osnovu dobijenih rezultata može se zaključiti da najviše informacija o pripremljenosti u odnosu na tip tesiranja po modelu jednokratnog linearno rastućeg opterećenja do otkaza na specijalno pripremljenom bicikl ergometru nosi indikator vrednosti dostignutog maksimalnog nivoa vati na testu percijalizovan alometrijskom metodom. Dati indikator je potrebno uključiti kao dominantni kriterijum u odnosu na objašnjenje rezultata testiranja kod ispitivane populaciju a u funkciji primenjenog testa.

## Reference

Dopsaj, M. Nikolić, B., Mazić, S., Zlatković, J. (2010). Profil pripremljenosti biciklista juniorskog uzrasta određen primenom Leipzig testa. Acta Medica Medianae. 49(3), 32-39.



## **FIZIČKOM AKTIVNOŠĆU PROTIV HIV VIRUSA, RAKA DOJKE I PROSTATE: UVIDI NA OSNOVU MOLEKULARNOG MEHNIZMA POVEZANOG SA VAZOAKTIVNIM INTESTINALNIM PEPTIDOM (VIP)**

**Nevena Veljković**

Centar za multidisciplinarna istraživanja, Institut za nuklearne nauke VINČA, Beograd, Republika Srbija

Prirodna autoantitela koja reaguju sa neimunogenim domenom C-terminusa druge konzervirane regije HIV-1 gp120 (peptid NTM) i homolognim humanim Vazoaktivnim intestinalnim peptidom identifikovana su u serumima HIV-om inficiranih osoba. Prevalenca ovih antitela je značajno viša kod asimptomatskih HIV-inficiranih nego kod obolelih od SIDE i kod neprogresivne infekcije nego kod progresivirajuće bolesnih. Takodje smo pokazali da titar ovih antitela negativno korelira sa progresijom bolesti. S druge strane, Rakowicz-Szulczynska i kolege su izvestile da se u 95% slučajeva raka dojke i prostate na površini kancer ćelije eksprimira tumor antigen čija je sekvenca homologna sa HIV-1 gp120. Kod ovih pacijenata slično kao i kod HIV-inficiranih prisustvo VIP/NTM-reaktivnih autoantitela može da predstavlja pozitivan marker zahvaljujući njihovom potencijalu da uklone ćelije raka iz cirkulacije. Nedavno je pokazano da je titar ovih antitela visok kod vrhunskih sportista koji se bave različitim vrstama sportskih aktivnosti, što pokazuje da aerobno vežbanje stimuliše produkciju VIP/NTM-reaktivnih autoantitela. Globalno posmatrano ovi podaci ukazuju da aerobno fizičko vežbanje može biti dostupna, netoksična dodatna terapija za HIV infekciju i rak dojke i prostate.

## **PHYSICAL ACTIVITY AGAINST HIV DISEASE, BREAST AND PROSTATE CANCER: INSIGHTS FROM THE VASOACTIVE INTESTINAL PEPTIDE (VIP) BASED MOLECULAR MECHANISM**

**Nevena Veljkovic**

Center for multidisciplinary research, Institute of nuclear sciences VINCA, Belgrade, Serbia

In sera of HIV-infected individuals natural antibodies recognizing the nonimmunogenic C-terminal domain of the second conserved region of HIV-1 gp120 (NTM peptide) and the vasoactive intestinal peptide (VIP) were identified. These natural autoantibodies are significantly more prevalent in asymptomatic carriers than in AIDS patients and in long-term-non-progressors than in HIV progressors. We have also shown that their titer negatively correlates with disease progression. In addition, Rakowicz-Szulczynska and colleagues have reported that 95% of breast cancer and prostate cancer cases express on the cell surface the HIV-1 gp120-like tumor antigen. For these cancer patients similarly as for HIV-infected individuals the presence of VIP/NTM-reactive autoantibodies in circulation can be a positive marker due to potential ability of these antibodies to remove cancer cells. Recently, we have shown that sera from well-trained athletic (HIV-negative) subjects involved in various sports have a high titre of these autoantibodies confirming that aerobic training stimulates their production. Taken together these data suggest aerobic physical exercise as a promising and widely accessible non-toxic supportive approach against HIV disease and breast and prostate cancer.

## EVALUACIJA YO-YO INTERMITENTNOG TESTA OPORAVKA: PILOT STUDIJA

**Uroš Jojić, Predrag Božić**

Republički zavod za sport, Beograd, Srbija

### Uvod

Yo-Yo intermitentni test oporavka 1 (Yo-YoITO1) je široko zastupljen test za procenu sposobnosti vršenja intermitentne aktivnosti aerobno-anaerobnog karaktera (Bangsbo i sar., 2008). Međutim, izvođenje maksimalne verzije Yo-YoITO1 nije adekvatno za pojedine osobe (stariji ili povređeni), a ponekad, deluje demotivujuće na sportiste kada se izvodi često ili pred takmičenja (Krustrup i sar., 2003). Cilj ove studije se odnosi na evaluaciju submaksimalne verzije Yo-YoITO1 kroz ispitivanje pouzdanosti i validnosti frekvencije srca dobijene na više submaksimalnih nivoa.

### Metode

Deset fizički aktivnih ispitanika su bili familijarizovani i testirani u dve odvojene sesije. Tokom eksperimentalnih sesija je merena frekvencija srca, a varijable koje su uzete za analizu bile su: vrednost maksimalne pretrčane distance, vrednost frekvencije srca (FS) na pretrčanim 520 i 1000m, na vremenskim intervalima od 50%, 60%, 70%, 80%, 90% u odnosu na krajnje postignuto vreme, vrednost FS na kraju testa i FS tokom oporavka (nakon 1min, 2min, 3min, 4min i 5min). Vrednosti FS posle pretrčanih 520 i 1000m izražena u procentu od maksimalne FS uzete su za procenu validnosti testa.

### Rezultati sa diskusijom

Sve izabrane varijable submaksimalnog Yo-YoITO1 su pokazale visoku test-retest pouzdanost ( $r=0,81-0,96$ ). Odgovarajući koeficijent varijacije bio je u intervalu  $CV=1,2-4,0\%$ . Frekvencija srca posle pretrčanih 500 i 1000m, izražena u procentu od maksimalne, pokazala je značajnu inverznu korelaciju sa maksimalnom pretrčanom distancom u Yo-YoITO1 ( $r=-0,73$ , odnosno  $r=-0,77$ ).

### Zaključak

Rezultati ove studije su pokazali visoku pouzdanost i prihvatljivu validnost frekvencije srca dobijene na submaksimalnim nivoima Yo-YoITO1. Na osnovu ovih nalaza preporučuje se korišćenje submaksimalne verzije Yo-YoITO1 za testiranje mnogih populacija (dece, starijih, povređenih). Praktični značaj dobijenih rezultata u vrhunskom sportu se ogleda u tome što se test može primeniti više puta tokom mezociklusa jer ovakvo testiranje ne izaziva značajan zamor. Buduća istraživanja bi trebala da ispitaju pouzdanost, senzitivnost i validnost i drugih fizioloških varijabli tokom izvođenja submaksimalnog Yo-YoITO1.

### Literatura

Bangsbo J, Iai FM i Krustrup P (2008). The yo-yo intermittent recovery test: a useful tool for evaluation of physical performance in intermittent sports. *Sports Med* 38 (1): 37-51  
Krustrup P i sar. (2008). The yo-yo intermittent recovery test: physiological response, reliability, and validity. *Med Sci Sports Exerc* 35(4): 697-705.

## EVALUATION OF YO-YO INTERMITTENT RECOVERY TEST: PILOT STUDY

**Uroš Jojić, Predrag Božić**

Serbian institute of sport, Belgrade, Serbia

### Introduction

Yo-Yo intermittent recovery test 1 (Yo-YoIRT1) has been widely used test for evaluation individual's capacity to perform repeated intense exercise with activation of the aerobic and anaerobic systems (Bangsbo et al., 2008). However, some individuals (e.g. elderly people and injured athletes during rehabilitation) may not be able to complete a Yo-YoIRT1 test. In addition, motivation of some athletes could be reduced during frequent using of the Yo-YoIRT1 or using it before competitions (Krustrup et al., 2003). Therefore, purpose of this study was to evaluate reliability and validity of the submaximal version of the Yo-YoIRT1.

### Methods

Ten physically active participants were familiarized and tested in two sessions. During experimental sessions were measured heart rate and variables that was taken in analysis were: maximal covered distance, heart rate (HR) at 500 and 1000m, HR at time intervals 50%, 60%, 70%, 80%, 90% of maximal achieved time on the test, HR at the end of the test, HR during recovery (after 1min, 2min, 3min, 4min i 5min). Percentages of HRmax at 500 i 1000m were used for validity assessment.

### Results and Discussion

All used variables were showed high test-retest reliability ( $r = 0,81-0,96$ ). The corresponding within-subject variation (CV) was in range of between 1.2 and 3.5%. Odgovarajući koeficijent varijacije bio je u intervalu  $CV = 1,2-4,0\%$ . Percentages of HRmax at 500 i 1000m showed significant inverse correlation with maximal covered distance in Yo-Yo IRT1 ( $r = -0,73$ ,  $r = -0,77$ , respectively).

### Conclusion

Results of the present study showed high reproducibility and acceptable validity of heart rate obtained at submaximal levels of the Yo-YoIRT1. On the basis of obtained results it could be recommended using of the test for testing various populations (e.g. children, elderly and injured persons). Particularly, significance of using of the submaximal Yo-YoIRT1 could be found in elite sport where athletes could be frequently tested with minimal effect of fatigue. Future research should reveal reliability, sensitivity and validity of other physiological variables obtained at submaximal levels of the Yo-YoIRT1.

### Literature

Bangsbo J, Iaia FM and Krustrup P (2008). The Yo-Yo Intermittent Recovery Test: A Useful Tool for Evaluation of Physical Performance in Intermittent Sports. *Sports Med* 38 (1): 37-51

Krustrup P et al. (2003). The Yo-Yo Intermittent Recovery Test: Physiological Response, Reliability, and Validity. *Med Sci Sports Exerc* 35(4): 697-705.

## **РАЦИОНАЛНИ ОДНОС РАЗЛИЧИТИХ СРЕДСТАВА ОПШТЕ ФИЗИЧКЕ ПРИПРЕМЕ ЖЕНА 40-55 ГОДИНА**

**Гасанова-Матвејева Земфира Арифовна**

Руски државни универзитет физичке културе, спорта, омладине и туризма, катедра Теоријско-методичких основа физичке културе и спорта (ТМОФКиС), Москва, Русија

### **Увод**

Општепознато је да физичка култура у животу одраслих особа, посебно жена, много зависи од разраде методике систематског тренирања. Један од основних проблема је одређивање рационалног односа различитих средстава тренинга.

У овом раду су приказани основни подаци добијени истраживањем оптималног односа различитих средстава опште физичке припреме жена зрелог узраста (40-55 година).

### **Методи истраживања**

У раду су коришћени следећи истраживачки методи: интервјуисање, анкетање, статистичка анализа.

За добијање основних података о саставу најраспрострањенијих и најпопуларнијих средстава опште физичке припреме жена зрелог узраста, спроведено је анкетање. На посебно сачињену анкету одговарале су жене које вежбају (N=381) и стручњаци који са њима раде (N=42).

### **Резултати и дискусија**

Најинтересантнији су били одговори стручњака који су морали да одреде, по свом мишљењу, оптималан однос средстава ОФП у годишњем циклусу, уважавајући годишња доба.

Стручњаци су највише, око 40% времена, одвојили на општеразвојне гимнастичке вежбе, а на трчање и игре по 29% и 27%. Гимнастику највише примењују у јесен (45,4% од укупног времена). Зими, у условима хладног ваздуха, стручњаци препоручују да се 20% времена посвети кретању на смучкама, док се трчање у односу на јесењи део смањује за 10%. У пролеће, са повећањем температуре ваздуха највише времена се посвећује трчању (43%) и играма (око 32% времена). Лети се подједнако распоређује време на гимнастику и трчање (по 36%) а нешто мање на игре (око 29%).

### **Закључак**

Добијени резултати указују на неопходност комплексног коришћења разноврсних средстава за оптимализацију физичког стања одраслих (40-55 година) који се у свом редовном послу не крећу. У садржају вежбања одраслих жена целисходно је примењивати минимално три групе средстава: гимнастичка, средства цикличне локомоције умереног и променљивог интензитета и елементарне и спортске игре.

## **RATIONAL RELATIONSHIP BETWEEN THE VARIOUS MEANS OF GENERAL PHYSICAL PREPARATION OF WOMEN BETWEEN 40-55 YEARS OF AGE**

**Ghassan-Matvei Zemfira Arifovna**

Russian State University of Physical Culture, Sport, Youth and Tourism, Department of Theoretical and methodological basis of physical education and sport (ТМОВКиС), Moscow, Russia.

### **Introduction**

It is well known that physical education in lives of adults, especially women, much depends on the elaboration of methodology of systematic training. One of the main problems is determination of rational relations of a different training means. This paper presents the basic data obtained by a research of optimal ratio between different means of general physical preparation of a mature age women (40-55 years).

### **Methods**

This paper contains following methods of a research: interviews, surveys, statistical analysis. The survey is conducted to obtain basic data on the composition of the most common and popular means of general physical preparation of a mature age women. Specially composed survey was answered by women that are working out (N = 381) and professionals who worked with them (N = 42).

### **Results and discussion**

The most interesting were the responses of experts who had to determine, in their own opinion, the optimal ratio of means of general physical preparation in the annual cycle, taking into account the seasons.

Experts spent most of their time, about 40%, taking the general (multilateral), non-specific gymnastic exercises, and 29% and 27% on running and games, respectively. Gymnastics mostly applied in the fall (45.4% of the time). In winter, in conditions of cold air, experts recommend that 20% of the time devoted to the recreational Nordic skiing, while running compared to the fall is reduced by 10%. In the spring, with the increase in air temperature most of the time is dedicated to running (43%) and games (about 32% of the time). In the summer, time is equally distributed between gymnastics and running (at 36%) and less on the games (about 29%).

### **Conclusion**

The results indicate the necessity of complex use of various means of optimizing the physical condition of adults (40-55 years) that are not able to move a lot while doing their daily job. The content of training of adult women is appropriate to apply a minimum of three groups of means: gymnastic, means cyclic locomotion with moderate and variable intensity, and elemental and sports games.

## UTICAJ ODBOJKAŠKOG TRENINGA NA PROMENE OPŠTIH I SPECIFIČNIH SPOSOBNOSTI KOD DEVOJČICA, POLAZNICA ŠKOLE ODBOJKE "DESANKA MAKSIMOVIĆ - BEOGRAD"

Janković, Suzana<sup>1</sup>, Nešić, Goran<sup>2</sup>, Sikimić, Milan<sup>2</sup>, Gortsila, Evgenia<sup>3</sup>

<sup>1</sup>-Diplomirani profesor fizičkog vaspitanja i sporta - master

<sup>2</sup>-Fakultet sporta i fizičkog vaspitanja, Univerziteta u Beogradu

<sup>3</sup>-National and Kapodistrian University of Athens, Department of physical education and sport science

### Uvod

Predmet istraživanja je uticaj primenjenog modela odbojkaškog treninga na promene opštih motoričkih i specifičnih motoričkih sposobnosti kod devojčica - polaznica škole odbojke. Cilj istraživanja je da se utvrdi i prikaže uticaj primenjenog modela odbojkaškog treninga na promene opštih i specifičnih sposobnosti kod devojčica - polaznica škole odbojke. Na osnovu predmeta i cilja istraživanja, proizilaze sledeći zadaci rada: da se uspostavi stalni uvid u fizički razvoj i fizičke sposobnosti dece; da se na osnovu objektivnog uvida prate promene, programira i usmerava rad i preduzimaju druge mere za unapređenje i plansko usmeravanje treninga; da se na bazi objektivnih pokazatelja, koji se ovim putem obezbeđuju, stvore osnovni uslovi za individualizaciju i intenzifikaciju treninga; da se uz pomoć objektivnih kriterijuma sistematski vrši evidentiranje dece koja pokazuju izuzetne sklonosti za odbojku i time pristupi uvođenju predselekcije za vrhunska sportska dostignuća, kao preduslov opredeljivanja dece za prijem u sportske klubove.

### Metod

Uzorak ispitanika su predstavljale učenice šestog i semog razreda osnovne škole, polaznice škole odbojke "Desanka Maksimović". Testiranje je izvršeno u školskoj sali, primenom metode test – retest, gde je pauza između 2 pokušaja trajala 1 minut. Bolji rezultat u svakom testu je predstavljao i finalni rezultat datog testa. Ispitivanje je izvršeno baterijom testova: tri testa opšte motorike i tri testa specifične motorike.

### Rezultati i diskusija

U radu je korišćena MANOVA. Na osnovu dobijenih rezultata može se zaključiti da postoji generalna statistički značajna razlika u odnosu na primenjenu bateriju testova u funkciji merenja i to na nivou Wilks' Lambda testa 0,613 ( $f = 3,475$ ;  $p = ,009$ ). U odnosu na pojedinačne varijable sa aspekta testova opšte motorike statistički značajna razlika je utvrđena kod skoka u dalj, kao i kod svih testova specifične motorike.

### Zaključak

Rezultati pokazuju da je primenjeni model odbojkaškog treninga dominantno uticao na specifičnu motoriku u odnosu na opštu. Dati rezultati govore u prilog uticaja primenjenog modela odbojkaškog treninga na edukativnu komponentu, nasuprot razvojne sa aspekta fizičkih sposobnosti, što se poklapa sa postojećom teorijom metodike obučavanja.

### Literatura

- Ivanić, S. (1988). *Kriterijumi za procenu fizičkog razvoja i fizičkih sposobnosti dece i omladine uzrasta od 7 – 19 godina (normativi)*. Gradska samoupravna interesna zajednica fizičke kulture Beograda. Beograd.
- Jankovic, V. , Marelić, N. (1995). *Odbojka*. Fakultet fizičke kulture. Zagreb.
- Kurelić, N. , Momirović, K. , Stojanović, M. , Šturm, J. , Radojević, Đ. , Viskić – Štalec, N. (1975). *Struktura i razvoj morfoloških i motoričkih dimenzija omladine*. Institut za naučna istraživanja Fakulteta za fizičko vaspitanje. Beograd.
- Nešić, G. (2001). *Osnovi antropomotorike*. Standard 2. Sportska akademija. Beograd.
- Stojanović, T. , Kostić, R. , Nešić, G. (2005). *Odbojka*. Fakultet fizičkog vaspitanja i sporta. Banja Luka.
- Tomić, D. (1976). *100 treninga odbojke*. NIP Partizan, Beograd.
- Tomić, D. (1982). *Odbojkaški praktikum*. NIP Partizan. Beograd.

## THE INFLUENCE OF VOLLEYBALL TRAINING ON THE CHANGES OF GENERAL AND SPECIFIC ABILITIES IN GIRLS, PARTICIPANTS OF VOLLEYBALL SCHOOL “DESANKA MAKSIMOVIC “- BELGRADE

Janković, Suzana<sup>1</sup>, Nešić, Goran<sup>2</sup>, Sikimić, Milan<sup>2</sup>, Gortsila, Evgenia<sup>3</sup>

<sup>1</sup>-A professor of Physical Education and Sport - master

<sup>2</sup>-Faculty of Sport and Physical Education, University of Belgrade

<sup>3</sup>-National and Kapodistrian University of Athens, Department of physical education and sport science

### Introduction

Topic of the study is the influence of the applied model of volleyball training on changes in general motor and specific motor abilities in girls - student of volleyball school. The study aims to identify and show the effect of the applied model of volleyball training on the changes of general and specific abilities in girls – students at volleyball school. Based on the topic and purpose of research, results are the following work tasks: to establish the permanent access to a physical development and fitness ability of children; based on objective indicators, which are hereby provided, create the basic conditions for the individualization and the intensification of training; with the help of objective criteria systematically recording (results of) children who show great tendency for a volleyball and thus approaches the introduction of pre-selection for the top sports achievements, as a prerequisite for children to participate in sports clubs.

### Method

Respondents in this study were girls who are in sixth and seventh grade of the elementary school, who are also attending volleyball school-“Desanka Maksimovic.” The tests took place at the school’s gym, using a method test-retest, where the break (rest) between two attempts was 1 minute. Better result of each test also represented (was) the final result of that test. The study was conducted of a battery tests: three tests of general motor skills and three tests of specific motor skills.

### Results and Discussion

In the study we used MANOVA. Based on these results we can conclude that a statistically significant difference from the battery of tests applied in the function of measurement at the level of Wilks' Lambda test .613 ( $F = 3.475$ ,  $p = .009$ ). In relation to individual variables in terms of general motor tests statistically significant difference was found in long jump, as with all tests of specific motor skills.

### Conclusion

The results show that the applied model of volleyball training has a dominant influence on the specific motor skills than on the general motor skills. The given results stay in favor of the applied model of volleyball training at an educational component, as opposed to development in terms of physical abilities, which coincides with the existing methods of training theory.

### References

- Ivanić, S. (1988). *Kriterijumi za procenu fizičkog razvoja i fizičkih sposobnosti dece i omladine uzrasta od 7 – 19 godina (normativi.*, Gradska samoupravna interesna zajednica fizičke kulture Beograda. Beograd.
- Jankovic, V. , Marelić, N. (1995). *Odbojka*. Fakultet fizičke kulture. Zagreb.
- Kurelić, N. , Momirović, K. , Stojanović, M. , Šturm, J. , Radojević, Đ. , Viskiće – Štalec, N. (1975). *Struktura i razvoj morfoloških i motoričkih dimenzija omladine*. Institut za naučna istraživanja Fakulteta za fizičko vaspitanje. Beograd.
- Nešić, G. (2001). *Osnovi antropomotorike*. Standard 2. Sportska akademija. Beograd.
- Stojanović, T. , Kostić, R. , Nešić, G. (2005). *Odbojka*. Fakultet fizičkog vaspitanja i sporta. Banja Luka.
- Tomić, D. (1976). *100 treninga odbojke*. NIP Partizan, Beograd.
- Tomić, D. (1982). *Odbojkaški praktikum*. NIP Partizan. Beograd.

## МЕРЕЊЕ СРЧАНОГ ОДГОВОРА НАКОН ТРЕНАЖНОГ И ТАКМИЧАРСКОГ ОПТЕРЕЋЕЊЕ КОД БОРАЦА У САВАТЕУ

Дејан Гавриловић<sup>1</sup>, Милош Мудрић<sup>2</sup>, Марко Ћирковић<sup>2</sup>

<sup>1</sup> проф. физ. кул., Школа за бродарство, бродоградњу и хидроградњу, Београд

<sup>2</sup> студент докторских студија на ФСФВ, Београд

### Увод

Савате је борилачки спорт где су правилима дозвољени ударци стопалима и песницама. Ручне технике су сличне боксерским с тим што је забрањен клинч, док се ножни и ударци изводе искључиво стопалима тј. са одређене дистанце. Као и у сваком борилачком спорту, велику важност за адекватну такмичарску припремљеност борца имају припремне вежбе. У односу на њихово планирање, оне се морају конципирати у односу на два основна аспекта: 1) аспект моторичке структуре вежбе, 2) аспект функционалног оптерећења. Циљ овог рада је да упореди реакцију борца у односу на три различите ситуације: 1) срчана реакција након оптерећења на справи; 2) срчана реакција након спаринг борбе; 3) срчана реакција у ситуационим условима – такмичењу.

### Метод

У истраживању је укупно учествовало 8 савате бораца сениорског узраста, националног такмичарског нивоа. Испитаници су тестирани применом методе моделског оптерећења и то: 1) први задатак се састојао од рада на справи – цаку (Тест 1) са задатком извођења два ручна и једног ножно ударца на сваких 5 с, у трајању од 2 рунде по 2 минута, са паузом од 1 минута; 2) други задатак је био спаринг меч (Тест 2) у трајању од 2 рунде по 2 минута, са паузом од 1 минута; 3) трећи задатак је била борба на такмичењу (Тест 3). Критеријска варијабла је била фреквенција срца, мерена непосредно након датих активности, као и непосредно пре почетка наредног задатка/рунде (Тест 1, 2, 3<sub>пауза</sub>). На тај начин је утврђен ниво срчаног одговора након датог оптерећења, као и брзина опоравка у току стандардизоване паузе. Сви резултати су анализирани дескриптивном и компаративном статистиком.

### Резултати

Резултати су показали да је фреквенција пулса након три различита ситуациона оптерећења имала следеће вредности: Тест 1 =  $198.3 \pm 7.5$ ,  $182.3 \pm 11.3$  Уд/мин; Тест 2 =  $180.3 \pm 13.9$ ,  $187.5 \pm 13.5$  Уд/мин, и Тест 3 =  $194.2 \pm 3.4$ ,  $191.5 \pm 3.2$  Уд/мин, у односу на крај прве и друге рунде, респективно. Резултати фреквенције пулса на крају паузе (1 минут) су имале следеће вредности: Тест 1<sub>пауза</sub> =  $125.8 \pm 20.1$ ,  $133.0 \pm 13.1$  Уд/мин; Тест 2<sub>пауза</sub> =  $147.6 \pm 12.1$ ,  $151.0 \pm 15.3$  Уд/мин, и Тест 3<sub>пауза</sub> =  $160.7 \pm 15.8$ ,  $166.3 \pm 6.7$  Уд/мин, у односу на крај паузе након прве и друге рунде, респективно.

### Дискусија и закључак

На основу добијених вредности фреквенције срчаног одговара након три ситуационо различита оптерећења код савате бораца, може се закључити да су највеће фреквенције пулса измерене непосредно након оптерећења измерене у такмичарским условима, па у тренажним условима на справи, па на спарингу (просек 192.8, 190.3, 183.9). док је процент опадања пулса био 15.2 % у такмичарским, 18.8 % након спаринга и 32.0% након вежбе на справи. Обзиром на процентуалну приближност, при стандардизованом опоравку (1 минут), тестова 2 и 3, можемо препоручити упражњавање спаринг мечева (Тест 2) у току припреме бораца за такмичења, како би се адаптирали на оптерећења која су приближна оптерећењима на такмичењу (Тест 3).



## MEASURING OF HART RESPONSE AFTER TRAINING AND COMPETITIVE ACTIVITIES IN SAVATE BOXING FIGHTERS

Dejan Gavrilovic<sup>1</sup>, Milos Mudric<sup>2</sup>, Marko Cirkovic<sup>2</sup>

<sup>1</sup> physical education professor, School for Shipping, Shipbuilding and Hydro building, Belgrade

<sup>2</sup> doctorant at FSFV, Belgrade

### Introduction

Savate boxing is a martial art in which both punches and kicks are allowed by rules. Hand techniques are similar to those of classical boxing, the difference being only that clinch is not allowed, while kicks are performed only by foot, which requires fighting from a certain distance. Like every martial art, savate boxing requires from competitors to be adequately physically prepared, and thus practice a number of performance boosting exercises.

Sorted by their planing structure, the exercises can be divided into two basic types:

- 1.) Exercises that develop motor skills of the competitors
- 2.) Exercises that boost competitor's physical form and his ability to undergo physical exertion.

The purpose of this paper is to compare the physical reaction of a fighter in three different situations:

- a.) Heart response after exercising on a tool - a punching bag. (Test 1)
- b.) Heart response after a sparring fight (Test 2)
- c.) Heart response in real fighting situation - in a competition (Test 3)

### Method

This study included 8 senior savate fighters, members of the National Savate Team. Subjects were tested by method of "model effort". It includes the following:

- 1.) First assignment consisted of exercise on a tool - a punching bag, with the dynamic of 2 punch + 1 kick series on every 5 seconds. Each subject repeated the exercise during 2 two-minute rounds, with 1 minute rest at the end of a round. (Test 1)
- 2.) Second assignment consisted of a sparring match lasting 2 two-minute rounds, with a 1 minute rest at the end of a round. (Test 2)
- 3.) Third assignment was a full savate match at a competition. (Test 3)

The key variable tested here was heart frequency, which was measured instantly after the given exercises, and then again after a 1 minute between-the-round rest. In that way we had determined heart response after the subjects underwent the given physical effort, and the speed of their recovery during the standardized 1 minute break. All the results were analyzed with a descriptive and a comparative statistical technique.

### Results

Results have shown that the heart frequency values after the three physical exercises were:

Test 1: 198.3±7.5, 182.3±11.3 bpm.

Test 2: 180.3±13.9, 187.5±13.5 bpm.

Test 3: 194.2±3.4, 191.5±3.2 bpm.

The values show hart rate at the end of the first and the second round respectively.

## UTICAJ MORFOLOŠKIH KARAKTERISTIKA I MOTORIČKIH SPOSOBNOSTI NA SELEKCIJU U BALETU

Dejan Suzović<sup>1</sup>, Branislava Porčić<sup>2</sup>

<sup>1</sup> Fakultet sporta i fizičkog vaspitanja, Beograd

<sup>2</sup> Baletska škola "Lujó Davičo", Beograd

### Uvod

Tehnička selekcija za sportsku aktivnost vrši se na osnovu specifičnog dela usvojenih sadržaja nadograđenih na opšte sposobnosti i karakteristike pojedinca. Faktori selekcije u baletu i plesu razlikuju se od sporta na osnovu izražajnosti pokreta i gipkosti (Liederbach, 2000). Prema fiziološkim zahtevima i amplitudama pokreta balet ima slične karakteristike sa sportovima kao što su sportska i ritmička gimnastika

### Metode

Istraživanje je sprovedeno na uzorku 84 učenice osnovne baletske škole "Lujó Davičo" iz Beograda, prosečnog uzrasta 12,84 ( $\pm 1,14$ ) godine, visine tela 157 ( $\pm 9,0$ ) cm i mase tela 43,1 ( $\pm 7,6$ ) kg. Podaci za procenu motoričkih sposobnosti dobijeni su primenom EUROFIT baterije testova, čiji je redosled sprovođenja određen opštim uputstvima, preporučenim za standardizovanu primenu u zemljama članicama Evropskog saveta (Kukolj i sar. 1993). Uspeh u baletu procenjivan je ocenom na nastavi baleta. Rezultati su obrađeni deskriptivnom (srednja vrednost i standardna devijacija) i komparativnom statistikom (Pearsonov koeficijent korelacije).

### Rezultati i diskusija

Rezultati visine tela, mase tela i procenta masnog tkiva pokazuju povezanost sa uspehom u školi na nivou značajnosti  $p < 0,01$ , pri čemu su vrednosti koeficijenta povezanosti  $r = -0,33$  –  $r = -0,36$ , dok je koeficijent povezanosti sa indeksom telesne mase  $r = -0,27$ , na nivou značajnosti  $p < 0,05$ . Rezultati motoričkih sposobnosti pokazuju značajnu povezanost uspeha u baletu sa rezultatima iz samo dva testa EUROFIT baterije. Rezultati dobijeni u testu povratnog trčanja na 20m sa postepenim povećanjem brzine (SRUN) pokazuju značajnu povezanost na nivou značajnosti  $p < 0,01$  sa uspehom ostvarenim u nastavi baleta ( $r = 0,30$ ), dok su rezultati dobijeni u testu za procenu gipkosti (PUSE) povezani sa uspehom ostvarenim u nastavi baleta ( $r = 0,25$ ) na nivou značajnosti  $p < 0,05$ .

### Zaključak

Na osnovu dobijenih rezultata može se zaključiti, da u ovom uzrastu, devojčice koje su manje visine i mase tela, kao i one koje ostvaruju bolje rezultate na testovima za procenu gipkosti i aerobnih sposobnosti imaju prednost u selekciji za bavljenje baletom (Wyon i sar. 2004).

### Literatura

Kukolj, M. i sar. (1993): Poređenje dve baterije testova (JZFKMS i EUROFIT) za procenu fizičkih sposobnosti učenika, Fizička kultura, 47, 4: 196-200,

Liederbach, M. (2000): General considerations for guiding dance injury rehabilitation, J Dance Med Sci, 4: 54-65,

Wyon, M. i sar. (2007): The cardiorespiratory, anthropometric, and performance characteristics of an international/ national touring ballet company, J Strength Cond Res, 21(2): 389-393,

## INFLUENCE OF MORPHOLOGICAL CHARACTERISTICS AND MOTOR ABILITIES FOR THE SELECTION IN THE BALLET

Dejan Suzović<sup>1</sup>, Branislava Porčić<sup>2</sup>

<sup>1</sup> Faculty of Sport and Physical Education, Belgrade

<sup>2</sup> Ballet School "Lujko Davico", Belgrade

### Introduction

Technical selection for sports activities is based on the adopted specific contents upgraded on the general abilities and characteristics of the individual. Factors in the ballet and dance selection are different from sports according to the expressivity of motion and flexibility (Liederbach, 2000). According to the physiological requirements and ranges of motion, ballet has similar characteristics as sports such as artistic and rhythmic gymnastic.

### Methods

The survey was conducted with 84 girls in primary ballet school „Lujko Davico“ from Belgrade, the mean ages of 12,84 ( $\pm 1,14$ ) years, and values of body height 157,0 ( $\pm 9,0$ ) cm and body mass 43,1 ( $\pm 7, 6$ ) kg. Data for motor abilities were obtained by applying EUROFIT test battery, which determined the order of implementation of general guidelines, recommended to standardized use in countries of the European Council (Kukulj et al. 1993). The success of the ballet score was evaluated according to the marks derived at the ballet school. The results were analyzed using descriptive (mean and standard deviation) and comparative (Pearson's correlation) statistic procedures.

### Results and discussion

The results showed a correlation of body height, body weight and percentage of body fat with success at school ( $p < 0,01$ ), with the range of  $r = -0,33 - r = -0,36$ , while correlation results of BMI with success at school were  $r = -0,27$  ( $p < 0,05$ ). Results of motor abilities revealed a significant correlation with success at the ballet school only in two tests of EUROFIT test battery. The results obtained from the 20-meter Shuttle run test (SRUN) and the test for assessing flexibility (PUST) showed a significant correlation with success in teaching ballet,  $r = 0,30$  ( $p < 0,01$ ) and  $r = 0,25$  ( $p < 0,05$ ), respectively.

### Conclusion

Based on these results we can conclude that at this age, girls with less body height and body weight, as well as those that achieve better results in tests for the assessment of flexibility and aerobic capacity have priority in the selection process for playing ballet (Wyon et al. 2004).

### References

- Kukulj, M. et al. (1993): Poređenje dve baterije testova (JZFKMS i EUROFIT) za procenu fizičkih sposobnosti učenika, *Fizička kultura*, 47, 4: 196-200,
- Liederbach, M. (2000): General considerations for guiding dance injury rehabilitation, *J Dance Med Sci*, 4: 54-65,
- Wyon, M. et al. (2007): The cardiorespiratory, anthropometric, and performance characteristics of an international/ national touring ballet company, *J Strength Cond Res*, 21(2): 389-393,

## **TEHNIKE PROMENE PRAVCA U ALPSKOM SKIJANJU**

**Robert Ropret**

Fakultet sporta I fizičkog vaspitanja, Beograd, Srbija

### **Uvod**

Pojam alpsko skijanje se vezuje za specifične vidove kretanja skijaša koje je potrebno sistematizovati prema određenim kriterijumima.

### **Metode**

Analizom elemenata iz sfere alpskog skijanja, uz uvažavanje empirijskih saznanja koja mogu da se egzaktno argumentuju: zakonima (teorijske) mehanike, postulatima iz sfere anatomije i fiziologije, biomehanike, svojstvima skijaške opreme i osobinama podloga po kojoj se skijaš kreće, ustanovljeni su određeni principi prema kojima je izvršena sistematizacija tehnika

### **Rezultati sa diskusijom**

U radu je predstavljena sistematizacija snežnih podloga ( 3 vrste) na osnovu koje, uz uvažavanje strukturano-funkcionalnih modela kretanja, izvršena je dalja sistematizacija tehnika (2 tehnike) i varijanti tehnika kretanja i promene pravca (preko 30 varijanti).

### **Zaključak**

Empirijskom analizom elemenata tehnike alpskog skijanja, uvažavajući opšte zakone mehanike i biomehanike izvršena je sistematizacija tehnika i varijantata tehnika alpskog skijanja.

**Ključne reči:** alpsko skijanje, tehnike skijanja

## **DIRECTION CHANGE TECHNIQUES IN ALPINE SKIING**

**Robert Ropret**

Faculty of Sport and Physical Education, University of Belgrade

### **Introduction**

The notion of alpine skiing is related to specific forms of skiers' movement that needs to be systematized according to the established criteria.

### **Methods**

By analyzing elements from the sphere of alpine skiing which can be exactly argued: by laws on (theoretic mechanics), by postulates from the field of anatomy and physiology, biomechanics, by features of the skiing equipment and features of surface of skiers' movements, has been created principles for creating scheme of technics in alpine skiing.

### **Results with discussion**

The work systematizes snow surfaces (3 types) based on which, respecting the structural-functional movement models, a further systematization was done of techniques (2 techniques) and variants of movement techniques and direction changes (more than 30 variants).

### **Conclusion**

By respecting empiric knowledge from alpine skiing movements, a scheme has been formed for structural functioning of technique models and variants of the movement techniques.

**Key words:** alpine skiing, techniques of skiing

### **References**

Ilić, B (1988): Smučanje. Beograd. NIPRO Patizan.

Ilić, B., Ropret, R., Ilić, M. (2010): Virtuelno alpsko skijanje. FSFV. Beograd.

## **THE ANALYSE OF WORKLOAD EXERCISE DURING THE PERFORMANCE OF THE DIFFERENT PROGRAMMES DURING THE WARMING UP PART OF THE LESSON**

**Dario Novak<sup>1</sup>, Sanja Gomercic<sup>1</sup>, Nemanja Badnjarevic<sup>2</sup>**

<sup>1</sup>Faculty of kinesiology, University of Zagreb

<sup>2</sup>Institute of sport, Belgrade

At the accredited elementary school Lauder-Hugo Kon in Zagreb, an experiment on the sample of 13 pupils (eight males and five females) was conducted to analyse a physiological workload during the performance of the three different programmes during the warming up part of the lesson. The warming-up part exercises were as following: warming-up with an apparatus – a ball; warming-up at the wall bars and warming-up with the exercise in motion.

A heart-rate frequency monitor (Polar RS400) was used to monitor the physiological workload and the results can be reduced to: an average heart rate during the warming-up part of the lesson is between 140 and 148 beats per minute; the pupils spent most of the time, 33%-45%, during the three different exercising programme, in the zone of the medium intensity (aerobic extensive zone). It was determined, by using the statistical programme Statistica 7.0, univariant analysis of the variance (ANOVA), that the exercising programmes conducted during the warming-up, statistically significantly only differ in the time spent in the zone of high (aerobic intensive zone), medium (aerobic extensive zone) and in the low exercise intensity level zone (aerobic recovery zone). Using the heart rate monitors the pupils are provided with the information they can use to control the intensity level and according with the individual training zones they can start to expect real effects at the PE lesson.

**Key words:** PE lesson, heart rate frequency, pupils, intensity zones.

## POSTURALNI STATUS KAO FAKTOR SELEKCIJE U RUKOMETU

Dejan Ilić<sup>1</sup>, Zoran Valdevit<sup>1</sup>, Vesko Drašković<sup>2</sup>

Fakultet sporta i fizičkog vaspitanja, Beograd, Srbija<sup>1</sup>  
Fakultet za menadžment u sportu „ALFA“, Beograd, Srbija<sup>2</sup>

### Uvod

Karakteristike vrhunskog sporta determinisane su fizičkim statusom. Fizički status kod dece je uslovljen posturalnim statusom koji se pojavljuje kao selektivni faktor u trenažnom tretiranju organizma. Hipokinetički sindrom ukazuje, da populacija koja pripada trećoj životnoj dobi, u sportskoj rekreaciji značajno koristi odbojku, košarku i mali fudbal u odnosu na rukomet.

### Metode

Ovo je transverzalno istraživanje empirijskog karaktera. Uzorak istraživanja sačinjavaju dečaci (35), uzrasta od 14 – 17 godina, iz rukometnog kluba "Junior". Kao metoda u ovom istraživanju korišćen je klinički metod, tj. metod inspekcije. Podaci prikupljeni posmatranjem asimetričnosti segmenata tela ukazuju na prisustvo određenih posturalnih promena i telesnih deformiteta. Status stopala izmeren je metodom plantografije (Thomsenov metod).

### Rezultati sa diskusijom

Narušen posturalni status ukazuje i utiče na fizički status, što se u određenoj meri odražava na kvalitet igre u rukometu. Hronološka i fiziološka starost i zahtevnost rukometa, utiču u značajnoj meri na odustajenje i prelazak u drugi sport. Nemoć kod upražnjavanja rukometa, kao kompleksne sportske igre, više ukazuje na neusklađenost razvojne komponente, nego neposredan kvalitet igrača.

### Zaključak

Detektovani posturalni poremećaji rukometaša odnose se na nefiziološke krivine kičmenog stuba u sagitalnoj i frontalnoj ravni kao i na status stopala. Formirane loše osobine kod dece ogledaju se kroz narušen fizički i posturalni status i mogu biti ograničavajući faktor za bavljenje rukometom. Obzirom sport predstavlja sredstvo, a ne cilj, razvoj i popularnost rukometa kod dece nije na očekivanom nivou.

### Literatura

ILIĆ, Dejan, DRAŠKOVIĆ, Vesko, EMINOVIĆ, Fadilj, VIŠNJIC, Svetlana. Uticaj sportske edukacije u formiranju posturalnog statusa dece mlađeg školskog uzrasta. Zb.naučn. stručnih rad. - Sport zdr., 2009, str. 106-110. [COBISS.SR-ID 512617132]

## POSTURAL STATUS AS SELECTION CRITERION IN HANDBALL

Dejan Ilić<sup>1</sup>, Zoran Valdevit<sup>1</sup>, Dr Vesko Drašković<sup>2</sup>

<sup>1</sup> Faculty of sport and Physical Education, Belgrade, Serbia

<sup>2</sup> Faculty for Management in Sport „ALFA“, Belgrade, Serbia

### Introduction

Top sport features are determined by physical status. Physical status of children is conditioned by postural status which appears as a selection factor in the body training treatment. Hypokinetic syndrome indicates that in sports recreation the population of the third age significantly more uses volleyball, basketball and mini soccer compared to handball.

### Methods

This was a transversal study of empiric character. The research sample consisted of boys (35), aged 14 to 17 years, members of "Junior" handball club. As the research method, we have used clinical i.e., inspection method. The data collected by observing asymmetry of the body segments indicate the presence of certain postural changes and body deformities. The plantar status was measured by plantography method (Thomson's method).

### Results and discussion

The distorted postural status indicates and affects physical status, which to the certain extent affects game quality in handball. Chronologic and physiologic age and handball requirements significantly contribute to the withdrawal from handball and moving to another sport. Inability in handball performance, since it is a complex sports game, indicates more to discrepancy of developmental components, that to direct players' quality.

### Conclusion

The detected postural disorder in handball players refer to non-physiological spinal cord curves in sagittal and frontal plane as well as to plantar status. The formed bad characteristics in children reflect through distorted physical and postural status and can be a limiting factor for involvement in handball. Since sport is the means and not the aim, development and popularity of handball among children is not on the expected level.

### Reference

ILIĆ, Dejan, DRAŠKOVIĆ, Vesko, EMINOVIĆ, Fadilj, VIŠNJIĆ, Svetlana. Uticaj sportske edukacije u formiranju posturalnog statusa dece mlađeg školskog uzrasta. Zb.naučn. stručnih rad. - Sport zdr., 2009, str. 106-110. [COBISS.SR-ID 512617132]

## PRIMENA TESTA VERTIKALNOG SKOKA ODSKOKOM SA JEDNE NOGE U PRAĆENJU OPORAVKA NAKON REKONSTRUKCIJE LCA: PILOT STUDIJA

Olivera Knežević<sup>1</sup>, Marko Kadija<sup>2</sup>, Darko Milovanović<sup>2</sup>, Dragan M. Mirkov<sup>1</sup>

<sup>1</sup> Istraživački centar, Fakultet sporta i fizičkog vaspitanja, Beograd, Srbija

<sup>2</sup> Institut za ortopediju i traumatologiju, Klinički centar Srbije, Beograd, Srbija

### Uvod

Povrede prednjeg ukrštenog ligamenta (lig. cruciatum anterior LCA) su među najučestalijim u sportu i rekreaciji. U praćenju oporavka se, pored testova za procenu jačine mišića opružaća i pregibača u zglobovima kolena, koriste testovi zasnovani na različitim funkcionalnim zadacima (najčešće razne varijante skokova) (Itoh, 1998; Gustavsson 2006). Neki od nedostataka postojećih funkcionalnih testova su složeni koordinativni zahtevi, niska pouzdanost, odnosno osetljivost. Iako se u proceni fizičkih sposobnosti zdravih osoba koristi vertikalni skok odskokom sa obe noge koji se izvodi na kontaktnoj podlozi, nedostaje evaluacija primene modifikacije ovog testa (vertikalni skok odskokom sa jedne noge - VSJN) u praćenju oporavka nakon povreda LCA. Imajući to u vidu, osmišljeno je istraživanje čiji je zadatak evaluacija testa VSJN, a čiji su preliminarni rezultati (pilot istraživanje) prikazani ovde.

### Metod

U studiji je učestvovalo 9 ispitanika (starost 24±6 god), koji su imali nedavnu rekonstrukciju LCA (4,4±0,5 meseci). Pored evaluiranog testa VSJN, funkcija kolena je procenjivana skokom u dalj odskokom sa jedne noge (SDJN) i izokinetičkom dinamometrijom (60°/s, 120°/s i 180°/s).

### Rezultati i diskusija

Dobijene razlike u visini, odnosno dužini skoka zdravom nasuprot povređenom nogom bile su statistički značajne ( $p < 0.01$ ), pri čemu je deficit bio izraženiji u VSJN nego u SDJN (26% naspram 14%). Deficiti su uočeni i u jačini mišića, čime se potencijalno može objasniti ishod rezultata testova VSJN i SDJN. Sa povećanjem ugaone brzine, jačina opružaća se značajno smanjivala kod obe noge ( $p < 0.01$ ), nasuprot pregibačima kod kojih se jačina smanjivala kod zdrave a povećavala kod operisane noge ( $p < 0.05$ ).

### Zaključak

Dobijeni rezultati opravdavaju svrsishodnost predloženog istraživanja kojim će se proveriti metrijske karakteristike predloženog testa i ispitati njegova praktična primenljivost u praćenju oporavka nakon povrede LCA.

### Literatura

Itoh, H. (1998). Evaluation of functional deficits determined by four different hop testing patients with anterior cruciate ligament deficiency. *Knee Surgery, Sports Traumatology, Arthroscopy*, 6 :241–245.

Gustavsson, A. (2006). A test battery for evaluating hop performance in patients with an ACL injury and patients who have undergone ACL reconstruction. *Knee Surgery, Sports Traumatology, Arthroscopy*, 14: 778–788.

**Ključne reči:** LCA, oporavak, vertikalni skok



## ISPITIVANJE ODNOSA ŠKOLSKOG POSTIGNUĆA I MOTIVACIJE UČENIKA V RAZREDA ZA ANGAŽOVANJE NA ČASOVIMA FIZIČKOG VASPITANJA

Dragoljub Višnjic<sup>1</sup>, Dragan Martinović<sup>2</sup>, Jelena Ilić<sup>3</sup>, Živorad Marković<sup>4</sup>

<sup>1</sup>Fakultet sporta i fizičkog vaspitanja, Beograd, Srbija

<sup>2</sup>Učiteljski fakultet, Beograd, Srbija

<sup>3</sup>Republički zavod za sport, Beograd, Srbija

<sup>4</sup>Učiteljski fakultet, Jagodina, Srbija

### Uvod

Postignuća učenika su rezultat efikasnosti ukupnog obrazovnog procesa na određenom nivou školovanja ali se parcijalno mogu posmatrati i kao rezultat obrazovnog procesa pojedinog predmeta. Učenička postignuća u fizičkom vaspitanju su jedinstvo više komponenti od kojih svaka ima određeni značaj i težinu. Uobičajeno je da se prate i procenjuju sportsko-tehnička znanja, motoričke sposobnosti učenika, ali i komponente kao što su: opšta i posebna znanja iz oblasti fizičkog obrazovanja učenika; motivisanost za učestvovanje u igri i sportskim aktivnostima; odnos učenika prema fizičkim aktivnostima i stečenost navika da se učenici bave vežbanjem.

### Metode

Na uzorku od 121 učenika 5. razreda oba pola u osnovnoj školi ispitivane su relacije postignuća učenika i motivacije za angažovanje u fizičkom vaspitanju. Nezavisne varijable su bile: opšti uspeh iz prethodnog razreda; ocena iz fizičkog vaspitanja; mišljenje učenika o dovoljnosti znanja koja se stiču na časovima fizičkog vaspitanja i bavljenje učenika sportom. Skalu za merenje motivacije činilo je 29 ajtema dobijenih adaptacijom Skale za merenje motiva sportskog postignuća. Podaci su analizirani pomoću t-testa, multiple regresione analize i  $\chi^2$  testa.

### Rezultati sa diskusijom

Potvrđene su pretpostavke da se učenici više bave sportom od učenica, te da je opšti uspeh povezan sa ocenom iz fizičkog vaspitanja i da postoji veća motivisanost za angažovanje učenika u odnosu na učenice a pokazalo se i to da su značajni prediktori nivoa motivacije za angažovanje u nastavi fizičkog vaspitanja na ovom uzrastu pol učenika, te mišljenje o dovoljnosti znanja koja se stiču na časovima fizičkog vaspitanja.

### Zaključak

Podizanje svesti učenika o prednostima koje za zdravlje, pravilan rast i razvoj ima bavljenje fizičkom aktivnošću, bar u onom najelementarnijem obliku, poput aktivnog učestvovanja na časovima fizičkog vaspitanja bi bilo značajno za učenike koji se ne bave nikakvom drugom fizičkom aktivnošću van škole, a naročito za učenice koje se ne bave fizičkom aktivnošću van nastave fizičkog vaspitanja.

## INVESTIGATION OF RELATIONS BETWEEN SCHOOL ACHIEVEMENTS AND MOTIVATION OF 5<sup>TH</sup> GRADE STUDENTS FOR INVOLVEMENT IN PHYSICAL EDUCATION CLASSES

Dragoljub Višnjić<sup>1</sup>, Dragan Martinović<sup>2</sup>, Jelena Ilić<sup>3</sup>, Živorad Marković<sup>4</sup>

<sup>1</sup> Faculty of Sport and Physical Education, Belgrade, Serbia

<sup>2</sup> Teacher Training Faculty, Belgrade, Serbia

<sup>3</sup> Republic Institute of Sport, Belgrade, Serbia

<sup>4</sup> Teacher Training Faculty, Jagodina, Serbia

### Introduction

Students' achievements are the indexes of the efficiency of the overall educational process at a certain level of schooling but it can partially be seen as a result of the educational process of a particular subject. Student achievement in physical education are the unity of several components of which each one has a significance and weight. It is usual to observe and evaluate sports and technical skills, motor abilities of students, and components such as: general and specific knowledge in the field of physical education students' motivation to participate in games and sports activities, students' attitudes towards physical activity habits and acquirement that students involved in exercise.

### Methods

Our sample consisted of 121 students 5th classes of both sexes. We were investigated the relationships between student achievement and motivation for engaging in physical education. Independent variables were: overall success of the previous grade, grade of physical education, students' opinion on the sufficiency of knowledge acquired in physical education classes and engagement of students in sports. Scale for measuring motivation consisted of 29 items obtained by adapting Scale for measuring the motives of sports achievement. The data were analyzed using t-test, multiple regression analysis and  $\chi^2$  test

### Results and discussion

Confirmed the assumption that boys are more included in sport than girls, and that the overall success associated with the assessment of physical education and that boys are more motivated for engaging at classes of physical education than girls. Significant predictors of the level of motivation for engaging at physical education classes at this age were sex of students and opinion about of sufficiency of knowledge acquired in physical education classes.

### Conclusion

Raising pupils' awareness of the advantages for health, regular growth and development, have their engagement in physical activities, at least in the most basic form, such as active participation in physical education classes, would be important for those students who are not involved to any other physical activity out of school, especially for girls who are not involved in physical activity apart from physical education classes.

## ZNAČAJ SPORTSKO-REKREATIVNIH AKTIVNOSTI U KONTEKSTU SOCIJALNOG UKLJUČIVANJA OSOBA SA INTELEKTUALNIM TEŠKOĆAMA

Boban Petrović<sup>1</sup>, Duška Stojisavljević<sup>1</sup>, Ljiljana B. Lazarević<sup>2</sup>

<sup>1</sup> Asocijacija za promovisanje inkluzije Srbije, Beograd, Srbija

<sup>2</sup> Institut za psihologiju, Filozofski fakultet, Beograd, Srbija

### Uvod

Socijalno-inkluzivni pristup, za razliku od medicinskog, u osnovi podrazumeva pružanje podrške osobama sa intelektualnim teškoćama (u daljem tekstu: osobe sa IT), u uključivanju u sve segmente života društvene zajednice, a u cilju zadovoljenja njihovih potreba. Imajući u vidu doprinos koji sportsko-rekreativne aktivnosti imaju u očuvanju i unapređenju opšteg psiho-fizičkog blagostanja, važno je razmotriti značaj sportskih i rekreativnih aktivnosti u otvorenoj sredini kroz perspektivu procesa deinstitutionalizacije i socijalnog uključivanja osoba sa IT.

### Metode

Istraživanje je realizovano na uzorku od 23 osobe sa IT, različitog pola, starosti i stepena teškoća, koje su 2004. godine deinstitutionalizovane u program stanovanja uz podršku u otvorenoj sredini. Za procenu intenziteta i kvaliteta uključenosti u različite aspekte socijalne sredine, uključujući i sportske i rekreativne aktivnosti, primenjen je instrument "Eko-mapa za osobe sa intelektualnim teškoćama" (Petrović i Stojisavljević, 2008). Obrada podataka bazirana je na osnovnim deskriptivnim statističkim pokazateljima, i analizi varijanse sa ponovljenim merenjima.

### Rezultati sa diskusijom

Rezultati su pokazali da postoje značajne promene u stepenu socijalne uključenosti u sportske i rekreativne aktivnosti tokom perioda od 6 godina, i kada je u pitanju intenzitet ( $F(21)=2.412$ ,  $p=.030$ ,  $\epsilon^2=.147$ ) i kada je u pitanju kvalitet uključenosti ( $F(21)=13.835$ ,  $p=.000$ ,  $\epsilon^2=.497$ ). Takođe, utvrđeno je da ove promene ne zavise od uzrasta i pola, dok je efekat opšte kompetentnosti, odnosno, stepena teškoća ispitanika, marginalno značajan ( $F(21)=2.781$ ,  $p=.053$ ,  $\epsilon^2=.166$ ), što ukazuje na značajnije promene u intenzitetu socijalne uključenosti kod onih osoba koje su niže opšte kompetentnosti (većeg stepena teškoća).

### Zaključak

Rezultati ovog istraživanja pokazuju da postoji jedan opšti, progresivni, trend povećanja stepena socijalne uključenosti u sportske i rekreativne aktivnosti kod osoba sa IT od trenutka deinstitutionalizacije i početka života u otvorenoj sredini kroz program stanovanja uz podršku. Takođe, pokazuje se da uključivanje u sportske i rekreativne aktivnosti značajno doprinosi socijalnoj inkluziji osoba sa intelektualnim teškoćama.

### Literatura

Petrović, B. i Stojisavljević, D. (2008): Eko-mapa: mogućnosti procene socijalnih relacija osoba sa intelektualnim teškoćama – preliminarni rezultati, Knjiga rezimea sa XIV naučnog skupa "Empirijska istraživanja u psihologiji". Beograd: Filozofski fakultet

## THE IMPORTANCE OF SPORTS AND RECREATIONAL ACTIVITIES IN THE CONTEXT OF SOCIAL INCLUSION OF PEOPLE WITH INTELLECTUAL DISABILITIES

Boban Petrović<sup>1</sup>, Duška Stojisavljević<sup>1</sup>, Ljiljana Lazarević<sup>2</sup>

<sup>1</sup> Serbian Association for Promoting Inclusion, Belgrade, Serbia

<sup>2</sup> Institute for psychology, Faculty for Philosophy, Belgrade, Serbia

### Introduction

Basic assumption of the socio-inclusive approach, as opposed to medical approach, is to provide support to people with intellectual disabilities (hereinafter referred to people with ID), in satisfaction of needs through use of all available community resources. Having in mind contribution of sports and recreational activities in preservation and improvement of the overall psycho-physical well-being, it is important to consider importance of these activities in an open community through the perspective of the process of deinstitutionalization and social inclusion of people with ID.

### Methods

The research was conducted on a sample of 23 people with ID, different gender, age, degree and type of disabilities, which have already been users of Community-Based Supported Housing program since 2004. For assessment of intensity and quality of inclusion into various aspects of society, including sports and recreational activities, was used instrument "Eco-map for people with ID" (Petrović and Stojisavljević, 2008). Data analysis is based on descriptive statistics and ANOVA with repeated measurements.

### Results and discussion

Results show that there were significant changes in the level of social involvement in sports and recreational activities during the period of 6 years, including the intensity ( $F(21)=2412, p=.030, \epsilon^2=.147$ ) and the quality of involvement ( $F(21)=13,835, p=.000, \epsilon^2=.497$ ). Specifically, these changes do not depend on the age and gender, while the effect of general competence (i.e. the degree of difficulty of the respondents) is marginally significant ( $F(21)=2781, p=.053, \epsilon^2=.166$ ), which indicates a change in the intensity of social inclusion for those people who have lower general competence (i.e. higher level of difficulties).

### Conclusion

The results of this study show that there is a general trend in increase in social inclusion in sports and recreational activities of people with ID since deinstitutionalization and the beginning of life in an open community through the supported housing program. Beside, results indicate that inclusion in sports and recreational activities contributes to overall social inclusion of people with ID.

### References

Petrović, B. i Stojisavljević, D. (2008): Eko-mapa: mogućnosti procene socijalnih relacija osoba sa intelektualnim teškoćama – preliminarni rezultati, Knjiga rezimea sa XIV naučnog skupa "Empirijska istraživanja u psihologiji". Beograd: Filozofski fakultet

## ДИСТРИБУЦИЈА ЗБИРНЕ ОЦЕНЕ ПОСТУРАЛНОГ СТАТУСА ШКОЛСКЕ ДЕЦЕ БАЧКЕ ПАЛАНКЕ У ОДНОСУ НА ПОЛ

Драгана Зечак, Бранка Протић – Гава

Факултет спорта и физичког васпитања, Универзитет у Новом Саду, Србија

### Увод

Добар постурални статус подразумева уравнотежено одржавање сегмената тела у правилном положају са најмање утрошка енергије. Свако одступање у мањој или већој мери је знак за постојање постуралног поремећаја или предуслов за његов настанак. Циљ овог истраживања био је анализа постуралног статуса ученика узраста 7-14 година и утврђивање разлика у односу на пол и узрастне категорије.

### Метод

Узорак испитаника чинило је 640 деце сврстаних у четири узрастне категорије: 7-8 (161), 9-10 (174), 11-12 (156) и 13-14 година (149), ученика основне школе „Свети Сава“ из Бачке Паланке. Постурални статус процењен је методом Наполеона Воланског. Посматрано је осам сегмената као индикатора постуралног статуса. Подаци су обрађени непараметријским статистичким методама, програмом SPSS 8.0 за Windows. Разлике у дистрибуцији збирне оцене постуралног статуса анализирани су Хи-квадрат тестом ( $\chi^2$ ). За анализу разлика појединих група испитаника формираних према збирној оцени постуралног статуса и субузорака по полу за поједине узрастне категорије, примењен је Мен Витнијев (Mann-Whitney) Z - тест (тест суме рангова, који је еквивалент Т-тесту за категоријалне податке).

### Резултати и дискусија

Резултати показују да девојчице узраста 7-8 година имају врло добро држање што је боље од дечака, док девојчице узраста 9-10 година предњаче у слабом. Резултати се подударају са резултатима истраживања Вуковића (2000) и Медојевића и Јакшића (2007), који потврђују тезу да се периоди нарушавања постуре поклапају са периодом уласка у пубертет. У категорији испитаника узраста 11-12 година уочена разлика у дистрибуцији збирних оцена постуре је минимална али није статистички значајна. У прва три субузорка испитаника није уочена статистички значајна разлика. Код најстаријих испитаника разлика је статистички значајна на нивоу процене од  $p < 0,01$  и у корист је девојчица. Резултати се подударају са резултатима Мијаловића, Н. & Зечевића, М. (2003), где је највише случајева лошег држања откривено код најстарије узрастне категорије (14 година).

### Закључак

Уочене су нешто веће, али не и статистички значајне разлике у збирној оцени изврсног држања код дечака најстаријег узраста, што наводи на закључак да су дечаци у овом добу знатно физички ангажованији од девојчица што резултира наведеним разликама у држању тела у њихову корист.

**Кључне речи:** постурални статус, збирна оцена, дистрибуција, пол, деца школског узраста.

## GENDER-BASED DISTRIBUTION OF THE COLLECTIVE ASSESSMENT OF POSTURAL STATUS IN SCHOOLCHILDREN IN BAČKA PALANKA

Dragana Zečak<sup>1</sup>, Branka Protić - Gava<sup>2</sup>

<sup>1</sup>Department of Ophthalmology, Clinical Center of Vojvodina, Novi Sad, Serbia

<sup>2</sup>The Faculty of Sport and Physical Education, the University of Novi Sad, Serbia

### Introduction

Good posture implies a balanced maintenance of body segments in a proper posture with as little energy invested as possible. Every deviation to a bigger or lesser extent is a sign of the postural disorder or is a precondition for it. The aim of this research was to analyze the postural status in students aged between 7 and 14 and determine the differences based on gender and age.

### Method

The respondent sample included 640 children grouped into four age-based categories: 7-8 (161), 9-10 (174), 11-12 (156) and 13-14 years of age (149) of the students at the "Saint Sava" primary school from Bačka Palanka. Their posture was assessed using the method designed by Napoleon Wolanski. Eight segments were observed as indicators of the postural status. The data were processed using the nonparametric statistical methods of the program SPSS 8.0 for Windows. The differences in distribution of the collective assessment of the postural status were analyzed using the Chi-square test ( $\chi^2$ ). Mann-Whitney Z-test (the rank sum test equivalent to the T-test for the categorical data) was used for the analysis of the individual respondent groups formed according to the collective assessment of the postural status and gender-based subsamples for individual age categories.

### Results and discussion

The results of the research show that girls aged 7-8 have a rather good posture, a much better one than that of the boys', while the girls aged 9-10 show a worse posture when compared to the boys' of the same age. The results are consistent with the results of the research done by Vuković (2000) and Medojević (2007), which supports the hypothesis claiming that the periods of postural distortion overlap with the period of entering the puberty. In the category of the respondents aged 11-12 a minimal difference was observed with respect to the distribution of the collective assessment of posture, but it is not statistically significant. No statistically significant difference was observed in the first three subsamples of the respondents. In the case of the oldest respondents, the difference is statistically significant at the significance level of  $p < 0.01$  and it is in favor of the girls. The results are consistent with the results of the research done by Mijailović, Zečević, (2003), where the most cases of bad posture were registered in the oldest age category (14 years of age).

### Conclusion

Slightly higher, but not statistically significant differences were observed in the collective assessment of the excellent posture among the oldest group of the boys, which leads us to the conclusion that at this age, boys are physically more active when compared to girls, this resulting in the given differences in body posture in their favor.

**Key words:** postural status, collective assessment, distribution, gender, schoolchildren.

## РАЗЛИКЕ У СТАТУСУ СТОПАЛА СПОРТИСТА И НЕСПОРТИСТА МЛАЂЕГ ШКОЛСКОГ УЗРАСТА

Бранка Протић – Гава, Тијана Шћепановић, Ивана Пављук

Факултет спорта и физичког васпитања, Универзитет у Новом Саду, Србија

### Увод

Стопало као комплексан анатомски склоп човеку обезбеђује чврст и стабилан ослонац како при свакодневним, тако и при спортским активностима. Утврђивање ефикасности обављања моторичких задатака показала су да су она у већини случајева у корист спортиста са нормалним статусом стопала. Друга пак истраживања показују да је први степен спуштености стопала редовна појава код врхунских спортиста изложених раној специјализацији. Циљ овога рада је био да се утврди статус стопала деце млађег школског узраста, као и евентуална разлика у односу на пол и спортски статус.

### Метод

Узорак испитаника чинило је 160 ученика две основне школе „Свети Сава” и „Бошко Палковљевић Пинки“ из Сремске Митровице, узраста 12 година, 80 дечака и 80 девојчица, од чега по 40 спортиста и 40 неспортиста оба пола. Статус стопала утврђен је методом плантографије а оцена плантограма урађена је по методи руских аутора. Значајност разлика статуса стопала испитаника у односу на пол и спортски статус анализирана је Хи-квадрат тестом ( $\chi^2$ ).

### Резултати и дискусија

Резултати истраживања показују да 18,8% дечака и 15,0% девојчица имају нормалан статус стопала, 22,5% дечака, 24,4% девојчица први степен спуштености што износи 46,9% укупног узорка испитаника. Други степен спуштености има 18,1%, док 1,3% укупног узорка испитаника има структуралне промене на уздужном своду стопала. Уочена разлика у статусу стопала није статистички значајна што показује  $\chi^2 = 2.82$  на нивоу значајности  $p = 0.42$ . Нормалан статус стопала има 26,9% спортиста и 6,9% неспортиста. Утврђено је, такође, да постоји статистички значајна разлика у статусу стопала ученика спортиста и неспортиста што показује  $\chi^2 = 42,85$  на нивоу значајности  $p = 0.00$ . Први степен спуштености сводова стопала има 21,9% спортиста и 25,0% ученика који се не баве спортом, док други степен има 1,3% ученика који се баве спортом и 16,9% ученика неспортиста.

### Закључак

Велики постотак ученика са спуштеним сводом стопала указује на потребу свеобухватнијег приступа овом проблему како у школи тако и спортским клубовима.

**Кључне речи:** постурални статус, стопала, спортисти, неспортисти, млађи школски узраст.

## THE DIFFERENCE IN FOOT HEALTH STATUS BETWEEN PRIMARY SCHOOL ATHLETES AND NON-ATHLETES

**Branka Protić-Gava, Tijana Šćepanović, Ivana Pavljuk**

The Faculty of Sport and Physical Education, The University of Novi Sad, Serbia

### Introduction

A foot as a very complex anatomic structure provides a human with a solid and stable support during both daily and sport activities. Researches that have been done on determining the efficiency of performing motor tasks have so far appeared to be in favor of the athletes with a normal foot status. On the other hand, other researches show that the first level of the fallen arches frequently occurs in top athletes exposed to early specialization. The aim of this paper was to determine the foot status in younger schoolchildren, as well as the possible differences with respect to gender and sport status.

### Method

The respondents sample included 160 students of two primary schools “Saint Sava” and “Boško Palkovljević Pinki” from Sremska Mitrovica, aged 12, 80 boys and 80 girls, either gender group containing 40 athletes and 40 non-athletes respectively. Foot health status was determined using the plantography method, whereas the plantogram appraisal was done applying the method of Russian authors. The difference significance in foot health status among the respondents with respect to gender and sport status was analyzed by means of Chi-square test ( $\chi^2$ ).

### Results and discussion

The results of the research show that 18.8% of the boys and 15.0% of the girls have a normal foot status, 22.5% boys, and 24.4% girls have the first level of fallen arches, which amounts to the 46.9% of the total number of the respondents. The second level of fallen arches is registered in 18.1%, while 1.3% of the total number of the respondents has structural changes in the longitudinal arch of the foot. The observed difference in the foot status is not statistically significant, which is shown by  $\chi^2 = 2.82$  at the significance level of  $p = 0.42$ . Normal foot status is observed in 26.9% athletes and 6.9% non-athletes. A statistically significant difference was also determined in the foot health status among student athletes compared with non-athletes which is shown by  $\chi^2 = 42.85$  at the significance level of  $p = 0.00$ . The first level of fallen arches was registered in 21.9% of the athletes and 25.0% of the students who did not engage in sports, while the second level of fallen arches is registered in 1.3% of the students who did engage in sports and 16.9% of those who did not.

### Conclusion

Such a high percentage of the students with the fallen arches implies the need for a more comprehensive approach to this problem in school as well as in sports clubs.

**Key words:** postural status, feet, athletes, non-athletes, younger school children.



## KOLIKO JE TEŠKA ĐAČKA TORBA?

Aleksandar Ignjatović, Živorad Marković, Slađana Tošić, Sandra Milanović, Vesna Petrović

Pedagoški fakultet u Jagodini

### Uvod

Proteklih godina sve češće se govori o problemu teške školske torbe i njene povezanosti s različitim tipovima nepravilnog držanja, bola u leđima i vratu pa čak i deformitetima kičmenog stuba (Wigram 2002). Neke zemlje su poštujući preporuke Svetske Zdravstvene Organizacije, zakonski propisale maksimalnu težinu koju deca smeju nositi. Smatra se da deca ne bi smela nositi više od 10% svoje telesne mase. Masa đачke torbe koju deca svakodnevno nose u školu u različitim istraživanjima se kreće od 4.0 do 7.7 kg (Casey & Dockrell, 1996; Pascoe et al., 1997). Izraženo u procenat telesne težine dece ove vrednosti se kreću od 10 do 17%. Cilj ovog istraživanja je utvrđivanje trenutnog stanja u našoj zemlji pošto trenutno ne postoje nikakve zvanične preporuke. Ispitivaće se težina đачke torbe, procenat ukupne težine, način nošenja i distanca nošenja torbe od kuće do škole.

### Metode

Ispitanicei u ovom istraživanju su bili učenici osnovne škole Milan Mijalković iz Jagodine. Ukupno 385 ispitanika od prvog do osmog razreda je bilo obuhvaćeno istraživanjem. Bez prethodne najave učenicima, saradnici u istraživanju su u toku jednog dana izmerili telesne mase učenika i njihovih đачkih torbi. Svaki učenik je uz pomoć prethodno obučениh asistenata popunio upitnik u kome su se nalazila pitanja o načinu nošenja torbe, dužini nošenja od škole do kuće i načinu dolaska u školu. Podaci su obrađeni deskriptivnom statistikom u Excelu.

### Rezultati i diskusija

Izmerena je telesna masa učenika i masa njihovih torbi i svih 385 upitnika je popunjeno. Prosečna vrednost đачkih torbi se kretala od 4kg u 2 razredu do 1.8 kg u 8 razredu. Varijacije između učenika i odeljenja su bile veoma velike i kretale su se od 0.5kg i 6.7 kg. Varijacije su bile velike čak i unutar istog odeljenja, kao na primer u jendom odeljenju šestog razreda gde su se vrednosti kretale od 0.6 kg do 6.4 kg. Ovako velike varijacije nisu bile karakteristične samo za više razrede već su primećene i u nižim. Na primer u drugom razredu su se kretale od 1.3 kg do 6.3 kg i trećem od 1.0 kg do 6.1 kg. Prosečna relativna težina (u odnosu na težinu učenika) je bila 8.6%, dok su se vrednosti kretale od 2.9% do 24.1%. Većina učenika (87.3%) nosi đачku torbu na oba ramena, što je u saglasju sa rezultatima sličnih istraživanja kod kojih su se vrednosti kretale od 68-94% (Casey & Dockrell, 1996; Pascoe et al., 1997).

### Zaključci

Trenutne preporuke za nošenje đачke torbe se uglavnom fokusiraju na smanjivanje težine i optimalizaciji dizajna torbe. Smatra se da je najčešći način nošenja torbe, odnosno na oba ramena, koji je u poslednje vreme najzastupljeniji rezultat zajedničkog udela edukacije, promene modnih trendova i povećane udobnosti rančeva za nošenje preko oba ramena. Prosečne vrednosti dobijene u našem istraživanju se kreću oko preporučenih vrednosti, međutim problem predstavljaju velike varijacije varijacije, odnosno to što jedan značajan broj dece nosi težinu znatno veću od preporučene.

### Literatura

- Casey, G, Dockrell, S. (1996). A pilot study of the weight of schoolbags carried by 10-year old children. *Phys Ireland*, 17, 17-21.
- Pascoe, D.D., Pascoe, D.E., Wang, Y.T, (1997). Influence of carrying book bags on gait cycle and posture of youths. *Ergonomics*, 40, 631-41.
- Wigram J (2002) Why is low back pain common in adolescence? *Education and Health* 20: 36–37.

## HOW HEAVY IS THE SCHOOLBAG?

Aleksandar Ignjatović, Živorad Marković, Sladana Tošić, Sandra Milanović, Vesna Petrović

Faculty of Pedagogy, Jagodina, Serbia

### Introduction

School bags have long been thought to be associated with back and neck pain in adolescents (Wigram 2002), and even cause malformations of the back. Some countries followed the advice World Health Organization and decided that schoolbags were not allowed to weigh more than 10% of a child's body weight. The mean weight of schoolbags reported in different studies varied from 4.0 to 7.7 kg (Casey & Dockrell, 1996; Pascoe et al., 1997). Expressed as percentage of body weight, the relative weights are between 10% and 17% of a child's body weight. This study aims to assess the actual state in our country and average weight of the schoolbag, in terms of percentage of body weight, type of bag, way of carrying and the distance of carrying from home to school.

### Methods

Participants were recruited from the elementary school Milan Mijalković in Jagodina. Total of 385 participant from 1<sup>st</sup> to 8<sup>th</sup> grade were included. Without previous announcement research assistants measured body weight of school pupils and its mass of school bag carried to school on that day. For each participant was calculated load expressed as percentage of body weight. Method of carriage, duration of carriage and a method of transportation from home to school was measured with a questionnaire which participants completed with the help of a research assistant (students of faculty of Pedagogy in Jagodina). Descriptive statistics were used to examine all data received from the study.

### Results and discussion

All 385 schoolchildren completed the questionnaire and were measured for their body mass and for mass of the schoolbag. The mean weight of the schoolbags was 4.0 kg in the 2<sup>nd</sup> grade. The variation in weight was very large and varied between 0.5 kg and 6.7 kg. Even within the same school class, the weight varied, for example, from 0.6 kg to 6.4 kg in 6<sup>th</sup>. This large variation is also noticed in the smaller grades, and for example in 2<sup>nd</sup> grade it varies from 1.3 kg to 6.3 kg and in third from 1.0 kg to 6.1 kg. The mean relative weight was 8.6% of the body weight, with a range of 2.9-24.1%. Most of the children (87.3%) carried bag on both shoulders. Also in other researches (68-94%) carried schoolbag on both shoulders (Casey & Dockrell, 1996; Pascoe et al., 1997).

### Conclusion

Current recommendations for school bag carriage are mainly concerned with reducing bag weight and optimizing bag design in order to minimize postural changes when carrying a school bag. Preferred carrying method on both shoulders may be due to a combination of education, changing fashion trends, and the design of more comfortable two strap backpacks. The average weight is around suggested weight but the thing that worries is that are large range and while some pupils are carrying very easy schoolbags some school pupils are carrying too heavy bags.

### References

- Casey, G, Dockrell, S. (1996). A pilot study of the weight of schoolbags carried by 10-year old children. *Phys Ireland*, 17, 17-21.
- Pascoe, D.D., Pascoe, D.E., Wang, Y.T. (1997). Influence of carrying book bags on gait cycle and posture of youths. *Ergonomics*, 40, 631-41.
- Wigram J (2002) Why is low back pain common in adolescence? *Education and Health* 20: 36–37.

## GOJAZNOST – EPIDEMIJA ILI PANDEMIJA

**Miroslav Marković**

Udruženje pedagoga fizičke kulture opštine Palilula, Beograd, Srbija  
O.Š. "Filip Višnjić", Beograd, Srbija

### Uvod

Gojaznost je aktuelni problem vremena u kome živimo. Najnovija medicinska istaživanja pokazuju da u većini razvijenih zemalja preko 30% dece ima pekomernu telesnu masu. Gde smo mi?. Deca su sve manje aktivna i više gojazna.

### Metode

Merenje telesne mase i visine na medicinskoj vagi, anketiranje, procentualna obrada anketa, obrada podataka u Microsoft Excel programu (BMI formula –  $TM/TV^2$ ). Rađeno na uzorku od 1017 učenika.

### Rezultati sa diskusijom

Ukoliko se nastavi započeti trend, čak 32% dece patiće od kliničke gojaznosti do kraja 2011. godine. Tačno i precizno određivanje telesnog sastava, predstavlja najbolji način procene gojaznosti. Kod nas se u najvećoj meri koristi samo vrednost telesne mase, dok se u Evropi koristi indeks telesne mase BMI (body mass index). Ovaj indeks govori o visinsko - težinskom odnosu, a ne nudi podatke za analiziranje telesne strukture.

Analizom podataka došlo se do sledećeg: 63% dece ima normalan BMI, 26% ima jedan od tri stepena gojaznosti, 11% dece je nuhranjeno. 16% dece se bavi sportom, 59% dece bavi se fizičkom aktivnošću jedino na časovima fizičkog vaspitanja.

### Zaključak

Veliki broj dece svoju potrebu za kretanjem zadovoljava kroz virtuelnu stvarnost koju im nude kompjuteri, uz gazirana pića i gricklice. Ankete su pokazale da se naša deca nekvalitetno hrane i to najviše brzom hranom koja im se nudi pored ili u samoj školi. Potrebno je omogućiti velikom broju dece koja nemaju mogućnosti da se bave nekim sportom da to čine u školama, koje treba otvoriti za decu tokom cele godine, a ne samo za redovnu nastavu, povećati broj časova fizičkog vaspitanja i uvesti zdravstveno vaspitanje kao prevntivu pojave gojaznosti.

### Literatura

Dietz WH.(2003). Use of body mass index (BMI) as a measure of overweight in children and adolescents. Pediatrics.

## **OBESITY - AN EPIDEMIC OR PANDEMIC**

**Miroslav Markovic**

Association of Teachers of Physical Education municipality Stari Grad, Belgrade, Serbia  
Primary School " Filip Visnjic", Belgrade, Serbia

### **Introduction**

Obesity is a burning issue in time in we live in. The latest medical research shows that in most developed countries over 30% of children have excessive body weight. Where are we? Children are less active and more obese.

### **Methods**

Measurement of body weight and height on a medical scale, survey, the percentage processing surveys, processing data in Microsoft Excel program (BMI formula -  $TM / TV^2$ ). Carried out on a sample of 1017 students.

### **Results with Discussion**

If the trend continues to develop, as many as 32% of children will suffer from clinical obesity by the end of 2011.

Accurate and precise determination of body composition, is the best way to evaluate obesity.

We rely mostly on body weight, while in Europe they mostly use the body mass index BMI (body mass index).

This index is about height - weight relationship, and does not provide data for analyzing the physical structure.

Data analysis led to the following: 63% of children have a normal BMI, 26% have one of three levels of obesity, 11% of children are malnourished. 16% of children participate in sports, 59% of children are engaged in physical activity only in physical education classes.

### **Conclusion**

A large number of children satisfy their need to move through the virtual reality that computers offer, and with soft drinks and snacks.

Surveys have shown that our children eat poor quality foods, mostly fast food that is offered nearby or in the school. It is necessary to enable a large number of children who do not have a possibility to participate in some sports to do it in their schools, which should be opened to children throughout the year, not only for regular classes.

The number of classes of physical education should be increased and health education should be introduced as well, as prevention of obesity.

### **References**

Dietz WH.(2003). Use of body mass index (BMI) as a measure of overweight in children and adolescents. Pediatrics.

## **OSETLJIVOST TERENSKIH TESTOVA ZA PROCENU GIPKOSTI NOGU: PILOT STUDIJA**

**Bobana Berjan<sup>1</sup>, Predrag Božić<sup>1</sup>, Nemanja Pažin<sup>2</sup>**

<sup>1</sup> Republički zavod za sport

<sup>2</sup> Fakultet sporta i fizičkog vaspitanja, Univerzitet u Beogradu

### **Uvod**

Terenski testovi za procenu gipkosti koriste se za identifikaciju ograničavajućih faktora performansi, faktora rizika koji dovode do sportskih povreda, praćenje efekata treninga, programa rehabilitacije, koriste se za poređenja između pojedinaca i grupa, kao i za selekciju talenata. Međutim, u literaturi još uvek ne postoji dovoljno podataka o osetljivosti terenskih testova za procenu gipkosti. Cilj ovog rada je bio da se ispita osetljivost terenskih testova za procenu gipkosti nogu kod različitih grupa ispitanika.

### **Metode**

U ovoj pilot studiji je učestvovalo trideset sedam zdravih muških ispitanika koji su podeljeni u 4 grupe: fudbaleri (n = 9), košarkaši (n = 9), karatisti (n = 9) i fizičkih aktivni (n = 10). Nakon familijarizacije, ispitanici su testirani u jednoj eksperimentalnoj sesiji, pri čemu su korišćeni jednostavni merni instrumenti (antropometar, lenjir i uglomer) za procenu gipkosti nogu u sedam standardnih terenskih testova.

### **Rezultati i diskusija**

Jednostruka MANOVA je pokazala efekat grupe (Wilks'  $\lambda = 0.213$ ;  $F[21, 75] = 2.554$ ,  $p < 0.01$ ), a post hoc ANOVA je pokazala visoku osetljivost većine testova, dok su se dva testa pokazala kao neosetljiva.

### **Zaključak**

Na osnovu dobijenih rezultata možemo zaključiti da većina standardnih testova za procenu gipkosti nogu pokazuje visoku osetljivost, a za njihovu realizaciju je neophodna jeftina oprema, što omogućava da se ovi testovi primenjuju u rutinskim testiranjima.

### **Zahvalnica**

Studija je podržana od strane projekta Ministarstva za nauku i tehnološki razvoj (#145082).

## **SENSITIVITY OF THE FIELD TESTS OF FLEXIBILITY OF LOWER EXTREMITY: A PILOT STUDY**

**Bobana Berjan<sup>1</sup>, Predrag Božić<sup>1</sup>, Nemanja Pažin<sup>2</sup>**

<sup>1</sup> Serbian Institute of Sport, Belgrade, Serbia

<sup>2</sup> The Research Center, Faculty of Sport and Physical Education, Belgrade, Serbia

### **Introduction**

Field test of flexibility has been commonly used to identify performance limits factors, assessment of the intrinsic risk factors of sport injury, monitoring the effects of training, rehabilitation programs, comparisons among the individuals or groups, and for the talent selection purposes. However, there is apparent lack of data regarding the sensitivity of field test of flexibility. The purpose of this study was to evaluate the standard field tests of flexibility of lower extremity through their sensitivity with respect to training history.

### **Methods**

Thirty-seven healthy male subjects with distinct training history were divided into 4 groups: soccer players (n = 9), basketball players (n = 9), karate competitors (n = 9) and physically active individuals (n = 10). After familiarization session all subjects were tested in one experimental sessions by means of standard simple devices (kinantropometry, ruler and protractor) on the following flexibility tests: Leg Raise in a Supine Position (LRSP), Hip Abduction Test (HAT), Single-Legged Knee Bend (SLKB), Sideward Leg Splits (SdLS), Sit and Reach (SR), Sideways Leg Splits (SsLS) and Lengthwise Leg Splits (LLS).

### **Results and discussion**

A one-way MANOVA revealed significant main effects of group (Wilks'  $\lambda = 0.213$ ;  $F_{[21, 75]} = 2.554$ ,  $p < 0.01$ ) where post hoc ANOVA showed that the most of the tests demonstrated high sensitivity (especially SdLS test), except for SR and SLKB tests that proved to be insensitive.

### **Conclusion**

We particularly recommend using SdLS over the most frequently used SR not only because of it's the highest sensitivity. Finally, we conclude that most of the standard field tests of flexibility of lower extremity based on using inexpensive field equipment could be high sensitive and, therefore, justified for use in routine testing.

### **Acknowledgments**

The study was supported in part by a grant from Serbian Research Council (#145082).

## LEADERSHIP IN SLOVENIAN SPORTS CLUBS

Gregor Jurak <sup>1</sup>, Jakob Bednarik <sup>1</sup>, Edvard Kolar <sup>2</sup>, Marjeta Kovač <sup>1</sup>

<sup>1</sup> University of Ljubljana, Faculty of Sport, Ljubljana, Slovenia

<sup>2</sup> Gymnastics federation of Slovenia

### Introduction

Voluntary work represents 13.5% of the economic strength of Slovenian extra-curricular sport (Jurak & Bednarik, 2006). Therefore, managing such a significant source is an important task of Slovenian sports management. The purpose of this study was to discover the existing characteristics of the leadership of voluntary workers in Slovenian sports clubs.

### Methods

Research was carried out on a stratified sample of 190 leaders of sports clubs, who work in different segments of Slovenian sport. A questionnaire on styles of leadership, based on the Hersey-Blanchard situation model of leadership, was used in order to measure different styles of leadership.

### Results and discussion

The study revealed that the leaders in sports organisations most often use the selling style of leadership (42% of cases), then the participating style (37%), whereas the telling style (12%) and delegating style (9%) are used rarely. Leaders adjust the style of leadership to individual circumstances; however, they do not use suitable style of leading for the level of follower readiness and circumstances. The style of leadership does not have a direct impact on the measured indicators of the success of sports organisations. The findings lead to the conclusion that the leadership of Slovenian sports clubs is generally blind to the importance of leadership in this context.

### Conclusion

Considering the above average results of the entire range of Slovenian sport, it can be assumed that the voluntary work in sports organisations represents one of the competitive advantages in our society. Thus, particular attention has to be paid to its developmental possibilities. The findings of the study lead to the suggestion of the foundation of a national strategy of voluntary work in sport.

### References

Jurak, G., Bednarik, J. (2006). Economic strength of voluntary work in non-governmental sports organisations in Slovenia. In Abstract book of 11th World sport for all congress. Physical activity: benefits and challenges, pp. 163. Havana: Cuban Olympic Committee.

## **THE ROLE OF FOOTBALL IN PERSONAL CHILD DEVELOPMENT WITHIN A DEVELOPING COUNTRY**

**Simona Šafaříková**

Department of Kinantropology, Faculty of Physical Culture, Palacky University, Olomouc, Czech Republic

### **Introduction**

The sport starts to play bigger role in the development of children in developing countries and it is also more often used within the development cooperation programs. Its efficacy still stays questionable. This study explores the potential of football as a tool for development and the impacts of youth participation at the “Football for Hope Festival” in South Africa.

### **Methods**

For this qualitative research scaling and semi-structured interviews were used. For the perception of interpersonal relations in the teams the Scale of group atmosphere was applied (Kollarik, 1982). Semi-structured interviews were used to see the impact of football on the child development. These interviews are being analysed in ATLAS.ti.

The scaling and the interviews were done with 2 teams – Search and Groom Nigeria and The Kids League Uganda. There were 8 players in each team (4 male and 4 female).

### **Results and discussion**

Firstly the results of scaling were analysed. According to them participants very much enjoyed the stay at the “Football for Hope Festival” and feel very well in the group they created. There were no significant difference between the Nigerian and Ugandan team. Further results from the interviews will be obtained in the future after the transcriptions and analysis in ATLAS.ti. All the results should be presented during the conference.

### **Conclusion**

The scaling shows very good relations within the group which is possible due the excitement of being abroad and playing with other cultures. Other conclusions from the interviews are still to be prepared.

### **References**

- Levermore, R., & Beacom, A. (2009). *Sport and International Development*. London, Palgrave MacMillan.  
Punch, K. F. (2005). *Introduction to Social Research*. London, Sage Publications.



## UTICAJ PERFORMANSI BRZINE I EKSPLOZIVNE SNAGE NA SPOSOBNOST BRZE PROMENE SMERA KRETANJA KOD PROFESIONALNIH FUDBALERA SENIORSKOG UZRASTA

Zoran B. Pajić<sup>1</sup>, Jelena R. Ilić<sup>2</sup>, Saša T. Jakovljević<sup>1</sup>

<sup>1</sup> Univerzitet u Beogradu, Fakultet sporta i fizičkog vaspitanja, Beograd, Srbija

<sup>2</sup> Republički zavod za sport, Beograd, Srbija

### Uvod

Brze akcije koje utiču na efikasno izvođenje fudalera najčešće su one koje zahtevaju startnost, ubrzanje, eksplozivnost ili brzinu promene smera kretanja. Kontradiktorni nalazi su primećeni u vezama između tretiranih varijabli. Cilj ove studije je bio da se utvrdi uticaj testiranih varijabli brzine i eksplozivne snage, kao i godina starosti, na realizaciju brzine promene smera kretanja profesionalnih fudbalera – seniora.

### Metod

Ova studija je obuhvatila 66 profesionalnih fudbalera starosti  $24.25 \pm 4.06$  godina. Prediktorske varijable su bile: *startnost* – M-5 (test trčanja na 5 m), *ubrzanje* – M-30 (test trčanja na 30 m), *eksplozivna snaga nogu* – ESN (test troskok iz mesta), kao i godine starosti – STA. Kriterjumska varijabla je bila *brzina promene smera kretanja* – BPSK (test trougao). U obradi podataka su primenjene: deskriptivna statistika, multipla regresiona analiza i Pirsonov koeficijent korelacije.

### Rezultati i diskusija

Na osnovu dobijenih rezultata multiple regresione analize ni jedna od varijabli se nije pokazala kao statistički značajan prediktor. Koeficijent multiple determinacije dobijen ovim metodom, sa uračunata sva tri prediktora, iznosio je  $R^2 = .065$ . U cilju eksplikacije međusobnih relacija tretiranih varijabli, statistički značajne korelacije su dobijene između varijabli STA i M30 - ( $r = 0,402$ ;  $p < .001$ ), između varijabli M5 i M30 - ( $r = 0,592$ ;  $p < .000$ ) kao i između STA i ESN - ( $r = - 0,280$ ;  $p < .023$ ).

### Zaključak

Niski koeficijent determinacije upućuje da su startnost, ubrzanje, eksplozivna snaga nogu i brzina promene smera kretanja specifični kvaliteti. Oni su relativno nepovezani jedni sa drugima i prouzrokuju limitiran transfer jedan na drugog.

**Ključne reči:** startnost / ubrzanje / troskok / trougao

## INFLUENCE OF SPEED AND EXPLOSIVE POWER PERFORMANCES ON CHANGE OF DIRECTION SPEED ABILITY OF SENIOR PROFESSIONAL SOCCER PLAYERS

Zoran B. Pajić<sup>1</sup>, Jelena R. Ilic<sup>2</sup>, Sasa T. Jakovljevic<sup>1</sup>

<sup>1</sup> University of Belgrade, Faculty of Sport and Physical Education, Beograd, Serbia

<sup>2</sup> Republic Institute of Sport, Beograd, Serbia

### Introduction

Fast actions which affect the efficient performance of soccer players are most often those which require starting capability, acceleration, explosiveness or speed in movement direction changes. Contradictory findings were observed in relations between the treated variables. The aim of this study was to determine the influence of the speed and explosive power, and, also age, on realization of the speed of movement direction changes in professional senior soccer players.

### Method

This study included 66 professional soccer players aged  $24.25 \pm 4.06$ . *Starting capability* – M-5 (test run 5 m), *acceleration* – M-30 (test run 30 m), *explosive power of legs* – ESN (test standing triple jump), and age of participants were predict variables. *Change of direction speed* – BPSK (test *triangle*) was criterion variable. The applied techniques of data processing were descriptive statistics, multiple regression analysis and Pearson's correlation coefficient.

### Results and discussion

Based on the obtained results of multiple regression analysis none of the variables proved to be statistically significant predictor. The coefficient of multiple determination obtained by this method with all three predictors calculated amounted to  $R^2 = .065$ . For the purpose of explication of the inter relations of the treated variables, the statistically significant correlations were obtained between the variables STA and M30 - ( $r = 0,402$ ;  $p < .001$ ), between variables M5 and M30 - ( $r = 0,592$ ;  $p < .000$ ) as well as between STA and ESN - ( $r = - 0,280$ ;  $p < .023$ ).

### Conclusion

Based on the low determination coefficient of determination, it was concluded that age, progression-acceleration, explosive power of legs and speed of movement direction changes are specific motor qualities. They are relatively unconnected and cause a limited transfer to each other.

**Key words:** starting / acceleration / standing triple jump / triangle

## 100 ГОДИНА СРПСКОГ ОЛИМПИЗМА - ЈУБИЛЕЈ ЗА ПАМЋЕЊЕ (1910-2010)

**Слађана Мијатовић**

Факултет спорта и физичког васпитања, Београд, Р. Србија

### Увод

Готово неопажено у овој години пролази један јубилеј значајан за Олимпијски покрет Србије (1910-2010). Познато је да се 1910. година, када је основан Српски олимпијски клуб на челу са Светомиром Ђукићем, узима као почетак Олимпизма у Србији. Тај дан (23. фебруар) се обележава пригодном свечаношћу сваке године.

### Методe

Историјски и дескриптивни метод.

### Резултати са дискусијом

Иако је 2010. година проглашена као година јубилеја олимпизма у Србији и обележена са неколико манифестација Олимпијског комитета Србије, ипак некако тихо и ненаметљиво пролази, а да јој се у довољној мери није поклонила пажња, од стране бројних спортских, стучних и научних институција. Имајући у виду колико су значајни резултати спортиста Србије на Олимпијским играма, у протеклих 100 година, морала се посветити већа пажња на факултетима спорта и физичког васпитања, у спортским клубовима, основним и средњим школама, средствима јавног информисања (новине, радио, ТВ), као и на бројним научним скуповима.

Свима припадницима олимпијског покрета остаје крај 2010. године као могућност да се делимично ублажи наш заједнички пропуст.

### Закључак

Из наведених разлога желимо на овом научном скупу да и на овај начин истакнемо значај почетка Олимпијског покрета у Србији (1910) и важну улогу и допринос Светомира Ђукића његовом почетку и развоју.

Осим тога желимо да подстакнемо и све припаднике Олимпијског покрета Србије да у преосталом делу 2010. године дају лични допринос обележавњу овог значајног јубилеја Олимпизма у Србији.

### Литература

Група аутора. (2001). Дивизијски генерал Светомир Ђукић (коаутор). Комитет Светомир Ђукић. Београд.

Група аутора (2008). 150 година организованог телесног вежбања и спорта и 125 година соколства у Србији (105-117). ДТА доо Београд.

Мијатовић, С. (1991). Јубилеј српског олимпијског покрета 1912-1992. Инфотмативни билтен СОФК. СОФК СР Србије. Београд.

Мијатовић, С. (1991). Значајне личности у југословенском олимпијском покрету – генерал Светомир Ђукић оснивач и председник Српског олимпијског клуба (1910-1918), члан Југословенског олимпијског комитета (1912-1948) и члан Међународног олимпијског комитета (1918-1948)". II конгрес Интернационалног удружења за историју физичког васпитања и спорта (ИСХПЕС). Лас Палмас.

Мијатовић, С. (1992). Осамдесет година од учешћа првих српских олимпијца на петим Олимпијским играма у Стокхолму 1912. године". Интернационални олимпијски конгрес. Гренобл.

Мијатовић, С. (1992). Настанак и развој олимпијског покрета у Краљевини Србији крајем 19. и почетком 20. века. I конгрес Балканског удружења за историју физичког васпитања и спорта (БАХПЕС). Атина.

Мијатовић, С. (1994). Појава олимпијске идеје у грађанским гимнастичким и другим спортским друштвима и клубовима као основа настанка и развоја олимпијског покрета у Краљевини Србији. II конгрес Балканског удружења за историју физичког васпитања и спорта (БАХПЕС). Букурешт.

## **100 YEARS OF SERBIAN OLYMPISM – ANNIVERSARY TO REMEMBER (1910-2010)**

**Sladjana Mijatovic**

Faculty of Sport and Physical Education, Belgrade, Serbia

### **Introduction**

A very important anniversary significant for the Olympic movement of Serbia (1910-2010) has passed almost without any attention. It is well known that the year of 1910 when the Serbian Olympic Club, headed by Svetomir Djukic, is taken as the beginning of Olympism in Serbia. That day (February 23<sup>rd</sup>) is marked with an appropriate celebration every year.

### **Methods**

Historic and descriptive method.

### **Results and discussion**

Although the year of 2010 was announced as the anniversary year of Olympism in Serbia and marked with a few events of the Olympic Committee of Serbia, it has still been passing quietly and unobtrusively, without enough attention by numerous sports, professional and scientific institution.

Having in mind how important are the results achieved by the Serbian athletes at the Olympic Games in the past 100 years, greater attention should have been dedicated at the faculties of sport and physical education, in sports clubs, elementary and high schools, media (newspapers, radio, TV), as well as at numerous scientific meetings.

All the participants of the Olympic movement have the end of 2010 as the possibility to partially moderate our common negligence.

### **Conclusion**

Due to the aforesaid reasons we want to emphasize at this scientific meeting and in this way, the importance of the beginning of the (1910) and the important role and contribution of Svetomir Djukic to its beginning and development.

Apart we want to motivate all the representatives of the Olympic movement in Serbia to give their personal contribution to the celebration of this important anniversary of the Olympism in Serbia.

### **References**

- Grupa autora. (2001). Divizijski general Svetomir Đukić (koautor). Komitet Svetomir Đukić. Beograd.
- Grupa autora (2008). 150 godina organizovanog telesnog vežbanja i sporta i 125 godina sokolstva u Srbiji (105-117). DTA doo Beograd.
- Mijatović, S. (1991). Jubilej srpskog olimpijskog pokreta 1912-1992. Infotmativni bilten SOFK. SOFK SR Srbije. Beograd.
- Mijatović, S. (1991). Značajne ličnosti u jugoslovenskom olimpijskom pokretu – general Svetomir Đukić osnivač i predsednik Srpskog olimpijskog kluba (1910-1918), član Jugoslovenskog olimpijskog komiteta (1912-1948) i član Međunarodnog olimpijskog komiteta (1918-1948)". II kongres Internacionalnog udruženja za istoriju fizičkog vaspitanja i sporta (ISHPES). Las Palmas.
- Mijatović, S. (1992). Osamdeset godina od učešća prvih srpskih olimpijaca na petim Olimpijskim igrama u Stokholmu 1912. godine". Internacionalni olimpijski kongres. Grenobl.
- Mijatović, S. (1992). Nastanak i razvoj olimpijskog pokreta u Kraljevini Srbiji krajem 19. i početkom 20. veka. I kongres Balkanskog udruženja za istoriju fizičkog vaspitanja i sporta (BAHPES). Atina.
- Mijatović, S. (1994). Pojava olimpijske ideje u građanskim gimnastičkim i drugim sportskim društvima i klubovima kao osnova nastanka i razvoja olimpijskog pokreta u Kraljevini Srbiji. II kongres Balkanskog udruženja za istoriju fizičkog vaspitanja i sporta (BAHPES). Bukurešt.

## STANJE KONDICIJE UČESNIKA LETNJEG FESTIVALA REKREACIJE, ČANJ 2010.

Natalija Mihajlović<sup>1</sup>, Dušan Mitić<sup>2</sup>

<sup>1</sup> dipl. prof. sporta, Beograd

<sup>2</sup> Fakultet sporta i fizičkog vaspitanja, Univerzitet u Beogradu, Republika Srbija

### Uvod

Međunarodni Letnji festival rekreacije okuplja ljude koji neguju zdrave stilove života. Rekreativno savetovalište, deo osnovnog programa, je bio prilika da testiramo njihove aerobne sposobnosti, sa ciljem davanja preciznih uputstava na buduće aktivnosti za unapređenje kondicije.

### Metod

Korišćen je Servej metod, sistematsko neeksperimentalno istraživanje, gde se zaključuje na osnovu transversalnog preseka stanja praćene pojave. Test je rađen na uzorku od 58 ispitanika, 25 žena i 33 muškarca. Instrument je UKK test 2 km brzog hodanja namenjen merenju kondicije zdravih odraslih osoba od 18 – 60 godina.

### Rezultati

Fitness indeks muškaraca opada tokom godina, uz pomalo iznenađujući porast prosečne vrednosti u kategoriji 50 do 60 godina. Kod žena učesnica Festivala uočavamo da nema opadanja vrednosti fitness indeksa koji se kod svih uzrasta kreće u rasponu od 70 do 80 indeksnih poena, sa najboljim rezultatima u uzrastu od 40 do 50 godina.

Kiseonička potrošnja merena procenom  $VO_2$  max je kod muškaraca stabilnija, manje varira u odnosu na žene. Kod obe kategorije dolazi do opadanja maksimalne potrošnje kiseonika, kod žena je izraženiji pad vrednosti nakon 50. godina.

### Zaključak

U odnosu na ranija istraživanja, u periodu 1997-2004. godine, uočava se da su žene prvog istraživanja fizički spremnije u odnosu na testirane žene ove godine, zbog razlika u uzorku koji su u ranijem istraživanju u kategoriji do 30 godina činili studenti kadrovskih škola. Muškarci testirani ove godine imaju stabilne vrednosti Fitness indeksa, u boljoj su kondiciji nego testirani muškarci prethodnih godina.

### Literatura:

1. Cvetković, M. (2009). Sportska dijagnostika. Novi Sad
2. Mitić, D. (2001). Rekreacija. Beograd
3. Mitić, D. i Stojiljković, S. (2005). Fitness index and maximal oxygen uptake among people with active life – style in Serbia. Beograd
4. Stojiljković S. i saradnici (2005). Fitness. Beograd

## CONDITION STATE OF THE PARTICIPANTS IN THE SUMMER RECREATION FESTIVAL, ČANJ 2010.

Natalija Mihajlović<sup>1</sup>, Dušan Mitić<sup>2</sup>

<sup>1</sup>graduate prof. of sport, Belgrade

<sup>2</sup>Faculty of Sport and Physical Education, University of Belgrade, Republic of Serbia

### Introduction

The International Summer Recreation Festival gathers the people who cherish healthy lifestyle. Recreational consulting, as a part of the basic program, offered the opportunity to test their aerobic abilities aimed at providing precise instructions for future activities to increase fitness.

### Method

The method of survey was used, i.e. systematic non experimental research, where conclusions are made based on transversal section of the followed phenomenon. Test was performed in a sample of 58 subjects, 25 females and 33 males. The instrument was the UKK test 2 km of fast walking intended for measurement of conditions in healthy adult individuals aged 18 – 60.

### Results

Males fitness index decreases with years followed by significant increase of average value in the category of 50 to 60 years. In female Festival participants, we have observed that no decrease of fitness index value, which is at all ages from 70 to 80, with the best results in the age category between 40 and 50 years of age. Oxygen consumption measured by VO<sub>2</sub> max evaluation is more stable with males and varies less compared to the females. In both categories there was a fall of maximal oxygen consumption, and in females this drop of values is more expressed after the age of 50.

### Conclusion

When compared to previous researches from 1997-2004, it can be noticed that the females of the first research were more physically fit compared to the this year testees, due to the differences in the sample. Namely, the previous research, in the category up to 30 years consisted of the students of vocational schools. Males, tested this year have stable variations of the fitness index, they are in better conditions than the males tested in previous years.

### References

1. Cvetković, M. (2009). Sportska dijagnostika. (Sports diagnostics), Novi Sad
2. Mitić, D. (2001). Rekreacija (Recreation). Beograd
3. Mitić, D. i Stojiljković, S. (2005). Fitness index and maximal oxygen uptake among people with active life – style in Serbia. Beograd
4. Stojiljković S. et al. (2005). Fitness. Beograd

## STUDIJA SLUČAJA - BOJANA VASILJEVIĆ-OBRADOVIĆ VICEŠAMPIONKA SVETA U BODI FITNESSU NA SVETSKOM PRVENSTVU U BODIBILDINGU, FITNESSU I BODI FITNESSU – MEKSIKO, 2010.

Zoran Obradović, Bojana Vasiljević-Obradović, Stanimir Stojiljković<sup>1</sup>

<sup>1</sup> Fakultet sporta i fizičkog vaspitanja, Univerzitet u Beogradu, Beograd, Srbija

### Uvod

IFBB (Internacionalna Federacija za Bodibilding) je osnovana 1946. godine u kanadskom gradu Montreal na inicijativu braće *Weider*. Ova organizacija danas okuplja 182 nacionalne federacije širom sveta, a kao referentnu prepoznaje je preko 90 nacionalnih olimpijskih komiteta u svetu.

Bodi fitness je najmlađa takmičarska kategorija u IFBB. U takmičarski program uvedena je 2002. godine, kao mogućnost da se oceni što prirodniji izgled takmičarki i kao izraz borbe protiv dopinga i nedozvoljenih sredstava u ovom sportu. Ujedno ovo je i jedan od razloga zbog kojeg je IFBB prepoznata od strane MOK-a (Međunarodni olimpijski komitet) i demonstracija ovog sporta se očekuje na jednoj od sledećih olimpijskih igara.

Bojana Vasiljević Obradović je osvojila 2. mesto u kategoriji Bodi fitness na Svetskom prvenstvu u Meksiko Sitiju 2010. godine. Ovo je najveći uspeh u istoriji srpskog bodibilding i fitness sporta.

### Metod

U studiji slučaja opisan je predtakmičarski i takmičarski period priprema za Svetsko prvenstvo. Kao kriterijum za planiranje i programiranje treninga i ishrane uzeto je u obzir nekoliko važnih faktora:

1. Karakteristike takmičarske aktivnosti, pravila takmičenja i kriterijuma sudijskog vrednovanja. Bodi fitness spada u kategoriju sudijskog ocenjivanja vizuelnog estetskog učinka, po unapred zadatim kriterijumima.
2. Analiza prethodne trenažne aktivnosti i dnevnika ishrane.
3. Dijagnostika aktuelnog stanja forme u momentu početka predtakmičarskog perioda.
4. Identifikacija ključnih zadataka za rešavanje.
5. Izbor najefikasnijih načina rešavanja ključnih zadataka u cilju postizanja najbolje forme na najvažnijem takmičenju u sezoni.

Pri oceni inicijalnog i kontrolnih stanja forme korišćeni su adekvatni motorički testovi za procenu sile, BIA (*bioelectrical impedance analysis*) tehnologija za procenu telesnog sastava, ali i vizuelna procena i analiza izgleda takmičarke, jer je to jedini kriterijum koji se uzima u obzira na takmičenju.

Studija slučaja predstavljena je sa ciljem identifikacije modela vrhunskog takmičara u bodi fitnessu i praktičnih metodičkih postupaka u treningu i ishrani, u cilju postizanja najboljeg rezultata na takmičenju.

### Rezultati i diskusija

Kao posledica adekvatnog treninga i ishrane u testovima sile rezultati su se popravili na sledeći način: potisak sa ravne klupe 45kg / 55kg; čučanj 70kg / 85kg; mrtvo dizanje 80kg / 90kg (inicijalno / finalno merenje, respektivno). Količina masti za referentnu takmičarku kretala se u rasponu od 6,3kg na inicijalnom merenju do konacnih 4,0kg na kraju osmonedeljnih priprema. Sa promenama u kolicini masti, adekvatno su se transformisali i drugi BIA parametri, što je dovelo do vrhunske forme na Svetskom prvenstvu.

### Zaključak

Adekvatno planiranje i programiranje treninga i ishrane kod takmičarke u bodi fitnessu koja je predmet studije, dovelo je do optimalnih promena telesnog sastava, što je za posledicu imalo osvajanje drugog mesta na Svetskom prvenstvu u Meksiku 2010. godine.

## **CASE STUDY - BOJANA VASILJEVIĆ-OBRAĐOVIĆ WORLD VICE CHAMPION IN BODYFITNESS IN THE 2010 WORLD BODYBUILDING, FITNESS AND BODY FITNESS CHAMPIONSHIP IN MEXICO**

**Zoran Obradović, Bojana Vasiljević-Obradović, Stanimir Stojiljković<sup>1</sup>**

<sup>1</sup> Faculty of Sport and Physical Education, University of Belgrade, Serbia

### **Introducton**

IFBB (International Federation of Bodybuilding) was established in 1946 in Canadian city of Montreal, at the initiative of Weider brothers. Today this organization gathers 182 national federations throughout the world, and recognizes over 90 national Olympic committees as referent ones all over the world.

Body fitness is the youngest competitive IFBB category. It was included in the competitive program in 2002. as a possibility to evaluate competitors' most natural appearance and as an expression of the antidoping and illegal substances fighting in this sport. At the same time this is why IFBB was recognized by the International Olympic Committee and the affirmation of this sport is expected at one of the future Olympic Games.

Bojana Vasiljević Obradović was awarded the 2<sup>nd</sup> place in Bodyfitness category in the 2010 IFBB World Championship in Mexico City. This was the greatest success in the history of Serbian bodybuilding and fitness sport.

### **Method**

The case study described the pre competitive and competitive period of preparation for the World Championship. As a criterion for planning and programming of the training and nutrition, several important factors were taken into consideration:

1. Features of competitive activity, competition rules and referees' judgement criteria. Bodyfitness ranks among the categories of referees' assessment of visual aesthetic performance, according to the previously assigned criteria.
2. Analysis of the previous training activity and nutrition diary.
3. Diagnostics of current state of preparedness at the moment of pre competitive period beginning.
4. Identification of the key tasks to be solved.
5. Selection of the most efficient way of solving key tasks in order to achieve the best form in the most important competition in the season.

When assessing the initial and control form state, adequate motor tests were used for assessment of strength, BIA (bioelectrical impedance analysis) technology for body composition assessment, as well as visual assessment and analysis of competitor's look, because it is the only criterion taken in consideration in the competition.

Case study was presented with an aim to identify a top bodyfitness athlete model and practical methods in training and nutrition, aimed at top results achievement in the competition.

### **Results and discussion**

As a consequence of adequate training and nutrition, strength become better: bench press 45kg / 55kg; squat 70kg / 85kg; dead lift 80kg / 90kg (initial / final measurement, respectively). The fat value for the referent competitor ranged from 6,3 kg at the initial measurement up to final 4,0 kg at the end of 8-week preparation period. With the changes in fat quantities, other BIA parameters transformed respectively, which let to her top preparedness in the World Championship.

### **Conclusion**

Adequate training and nutrition planning and programming in the bodyfitness competitor, lead to optimal changes of body composition, and consequently her achieving the second position in 2010 World Championship in Mexico.



## **A COMPARISON OF THE PHYSICAL FITNESS OF STUDENTS ATTENDING DIFFERENT HIGH SCHOOL PROGRAMMES IN SCHOOL YEAR 2008/2009**

**Marjeta Kovač, Bojan Leskošek, Gregor Jurak, Janko Strel**

University of Ljubljana, Faculty of Sport, Slovenia

### **Introduction**

It is known that students from different high school programmes differ in their physical fitness, academic achievements and socio-economic factors of their environment. The present study analysed differences in physical fitness of high school students according to their gender, age and the type of programmes they attend in the school year 2008/2009.

### **Methods**

The study included 14,461 boys and 13,358 girls; 5,794 of the boys and 8,009 of the girls attended gymnasium programmes, 6,495 boys and 4,166 girls attended technical/professional programmes, while 2,172 boys and 1,183 girls attended vocational programmes. Data from the SLOfit system were used to identify the status of their physical characteristics and motor abilities.

### **Results and discussion**

The biggest proportion of variance (65,5%) between the groups is explained by gender. The influence of a particular programme is quite large (6,8% of explained variance), whereas age has a smaller influence (1,5%). The type of programme differentiates the boys and girls more than age; however, the differences are smaller with boys than with girls. The biggest difference between the types of programme – whilst controlling for age and gender – was noticed in the results of the tests sit-ups and arm-plate tapping. Presumably, the less favourable physical fitness of students from vocational programmes is probably a result of their more infrequent free-time sports participation, the smaller amount of physical education lessons in the school curricula and unsuitable eating habits.

### **Conclusion**

The findings of the study lead to the suggestion that students from vocational schools need minimum three hours of physical education lessons in the school curricula and more possibilities to participate in out-of-school sport programmes.

## **FIZIČKA AKTIVNOST ADOLESCENATA: UZRASNE I POLNE RAZLIKE**

**Snežana Radisavljević Janić, Ivana Milanović, Dušanka Lazarević**

Fakultet sporta i fizičkog vaspitanja, Beograd, Srbija

### **Uvod**

Istraživanja ukazuju na trend opadanja fizičke aktivnosti u adolescentskom periodu (Trost et al., 2002), što može dovesti do pojave različitih oboljenja u kasnijem životnom dobu. Cilj ovog istraživanja je utvrđivanje nivoa fizičke aktivnosti adolescenata u našoj sredini, posmatrano s obzirom na njihov uzrast i pol.

### **Metode**

Uzorak je činilo 783 učenika, od kojih je 417 učenika osnovne škole, sedmog i osmog razreda i 366 učenika srednje škole, prvog i trećeg razreda. Za procenu nivoa fizičke aktivnosti primenjen je Upitnik fizičke aktivnosti za adolescente (PAQ-A) (Kowalski et al., 1997).

### **Rezultati sa diskusijom**

Rezultati analize varijanse (ANOVA) su pokazali da postoje razlike u nivou fizičke aktivnosti između učenika osnovne i učenika srednje škole u korist učenika osnovne škole (mlađi adolescentni uzrast). Takođe, utvrđeno je postojanje polnih razlika u nivou fizičke aktivnosti u obe uzrasne grupe u korist adolescenata muškog pola.

### **Zaključak**

Nivo fizičke aktivnosti adolescenata oba pola opada sa uzrastom, pri čemu devojke pokazuju niži nivo fizičke aktivnosti u odnosu na mladiće, kako na mlađem, tako i na starijem adolescentnom uzrastu. Rezultati ovog istraživanja ukazuju da je u razvoju programa za unapređenje nivoa fizičke aktivnosti adolescenata potrebno posebno imati u vidu prelazni period od osnovne ka srednjoj školi, kao i polnu pripadnost adolescenata.

### **Literatura**

- Kowalski, K.C., Crocker, P.R.E., Kowalski, N.P. (1997). Convergent Validity of the Physical Activity Questionnaire for Adolescents, *Pediatric Exercise Science*, 342-352.
- Trost, S.G., Pate, R.R., Sallis, J.F., Freedson, P.S., Tazlor, W.C., Dowda, M., & Sirard, J. (2002). Age and gender differences in objectively measured physical activity in youth. *Medicine and Science in Sports and Exercise*, 34, 350-355.

## PHYSICAL ACTIVITY OF ADOLESCENTS: AGE AND GENDER DIFFERENCES

Snežana Radisavljević Janić, Ivana Milanović, Dušanka Lazarević

Faculty of sport and physical education, Belgrade, Serbia

### Introduction

The studies indicate to the tendency of decrease in physical activity in the period of adolescence (Trost et al., 2002), which can result in different diseases in later periods of life. The aim of this research is to determine the level of physical activity of adolescents in our environment, in conformity with their age and gender.

### Method

The sample consisted of 783 students, 417 of which attended elementary school, 7<sup>th</sup> and 8<sup>th</sup> graders and 366 high school students, attending 1<sup>st</sup> and 3<sup>rd</sup> grade. For assessment of physical activity level, the Physical Activity Questionnaire for Adolescents (PAQ-A) (Kowalski et al., 1997).

### Results

The results of Analysis of Variance (ANOVA) indicated that there are differences in the level of physical activity between the elementary and high school students in favour of the students of elementary school (junior adolescent age). Additionally, it was determined that there are gender differences in the level of physical activity in both age groups in favour of male adolescents.

### Conclusion

The level of physical activity in adolescents of both gender decreases with age, and the girls showed lower level of physical activity with regard to the boys, both in junior and senior adolescent age. The results of this research indicate that for the development of the program for improvement of the physical activity level in adolescents it is necessary to bear in mind the transitional period from elementary to high school, as well as gender of adolescents.

### References

- Kowalski, K.C., Crocker, P.R.E., Kowalski, N.P. (1997). Convergent Validity of the Physical Activity Questionnaire for Adolescents, *Pediatric Exercise Science*, 342-352.
- Trost, S.G., Pate, R.R., Sallis, J.F., Freedson, P.S., Tazlor, W.C., Dowda, M., & Sirard, J. (2002). Age and gender differences in objectively measured physical activity in youth. *Medicine and Science in Sports and Exercise*, 34, 350-355.

## **SQUAT JUMP AND SPRINT QUALITIES OF PREPUBESCENT SOCCER PLAYERS**

**Fatih Hazar**

Adnan Menderes University, School of Physical Education and Sports, Aydin, Turkey

### **Introduction**

In soccer, many activities such as sprinting, jumping, changing pace and direction, and kicking are forceful, explosive and often constitute the most crucial moments of the game. The period before adolescence is critical for the acquisition by young soccer players of many physical and technical features. During the course of prepubertal development, running speed, resistance, and strength improve (Gravina et al.2008). The aim of this study was to determine the squat jump and sprint qualities of prepubescent soccer players.

### **Methods**

Eighteen soccer players of a soccer team at 10 years old age group participated in the study. Each had at least of two years of training experience and belonged to a soccer team competed at their age-group league. Subjects performed squat jump and 10-m sprint tests. Data were expressed as mean $\pm$ SD, Pearson test used to identify the correlation between speed and squat jumping. The level of significance was set at  $p<0.05$ .

### **Results and discussion**

The mean  $\pm$  SD height, body weight, squat jump and 10-m sprint time performances of the players were 138.11 $\pm$ 5.39cm, 31.32 $\pm$ 5.04kg, 22.89 $\pm$ 3.64 cm and 2.02 $\pm$ 0.8 sec, respectively. There was a significant relationship between squat jump height and 10-m speed time ( $r=-0.549$ ;  $p<0.05$ ).

Gravina et al.(2008) found the squat jump as 28.1 $\pm$ 4.3cm of soccer players aged 10-14 years, at the end-season and Young et al.(1999) as speed-strength tests correlated significantly with jump types ( $r=0.55-0.82$ ). Jumping performances has an important strength component(Young et al.1999). Speed and strength have been reported to be discriminating factors among elite and subelite soccer players (Gravina et al. 2008).

### **Conclusion**

It is very important to identify factors that may be relevant in the selection of soccer players. These results may play an important role in the selection process of young soccer players. These findings should also be taken into account by coaches for preparing the training programs of prepubescent soccer players.

### **References**

Gravina, L.,Gil,S.M.,Ruiz,F.,Zubero,J.,Gil,J.,Irazusta,J.(2008).Antropometric and Physiological Differences Between First Team and Reserve Soccer Players Aged 10-14Years at the Beginning and the end of the Season.Journal of Strength and Conditioning Research.22:1308-1314.

Young, W.,Wilson, G.,Byrne, C.(1999).Relationship Between Strength Qualities and Performance in Standing and Run-up Vertical Jumps.Journal of Sports Medicine and Physical Fitness.39:285-93.

## THE STATE OF INCONTINENCE AND FEMALE ATHLETES

Hale Uyar Hazar<sup>1</sup>, Fatih Hazar<sup>2</sup>

<sup>1</sup>Adnan Menderes University, Aydin School of Health, Aydin, Turkey

<sup>2</sup>Adnan Menderes University, School of Physical Education and Sports, Aydin, Turkey

### Introduction

Urinary incontinence is defined as “the complaint of any involuntary leakage of urine” and is a common problem in the female population with prevalence rates varying between 10% and 55% in 15- to 64-year-old women (Abrams et al., 2002; Bo, 2004). The aim of the study was to determine the state of incontinence and incontinence prevalence in female athletes.

### Methods

Thirty female athletes (age 21.6±2.22 years) participated in study voluntarily. A questionnaire was obtained from the female athletes related to the state of incontinence prevalence. The mean (±sd), minimum, maximum, frequency and percentage values of parameters were obtained and evaluated from the data for statistical analysis.

### Results and discussion

The 63.3% of female students had frequent urine(Frequency), 53.3% had instant, severe urine(Urgency) and 10.0% had night time urine (Noctury).

The frequency of incontinence was, 10.0% one time/a day, 6.7% more than one/a day, 3.3% one time/a week, 3.3% more than one time/a week, 30.0% one time/month rarely.

The 80.0% told to nobody, 6.7% to a friend, 3.3% to family, 10.0% to a medician, about urinary incontinence that experienced uriner incontinence. All of them stated that they had never gat professional help for their urinary incontinence.

### Conclusion

The present research indicated that female athletes have urinary incontinence problems in different quantity that affects their performances negatively. In addition, female athletes did not consider the problem seriously and don't get any assistance for that case, although it may affect their participation in trainings and sport participation.

It may be helpful to get professional help from the special branch nurses as urogynecolgy nurses to come over the urinary incontinence problem and therefore to maintain the sport participation and performance for the female athletes.

### References

Abrams, P.,Cardozo, L.,Fall, M.,et al.(2002).The standardization of terminology of lower urinary tract function: report from the standardisation sub-committee of the International Continence Society.Neurourol Urodyn.21:167-178.

Bø, K.(2004).Urinary Incontinence, Pelvic Floor Dysfunction, Exercise and Sport. Sports Med.34(7):451-464.

## **AKTIVAN ODMOR NA PLANINI KAO PROMOCIJA ŽIVOTNOG STILA**

**Sreten Srečković**

Univerzitet u Beogradu, Fakultet sporta i fizičkog vaspitanja, Beograd, Srbija

### **Uvod**

Cilj ove studije je da pokaže da li se aktivan odmor na planini može posmatrati kao životni stil i kakve su mogućnosti promocije fizičkog vežbanja kroz boravak na njoj.

### **Metod**

U ovom istraživanju izvršeno je anketiranje turista koji su boravili na planini Borovec u Bugarskoj, u hotelu „Olimp“. U anketi je učestvovalo 80 ispitanika, od čega 36 su bile žene, a 44 su činili muškarci. Anketirana lica su različitih nacionalnosti, prosečne starosti 33 godine. U ovom istraživanju primenjen je empirijski metod kao osnovni. Dobijeni statistički podatci su obrađeni deskriptivnom metodom.

### **Rezultati**

Obradom anketnog materijala došlo se do podataka da 83% ispitanika, koji svoj zimski godišnji odmor provode na planini, upražnjava fizičke aktivnosti u vidu životne navike, pri čemu je najviše onih koji to čine dva puta u toku nedelje. Od ukupnog broja na zimovanje redovno odlazi 61%. Skijanje upražnjava čak 74%, a šetnju preferira 15%. Od dodatnih programa koje nudi hotel najčešće se koristi bazen koji upražnjava oko 90% ispitanika. Gotovo polovina gostiju koristi dva do tri dodatna programa hotela u toku svog boravka. Iako su samoinicijativno fizički aktivni, 60% je ovih turista koji smatraju da može a nemora i 30% onih koji smatraju da je potrebno, da postoje organizovani oblici fizičkog vežbanja i rekreacije i da bi uzeli aktivno učešće u programskim aktivnostima predloženim od strane stručnog lica.

### **Zaključak**

Planinske turističke destinacije su pogodno tlo za promociju fizičkih aktivnosti. Glavni razlog za to je populacija koja već ima i neguje kulturu zdravog načina života i upražnjava fizičke aktivnosti u slobodno vreme. Veliki broj njih rado prihvata različite programske oblike fizičkih aktivnosti i rekreacije u cilju aktivnog odmora na planini, a u skladu sa stilom življenja.

## **THE ACTIVE REST AT THE MOUNTAIN AS A PROMOTION OF LIFE STYLE**

**Sreten Sreckovic**

University of Belgrade, Faculty of sport and physical education, Belgrade, Serbia

### **Introduction**

The purpose of this study is to show if the active rest at the mountain can be observed as a life style and what possibilities of promotion of PE during the stay at it are.

### **Method**

In this research it is conducted a poll of tourists who stayed at the mountain Borovec in Bulgaria, at the hotel "Olimp".80 people took part in the poll, there were 36 women and 44 men.The participants of poll were of different nationalities,the average age was 33 years old.In this research it is used the mpirical method as a basic method. Obtained statistical data are prepared by descriptive method.

### **Results**

By collecting this material, the data show that 83% of participants, who spend their winter oliday at the mountain, do physical activities as a life habits, and there is the greatest percentage of those who do it twice a week. From total number, 61% of people go to the winter holiday regularly.74% go skiing, and 15% prefer walks. Among extra programs which hotel offers, people use the most often swimming pool, about 90% of participants. The half of guests use two from three extra programs of hotel during their stay. Although the tourists are physically active, there are 60% of them who think that it can but it needn't and there are 30% of those who think it is necessary existence of organized forms of physical practicing and recreation and they would take part in program activities proposed by expert.

### **Conclusion**

The mountain tourist destinations are convenient for promotions of physical activities. The main reason for it is population who already has and respects culture of healthy way of life and does physical activities in a free time. Great number of them gladly accept different program forms of physical activities and recreation for the purpose of active rest at the mountain, and in accordance with life style.

## **PLIVANJE ZA SVAKOGA – BEZBEDNOST ZA SVE**

**Branislav Jevtić**

Fakultet sporta i fizičkog vaspitanja Beograd, Srbija

### **Uvod**

Statistika pokazuje da je plivanje fizička aktivnosti koja ima najveći broj učesnika. Motivi koji pokreću čoveka ka plivanju su različiti, pre svih zadovoljstvo i veliki broj dokazanih benefita od vežbanja u vodi. Učešće u aktivnostima u vodi prati i veliki broj rizika, među kojima su i utapanja. Sudska praksa i broj optužnica koje se podižu u sudovima Srbije upućuju da je ljudski faktora najčešće razlog utapanja (srodnici, spasiooci, organizatori).

### **Metode**

Ovo kvalitativno istraživanje je sprovedeno sa ciljem refleksije sudske prakse u strategiju borbe protiv utapanja u Srbiji. Analizirana su sudska spisa, izveštaji veštaka, obdukcioni nalazi, normativna akta i pravilnici institucija u kojima je došlo do utapanja četiri maloletne osobe. Korišćena je analiza slučaja, narativna i analiza konverzacije sa ciljem pune istine i razumevanje fenomena koji plivanje prevode u visoko rizičnu fizičku aktivnost u Srbiji (deskriptivna fenomenologija).

### **Rezultati sa diskusijom**

Veći broj analiziranih optužnica i stim u vezi sudskih procesa koji se vode u Srbiji upućuju da su plivači ali i neplivači životno ugroženi kada se nađe u okruženju koga opisuje loša organizacija, nizak standard zaštite i nadzora na bazenima u toku slobodnog i organizovanog plivanja. Strategiju eliminisanja, smanjenja ili optimizacije rizika mora da prati aktivnosti na izgradnji jasnog normativnog okvira, neutralisanje improvizacija, strukovna udruženja, kvalitet profesije spasilaca na vodi i rukovodilac spasilačkih timova. Sastavni deo strategije su i efikasni sudovi, tužilaštva i veštaci.

### **Zaključak**

Utapanja u Srbiji na sudu dobijaju svoju pravnu dimenziju zasnovanu na etičkim i profesionalnim propustima u realizaciji bezbedne fizičke aktivnosti – plivanja za svakoga.

### **Literatura**

Graver, K.D. (2004). Aquatic rescue and Safety. Leeds Human Kinetics  
Edwards, A.; Skinner, J. (2009). Qualitative Research in Sport Management. Singapore, Butterworth  
Heinemann.



## **SWIMMING FOR EVERYONE – SAFETY FOR ALL**

**Branislav Jevtic**

Faculty of Sport and Physical education, Belgrade, Serbia

### **Introduction**

Statistics shows that swimming is the physical activity which has the greatest number of participants. Motifs that turn a human towards swimming are different, above all a pleasure and great number of proved medical benefits of aquatic exercises. Taking part in water activities is followed by significant number of risks, among which is drowning. Case Law and number of indictments in Serbian courts show that human factor is mostly the key factor in drowning accidents (relatives, lifeguards, organizers).

### **Methods**

This qualitative research has been carried out in order to reflect the Case Law in fight against drowning in Serbia. Court documents, expert reports, autopsy reports, legal documents and institution regulations in case of 4 premature males drowning have been analyzed. The case analyses, narrative and conversation analyses have been used in order to obtain the full truth and understanding of these phenomena that turns swimming into high risking physical activity in Serbia (descriptive phenomenology).

### **Discussion Results**

Major number of indictments and related court proceedings in Serbia proves that swimmers but also non-swimmer are life endangered when they are surrounded by poor organization, low security and monitoring standards on swimming pools during free and organized sessions. The strategy of elimination, reduction and optimization of risks must follow the activities on building of a clear normative frame, neutralization of improvisation, expert associations, water lifeguard profession quality and leaders of lifeguard teams.

### **Conclusion**

Drownings in Serbia achieve their legal dimension in front of courts, based on ethical and professional failures in realization of secure physical activity – swimming for all.

### **Literature**

Graver, K.D. (2004) Aquatic rescue and Safety, Leeds Human Kinetics

Edwards, A.; Skinner, J. (2009) Qualitative Research in Sport Management , Singapore, Buittenwort - Heinemann

## **TOURISTS' ATTACHMENT IN PHYSICAL ACTIVITIES DURING THEIR HOLIDAYS: THE CASE OF TENNIS**

**V. Koronas<sup>1</sup>, K. Koronas<sup>1</sup>, I. Athanailidis<sup>2</sup>, E. Zetou<sup>2</sup>**

<sup>1</sup> Aristotle University Thessaloniki, Department of Physical Education and Sports Science, Thessaloniki Greece

<sup>2</sup> Democritus University of Thrace, Department of Physical Education and Sports, Komotini, Greece

Attachment to a tourist destination or physical activity during holidays is a rather significant factor determining, among others, the visitors' consumer behavior as well. The aim of the present research is to investigate the extent of attachment exhibited by the tourists of three different nationalities, (namely, Russian, English and German) concerning tennis, during their stay in a hotel, as well as their attitude towards the idea of revisiting the same place. Attachment was ranged depending on the tourists' origin. No such research, including Russian nationals as well, has been conducted ever before. This is justified, since it is only recently that Russians have taken to organized tourism in Greece. The sample consisted of 330 adults of the above mentioned nationalities. The present research was conducted in Chalkidiki, due to both the intensive tourism throughout summer and the easy access of the sample at hand, with the active participation of tennis instructors and the management of a hotel chain (namely hotels, Athos Palace, Pallini Beach Hotel, Ira, Macedonian Sun and Villa Princess Theophano). A closed-question, weighted-scoring and valid questionnaire was used in the research (Alexandris et al 2002; Filo, Funk and Alexandris, 2008; Williams, and Roggenbuck, 1989; Bansala, Eiselt, 2004). The participants provided their answers on an "agree"- "disagree" scale from 1 to 7. The questionnaires were collected at the six open tennis courts of the hotel complex, during summer, by the researcher – who was indispensable in order explanations to be provided. The results of the research maintained that the participants were quite satisfied by the tennis services provided and expressed an intention to revisit the same place; yet, there is still room for further improvement.

**Key words:** Attachment, tourism, physical activity, tennis.

## ASSESS THE STATE OF POSTURE, PHYSICAL FITNESS AND PHYSICAL DEVELOPMENT OF STUDENTS OF THE UNIVERSITY

Alena Cepková

Department of Physical Education and Sport, Faculty of Mechanical Engineering, Slovak Technical University, Bratislava

### Introduction

The paper is to present the state of posture college students and their physical fitness and physical development. The results in this paper are part of the solution of the research grant VEGA no. 1/0106/08: "Deviations posture of students, depending on the professional, motor and psychological states."

### Methodology

Object of investigation was a students from FME STU Bratislava. Overall, we were 4 measurements: A - first at the beginning of the 2.semester academics year 2008/09, the number of students was  $n = 320$ , B - a second measurement was performed in 1.semester next academic year, the number of students was  $n = 238$ , C - third measurement was performed at the beginning of the second semester academic year 2009/2010, where the number of students was  $n = 267$  and the last was performed in D - 4. Measurement in 1.semester ac.year 2010/2011  $n = 194$ . Testing conducted on the hour of physical education, at the beginning of the semester. Content of the physical education was football, hockey, fitness enhancing, basketball, table tennis, fresbee. Clap prowess, we have searched UNIFITTEST (Měkota, K., Smith, R, 1996). Good posture, we have searched by Matthias test.

### Result and Conclusion

For everyone, it is important to maintain good posture and continuously improve the exercise habits of a lifetime. Education on proper posture is to be understood not only as a process of keeping the resting position, but as education and raised capacity to deal with physical tasks of daily life at school, at home, at work (sit, lie, learn, run, jump, draw, cook, etc. ). Based on the results we can conclude that for most students FME STU we found incorrect posture. Despite the prevailing sedentary students, when there is a study of low demands on the body, leading to hypokinesy. The threshold energy is expected to fall right in activities under  $4.1 \text{ kJ} \cdot \text{min}^{-1}$  (Mekota, Cuberek, 2007). Physical activity to them in most cases, guaranteed school physical education. FME STU students prefer mostly games - football, hockey, basketball, fresbee and bodybuilding. Individual measurements are documented, that during the study to students with no significant changes in tests. We found that students belong to a group of people, with almost no risk cardiovascular diseases and diseases resulting from obesity. The 5-point standard lie-set60s was 40 to 42 repetitions, jumping from place to achieve an average of 215 cm in pull-ups made from 5 to 7 bends. Probands were specific sample of students with mostly psychological employment. Their professional focus does not require general or special physical training, motor development fitness. It is realizing the importance of each individual's daily physical activity for health is important. You just mandatory physical education in college, where physical education teachers have the possibility and also role and motivates students to learn to regular physical activity. This study also confirmed by various authors (Palovičová, J, 2001, Buková, A. 2008). We can talk about health-oriented physical activity for students. This means that their current status in college does not get worse, but that was its maintenance. In conclusion, the hours of compulsory physical education are an important factor in influencing the quality of human life - student university

### References

- BUKOVÁ, A-STAŠKO, I-GAJDOŠOVÁ,B.(2008).Physical activity UPJŠ students. In: Physical education and sport, health and movement. Proceedings of 2 grade science - pedagogical conferences teachers TV. Prešov: s. 132 – 136. ISBN 978-80-8045-515-6.
- KOLAR, V., MĚKOTA, K., SORM, G.(1989). Motor performance and physical development of students in 1st year university Czechoslovakia 1986. In.: Physical Culture - Proceedings of members' work departments of Physical Education and Sports Medicine 21st Olomouc, Univ.Palackého, 5-63.
- MĚKOTA, K., SMITH, R.et al.(1996). UNIFITTEST. Prague, Faculty of Education, University of Ostrava,94s.
- MEKOTA, K., CUBEREK, R.( 2007). Physical skills, work-performance. Palackého University, Olomouc,p.163
- PALOVIČOVÁ,J.(2003).Regular physical activity in daily mode at students at the university. In.: Current status and trends of university sport and physical education before joining the European Union. Bratislava. Mff KTVS UK,SAUŠ,p. 52 – 56. ISBN 80-223-1880-

**Keywords:** Mattias test, UNIFITTEST (60-60), BMI, WHR

## THE POLICE AND CRIMINAL JUSTICE ACADEMY STUDENTS ATTITUDES OF THE SUBJECT OF SPECIAL PHYSICAL EDUCATION

Goran Vučković<sup>1</sup>, Milivoj Dopsaj<sup>2</sup>

<sup>1</sup> Academy of Criminalistic and Police Studies, Belgrade, Serbia.

<sup>2</sup> Faculty of Sport and Physical Education, Belgrade, Serbia.

### Introduction

The aim of this research was to find out the attitudes of female first-year students regarding the subject of Special Physical Education, which belongs to the group of general-professional subjects.

### Methods

The anonymous questionnaire was used among a group of 103 first-year male students of the Police and Criminal Justice Academy following the end of the Special Physical Education I course and completion of pre-examination tasks in the 2008/09 school year. The questionnaire was with closed answer model (students had multiple answer choice, with opportunity to choose only one option to answer) (Šešić, 1978).

### Results

The analysis of the poll results indicates that a large number of subjects holds that the subject in question is very significant or that it is among subjects of significance (94.17%), whereas the number of practical training hours is insufficient, being average (82.52%), and that it should be 4 lessons a week (39.81%) or 5 (31.07%). The subjects also expressed an important view of the number of theory lessons, which they found was satisfactory (58.25%) and that lessons should take place during both semesters, i.e. throughout the school year (86.41 %). The students said that they preferred (87.38 %) the special part of the curriculum (hitting, levers, throws...) to the theoretical part. As for the students' views related to achievement expectations in the observed subject, it can be inferred that 49.51 % subjects achieved results equaling or exceeding their expectations, whereas 46.60 % failed to achieve the desired results. A large number of subjects, 48 (46.60 %) were of the opinion that the teachers and assistants engaged on this subject were extremely correct or correct, whereas 19 subjects (18.45 %) stated that they were incorrect or that their conduct was disappointing.

### Conclusion

The results showed that examined students of the Police and Criminal Justice Academy have had attitude according to extension of Special Physical Education subjects classes during the all year as a winter and summer semester of studying and with an increased amount of practical with one hour of theory classes. One of the possible directions of increase of the fund education, it might be and, in addition to increasing teaching SFO and re-introduction of certain aspects of teaching BMS (basic-motorical status) or the reintroduction of the teaching of swimming, skiing, field and practical work in winter and summer camps, as well as physical fitness training (Vučković and Dopsaj, 2009). Results are shown that students attitudes are very similar with the attitudes of female students (Vučković and Dopsaj, 2009).

### References

- Vučković, G., Dopsaj, M. (2009). Stavovi studentkiња Kriminalističko-policijske akademije o nastavi specijalnog fizičkog obrazovanja, *Bezbednost*, 51(3):105-116.
- Šešić, B. (1978). *Osnovi metodologije društvenih nauka*, Beograd: Naučna knjiga.

## STUDY ON THE PHYSICAL DEVELOPMENT LEVEL OF CLASS V<sup>th</sup> STUDENTS

Talaghir Laurențiu-Gabriel<sup>1</sup>, Bădău Dana<sup>2</sup>, Manolache Gabriel<sup>1</sup>, Mereuța Claudiu<sup>1</sup>,  
Candidate Iconomescu Teodora<sup>1</sup>

<sup>1</sup>“Dunărea de Jos” University of Galați, România  
<sup>2</sup>„George Barițiu” University of Brașov, România

### Introduction

The practice of physical exercise is conducted in an organized manner in the school physical education. The general objectives of physical education are oriented in several directions, and harmonious physical development is one of them. As in past years, the school system has approached the discipline “Physical education” with specialized frame and, because class V<sup>th</sup> is the first step in secondary education, we wanted to know if the level of physical development of students fall into the normal parameters for this age.

### Methods

The hypothesis from which we started in our study was that, due to the conditions and influences on children, generally exercised by social and environmental factors, the number of overweight students is high. To determine the level of physical development of students at the beginning of secondary school, we measured height and weight of students in fifth grade. Once obtained these data, we analyzed them using Quetelet index, also known as body mass index (BMI).

Methods used were:

- Measuring weight
- Measuring height
- Mathematical Methods
- Graphical methods for the interpretation of results.

### Results

A surprising result was recorded: Most students involved in research fits in threshold of underdevelopment for this age. A small percentage has been confirmed as overweight to obese, and while few have been quite normal values of somatic development (physical).

### Conclusions

Conclusions can be multiple, but we can say that the low level of physical development of children in the study recommended systematic practice of physical exercise, sustained and conscious, to ensure students the necessary support for school activities and daily living.

**Keywords:** physical education, secondary education stage, physical exercise, physical development

### References:

1. TOMA B., ROBU D. (2002). *Metodica educației fizice școlare*, Editura Mongabit, Galați.
2. BAR-OR, O., ROWLAND, T. W. (2004). *Pediatric exercise medicin: From physiologic principles to health care application*, Champaign, Editura Human Kinetics.
3. CIOFU E., CIOFU C. (2002). *Esențialul în pediatrie, ediția a-2-a*, Editura Almatea, București.
4. CRĂCIUN, M. (1984). *Exercițiul fizic, izvor de sănătate*, Editura Sport-Turism, București.
5. CÂRSTEA GH. (2000). *Teoria și metodică educației fizice și sportului*, Editura An-Da București.
6. RAȚĂ G. (2004). *Didactica educației fizice școlare*, Editura Alma Mater, Bacău.

## RESEARCH FOR THE OPINION OF SPORTS ACCORDING TO 13 YEARS OLD STUDENTS

**Marjan Malcev**

University „St. Cyril and Methody“ , Skopje, Macedonia

### Introduction

The need of the research for the views of sports according to 13 years old students and their participation in the sport activities is very important, because their positiv attitude toward sports is condition for participation in more sport activities, and of course, vice versa, the negative point of vew is condition for passive approach to sport activities. Therefor, we have need of this research, with its aim to make influence the quantity and quality of the athletes and sport general. The determination of the approach for the sport and the differences in the respondents chronological age, should give a clear picture for the further actions.

### Method

Respondents sample

The respondents sample population is defined as a population of 13 years old students, males and females, from Skopjes – R.Macedonia high schooles. The total effective is 400 respondents, or 200 by subsample.

Sample of variables

The sample of variables for measurement of the opinion of sport is composed of 23 itemes – Kneers inventory position, in which every item itself may represent special variable, obtained from Likerts type.

Method for data processing

For each variable criteria that defines the opinion, the central base dispersive parametres are calculated.

For the assessment of the differences in the opinion we use the Hi- square test.

### Results with discussion

By the answers, the results represent tollerant tendention for making a group of better values – positive point of views, up to the exstreme positive approach. In the majority of the inventory given above, the grouping evidently express bigger numerical results (AS), that is positive approach to sport in the both subsamples.

The margine value of the Hi-square test, on the statistic level  $Q=.05$  for 2 degreas of freedom is 5.99. certain differences are remarkable in the variables treated as social, sport and emotional sphere of the opinion.

### Conclusion

According to the given data evidence from the descriptive statistic and Hi-square test we can point out several conclusions:

- The approach of sport in the both subsamples is positive.
- The differences in the points of view at this age are minimal.

### References

- Bala,G.(1986). Logicke osnove za analizu podataka iz istrazivanja u fizickoj kulturi, Novi Sad, Fakultet fizicke kulture.
- Malcev,M.(2006). Razlikite na stavot kon sportot kaj ucenicite i ucenicite na 10 godisna vozrast. Skopje, Fizicka kultura. Br.1

## **BORILAČKI SPORTOVI ZA OSOBE SA INVALIDITETOM**

**Goran Kasum<sup>1</sup>, Strašo Gligorov<sup>2</sup>, Tanja Nastasić-Stošković<sup>3</sup>**

<sup>1</sup> Fakultet sporta i fizičkog vaspitanja, Beograd, Srbija

<sup>2</sup> Centar za obuku, Skoplje, Makedonija

<sup>3</sup> Kliničko-bolnički centar „Dr Dragiša Mišović“, Beograd, Srbija

### **Uvod**

Terminom prilagođeni sport u literaturi se označavaju sportske aktivnosti, modifikovane i prilagođene osobama sa invaliditetom (Winnick, 1995). Uprkos vrlo naglašenim vrednostima, borilački sportovi nisu dovoljno zastupljeni među osobama sa invaliditetom u Srbiji. Ipak, uz minimalne modifikacije, ovi sportovi postaju vrlo dostupni i interesantni za populaciju sportista sa invaliditetom. Koristi od bavljenja boričakim sportovima su višestruke, a u pojedinim svetskim bolnicama, borilački sportovi i veštine već imaju značajnu ulogu u terapiji traumatizovanih i invalidiziranih lica (Mesi, 1999).

### **Metode**

Radi analize mogućnosti primene borilačkih sportova za osobe sa invaliditetom, korištena je deskriptivna metoda, dok je u analizi postojećeg stanja korištena istorijska metoda. Svi podaci dobijeni su pregledom dostupnih pisanih izvora i raznih video materijala.

### **Rezultati i diskusija**

Trenutno se na programu paraolimpijskih igara nalaze samo dva sporta, a to su mačevanje i džudo, u muškoj i ženskoj konkurenciji. Gotovo sigurno, na programu Paraolimpijskih igara naći će se i karate, a slične ambicije gaji i tekvondo. Ostali borilački sportovi imaju vrlo malu zastupljenost u populaciji osoba sa invaliditetom. Razloge ovako slabe zainteresovanosti osoba sa invaliditetom za druge borilačke sportove, treba, pre svega, tražiti u činjenici da oni nisu ni predstavljeni ovoj populaciji, niti im je ponuđena mogućnost da se nekim od tih sportova organizovano bave.

### **Zaključak**

Borilački sportovi mogu biti vrlo korisni za osobe sa invaliditetom, a uz minimalne korekcije i modifikacije pravila i opreme, mnogi borilački sportovi postaju vrlo dostupni ovoj populaciji. Opredeljivanje za neki borilački sport donosi veliko osveženje i snažan emotivni doživljaj svakom vežbaču, a upravo ta činjenica ima poseban značaj za osobe sa invaliditetom. U svetu, popularnost borilačkih sportova među osobama sa invaliditetom je u značajnom porastu, a potrebno je učiniti konkretne korake da tako bude i u Srbiji.

### **Reference**

Winnick, J. P. (1995). An Introduction to Adapted Physical Education and Sport. Adapted sport. In Winnick, J. P. (Ed.). Adapted Physical Education and Sport. Second edition (3-16). Champaign, Il.: Human Kinetics.  
Massey, P.B. (1999): Lasting Resolution of Chronic Thoracic Neuritis Using a Martial-Arts - Based Physical Therapy. Alternative Therapies in Health and Medicine 5(3): 104.

## MARTIAL ARTS FOR DISABLED

Goran Kasum<sup>1</sup>, Strašo Gligorov<sup>2</sup>, Tanja Nastasić-Stošković<sup>3</sup>

<sup>1</sup> Faculty of Sport and Physical Education, University of Belgrade, Belgrade, Serbia

<sup>2</sup> Training center, Skoplje, FYRM

<sup>3</sup> Clinical-hospital center „Dr Dragiša Mišović“, Beograd, Srbija

### Introduction

The term “adjusted sport” in the literature indicates sports, modified and adapted to persons with disabilities (Winnick, 1995). In spite of the prominent values, martial arts are not sufficiently represented among persons with disabilities in Serbia. However, with minimal modifications, these sports are becoming very accessible and interesting for the population of athletes with disabilities. The benefits of practicing combat sports are numerous, and in some international hospitals, martial arts and skills but also have an important role in the treatment of traumatized individuals and disabled persons (Massey, 1999).

### Methods

For the analysis of possibilities of using martial arts for people with disabilities, descriptive method is used, while in the analysis of the current situation historical method is used. These data have been obtain by review of available bibliography and different video-materials.

### Results and discusion

Currently, on the Paralympics Games program are only two sports, fencing and judo, men's and women's competition. Almost certainly, the program of paralympic games will find a place for karate, with similar ambitions has taekwondo as well. Other martial arts have minor representation in the population of disabled people. The reasons for this weak interest of people with disabilities to other martial arts will be primarily to the fact that they were not presented to this population, nor are they offered the possibility to involved and deal with it in organized way.

### Conclusion

Martial arts can be very useful for disabled people, and with minimal adjustments and modifications of the rules and equipment, many martial arts are becoming very accessible to this population. Appropriation for a combat sport brings refreshment and a powerful emotional experience of each practitioner, and this fact has special significance for people with disabilities. In the world, the popularity of martial arts among disabled persons is significantly increasing, and it takes concrete steps to do so to be in Serbia.

### Reference

Winnick, J. P. (1995). An Introduction to Adapted Physical Education and Sport. Adapted sport. In Winnick, J. P. (Ed.). Adapted Physical Education and Sport. Second edition (3-16). Champaign, Il.: Human Kinetics.  
Massey, P.B. (1999): Lasting Resolution of Chronic Thoracic Neuritis Using Martial-Arts - Based Physical Therapy. Alternative Therapies in Health and Medicine 5(3): 104.



## **RESULTS OF THE POWER PLATE TRAINING IN TREATMENT OF CEREBRAL PALSY. CASE STUDY**

**Marija Macura, Ana Vilotic, Sanja Mandaric, Goran Kasum**

Faculty of sport and Physical Education, Belgrade, Serbia

### **Introduction**

In the treatment of cerebral palsy, as a disorder which causes physical disability, chiefly in the areas of body movement, physiotherapy is a very important one. In recent time, besides the Bobath neuro-developmental concept, Vojta therapy and conventional therapy, treatments on vibration devices derived from an advanced biomechanical rehabilitation method, are acquired. Effects of special exercising program on vibration device in the treatment of cerebral palsy sufferer between third and fourth surgical operation (fiberotomy, Ulzibat method), are encompassed with this study.

### **Methods**

Exercising program was executed two or three times per week during eight months, with priority aim to decrease the muscle spasm before forthcoming surgical operation. It involved warming up on cross-country ski machine, strength exercises on vibration device, stretching and massage on vibration device and helped walking between two markers, which was also exercise performed with object to monitor progressing in treatment. Each strength exercise was performed in one set lasting for 30 seconds, at 30 to 35 Hz frequency.

### **Results and discussion**

At the beginning of treatment, sufferer was able to achieved full range of movement only pasive. Because of adductors spasm, it wasn't possible to putt the tennis ball between his knees when performing squat exercise. He can't walk or even exercise on cross-country machine without assistance. After three months passed, sufferer wasn't needed assistance while exercising on cross-country machine. He was able also to performs knee extension alone, while squat exercise on vibration device performs with minimal correction of knee position. At the end of fifth months, he performed squats on vibration device without assistance, keeping football ball between knees and also was able to perform several footsteps without assistance. During medical control at Clinics for cerebral palsy and developmental neurology in Belgrade, 40% decreasing of muscle spasm was founded along with whole body static and dynamic balance.

### **Conclusion**

These results sugest that specially designed exercising program on vibration devices can facilitate the improvement of cerebral palsy sufferers general condition, as was earlier found.