



Broj: 872/3  
Nikšić, 10.6.2022.god.

**UNIVERZITET CRNE GORE**  
**ODBORU ZA DOKTORSKE STUDIJE**  
**SENATU**

Poštovani,

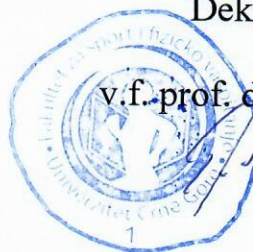
Molim Vas da imenujete Komisiju za ocjenu doktorske disertacije pod nazivom: "Usvajanja plivačkog znanja u zavisnosti od morfološkog, motoričkog i kognitivnog statusa dece predškolskog uzrasta", kandidata mr Ilira Glareve.

U prilogu Vam dostavljamo:

- D2 obrazac;
- Potvrdu o predaju doktorske disertacije organizacionoj jedinici;
- Odluku Vijeća o imenovanju komisije za pregled i ocjenu doktorske disertacije broj 872 od 10.6.2022.godine;
- Kopiju rada kandidata publikovanog u časopisu sa odgovarajuće liste;
- Saglasnost mentora;
- Bio-bibliografija kandidata;
- Bio-bibliografije sa odlukama o izbornim zvanjima predloženih članova Komisije.

S poštovanjem,

Dekan



v.f. prof. dr Rašid Hadžić

Fakultet za sport i fizičko vaspitanje  
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Broj: 872/1  
Nikšić, 10.6.2022

Na osnovu službene evidencije i dokumentacije Fakulteta za sport i fizičko vaspitanje iz Nikšića, izdaje se:

### POTVRDA

Mr Ilir Gllareva, student doktorskih studija Fizička kultura na Fakultetu za sport i fizičko vaspitanje u Nikšiću, dostavila je ovom Fakultetu doktorsku disertaciju pod nazivom: "Usvajanje plivačkog znanja u zavisnosti od morfološkog, motoričkog i kognitivnog statusa dece predškolskog uzrasta", dana 01.03.2022.godine na dalji postupak.



Sekretar

*J. Zrnar*  
Đurđa Vukotić

## ISPUNJENOST USLOVA DOKTORANDA

OPŠTI PODACI O DOKTORANDU			
Titula, ime, ime roditelja, prezime	MR.SC. ILIR (OSMAN) GLLAREVA		
Fakultet	FAKULTET ZA SPORT I FIZICKO VASPITANJE		
Studijski program	FIZIČKO VASPITANJE		
Broj indeksa	6/13		
NAZIV DOKTORSKE DISERTACIJE			
Na službenom jeziku	USVAJANJE PLIVAČKOG ZNANJA U ZAVISNOSTI OD MORFOLOŠKOG, MOTORIČKOG I KOGNITIVNOG STATUSA DJECE PREDŠKOLSKOG UZRASTA		
Na engleskom jeziku	ACHIEVEMENT OF SWIMMING KNOWLEDGE, DEPENDING ON MORPHOLOGICAL, MOTORIC AND COGNITIVE STATUS OF PRESCHOOL CHILDREN		
Naučna oblast	FIZIČKO VASPITANJE		
MENTOR/MENTORI			
Prvi mentor	Prof Dr Dejan Madic	Novi Sad, Srbija	FIZIČKO VASPITANJE
KOMISIJA ZA PREGLED I OCJENU DOKTORSKE DISERTACIJE			
1. Prof. dr Kemal Idrizović, redovni profesor Fakulteta za sport i fizičko vaspitanje predsjednik komisije	Univerziteta Crne Gore, Crna Gora		FIZIČKO VASPITANJE
2. Prof. dr Dejan Madić, redovni profesor Fakulteta sporta i fizičkog vaspitanja, mentor - član	Univerziteta u Novom Sadu, Srbija		FIZIČKO VASPITANJE
3. Prof. dr Stevo Popović, vanredni profesor Fakulteta za sport i fizičko vaspitanje član	Univerziteta Crne Gore, Crna Gora		FIZIČKO VASPITANJE
Datum značajni za ocjenu doktorske disertacije			
Sjednica Senata na kojoj je data saglasnost na ocjenu teme i kandidata			12. 02. 2019
Dostavljanja doktorske disertacije organizacionoj jedinici i saglasnost mentora			01.03.2022
Sjednica Vijeća organizacione jedinice na kojoj je dat prijedlog za imenovanje komisija za pregled i ocjenu doktorske disertacije			08.06.2022
ISPUNJENOST USLOVA DOKTORANDA			
U skladu sa članom 38 pravila doktorskih studija kandidat je cjelokupna ili dio sopstvenih istraživanja vezanih za doktorsku disertaciju publikovao u časopisu sa (SCI/SCIE)/(SSCI/A&HCI) liste kao prvi autor.			
Spisak radova doktoranda iz oblasti doktorskih studija koje je publikovao u časopisima sa (upisati odgovarajuću listu)			

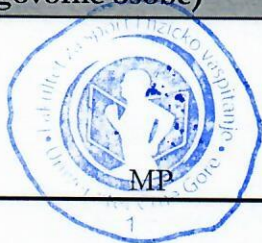
1. Gllareva, I., Trajković, N., Mačak, D., Šćepanović, T., Kostić Zobenica, A., Pajić, A., Halilaj, B., Gallopeni, F., Madić, D. M. (2020). Anthropometric and Motor Competence Classifiers of Swimming Ability in Preschool Children— A Pilot Study Int. J. Environ. Res. Public Health 2020, 17, 6331; doi:10.3390/ijerph17176331  
[www.mdpi.com/journal/ijerph](http://www.mdpi.com/journal/ijerph)

**Obrazloženje mentora o korišćenju doktorske disertacije u publikovanim radovima**

Kandidat je publikovao rad u naučnom časopisu (Open Acces) i djelimično ili integralno prenio u disertaciju u prevodu sa engleskog jezika.

**Datum i ovjera (pečat i potpis odgovorne osobe)**

U, Nikšić  
 08.06.2022,



DEKAN  


**Prilog dokumenta sadrži:**

1. Potvrdu o predaji doktorske disertacije organizacionoj jedinici
2. Odluku o imenovanju komisije za pregled i ocjenu doktorske disertacije
3. Kopiju rada publikovanog u časopisu sa odgovarajuće liste
4. Biografiju i bibliografiju kandidata
5. Biografiju i bibliografiju članova komisije za pregled i ocjenu doktorske disertacije sa potvrdom o izboru u odgovarajuće akademsko zvanje i potvrdom da barem jedan član komisije nije u radnom odnosu na Univerzitetu Crne Gore



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Broj: 872  
Nikšić, 10. 6. 2022

Na osnovu člana 64 Statuta Univerziteta Crne Gore i člana 41 Pravila doktorskih studija, Vijeće Fakulteta za sport i fizičko vaspitanje iz Nikšića, na sjednici održanoj 08.06.2022.godine, donijelo je:

### ODLUKU

Utvrđuje se da su ispunjeni uslovi iz člana 38 Pravila doktorskih studija, te se predlaže Senatu Univerziteta Crne Gore da da saglasnost na predlog Komisije za ocjenu doktorske disertacije pod nazivom: "Usvajanje plivačkog znanja u zavisnosti od morfološkog, motoričkog i kognitivnog statusa dece predškolskog uzrasta" kandidata mr Ilira Gllareve, u sastavu:

1. Prof. dr Kemal Idrizović, redovni profesor Fakulteta za sport i fizičko vaspitanje Univerziteta Crne Gore, predsjednik komisije
2. Prof. dr Dejan Madić, redovni profesor Fakulteta sporta i fizičkog vaspitanja Univerziteta u Novom Sadu, mentor - član
3. Prof. dr Stevo Popović, vanredni profesor Fakulteta za sport i fizičko vaspitanje Univerziteta Crne Gore, član

Pripremila

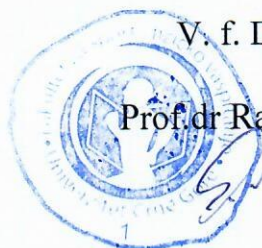
  
Đurđa Vukotić

Dostavljeno:

- a/a
- Odboru Centra za doktorske studije UCG
- Senatu UCG

V. f. Dekana

Prof. dr Rašid Hadžić



Univerzitet Crne Gore

Fakultet za Sport i Fizičko Vaspitanje

Nikšić

Црна Гора  
УНИВЕРЗИТЕТ ЦРНЕ ГОРЕ  
ФАКУЛТЕТ ЗА СПОРТ И ФИЗИЧКО ВАСПИТАЊЕ

Примљено: 1.3.2022			
Орг. јед.	Број	Прилог	Вриједност
	287/2		

Na osnovu člana 37. Pravila doktorskih studija Univerziteta Crne Gore, dajem sljedeću

SAGLASNOST

Dostavljeni pisani materijal pod nazivom "Usvajanje plivačkog znanja u zavisnosti od morfološkog, motoričkog i kognitivnog statusa djece predškolskog uzrasta" autora mr Ilir Glareva, zadovoljava kriterijume doktorske disertacije propisane Statutom Univerziteta Crne Gore i Pravilima doktorskih studija.

U Podgorici,

1. 3. 2022.

MENTOR:

  
Prof. Dr. Dejan Madić

## ILIR GLLAREVA

### BIOGRAFIJA

Ilir Gllareva rođen je 13.10.1970. u Verbocu, Glogocu, Kosovo. Osnovnu školu završio je u Tersteniku, a srednju školu QAMO “Mareshali Tito (skenderbeu)” u Glogocu. Diplomirao je na Fakultetu za fizičku kulturu u Prištini 2000. godine.

Magistarski rad na temu: “Analiza takmičarskih rezultata kosovskih plivača u poslijeratnom periodu”, odbranio je na istom fakultetu 2007. godine.

Od 1994 - 95. godine je aktivni igrač u odbojci, 1995 – 9. atletičar, a 1996 – 97. plivač kluba “Universiteti”.

Bio je plivački sudija na Svjetskom kupu školskog plivanja održanom na Malti (ISF Svim Cup Malta) 2011. godine. Vrhovni je sudija u Plivačkoj federaciji Kosova i svjetski plivački sudija (Starter) u FINA Official List 20. Ilir je licencirani FINA trener plivanja (nivo 2), licencirani FINA waterpolo (nivo 1) i licencirani FIG gimnastički sudija (nivo 1).

Radni angažmani Ilira Gllareve su: predstavnik Plivačke federacije Kosova, asistent na predmetu Plivanje i Stoni tenis na Evropskom masteru “Uvod u program obuke trenera” 2012/13. godine, asistent na predmetu Plivanje na Fakultetu za fizičko vaspitanje i sport, Univerzitet “Hasan Prishtina” u Prištini, od 2003. do danas.

Ilir pored maternjeg (albanskog), govori engleski i crnogorski jezik.

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<https://www.mdpi.com/1660-4601/17/17/6331>



Article

# Anthropometric and Motor Competence Classifiers of Swimming Ability in Preschool Children—A Pilot Study

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**Abstract:** Swimming is a form of physical activity and a life-saving skill. However, only a few studies have identified swimming ability classifiers in preschool children. This pilot cross-sectional study aimed to find anthropometric (AM) and motor competence (MC) predictors of swimming ability in preschool children, by building classifiers of swimming ability group (SAG) membership. We recruited 92 children (girls  $n = 45$ ) aged 5–6 years and took the AM and MC measurements in accordance with the reference manual and using the KTK battery test (motor quotient, MQ), respectively. A linear discriminant analysis tested a classification model of preschoolers' swimming ability (SAG: POOR, GOOD, EXCELLENT) based on gender, age, AM, and MC variables and extracted one significant canonical discriminant function (model fit: 61.2%) that can differentiate (group centroids) POOR (−1.507), GOOD (0.032), and EXCELLENT (1.524). The MQ total was identified as a significant classifier, which absolutely contributed to the discriminant function that classifies children's swimming ability as POOR (standardized canonical coefficient: 1.186), GOOD (1.363), or EXCELLENT (1.535) with an accuracy of 64.1%. Children with higher MQ total ought to be classified into higher SAG; thus, the classification model of SAG based on the MQ total is presented.

**Keywords:** kindergarten children motor ability; swimming ability; motor competence; preschool children; classification model

## 1. Introduction

Swimming ability, as a narrower term of aquatic competence [1], has been acknowledged a life-saving skill [2,3], since drowning is one of the most common causes of unintentional injury deaths throughout the world [4]. As the self-propulsion of a person through water, swimming is a physical activity used in sports performance, recreation, and therapy. Swimming ensures many health benefits across all ages, mostly represented in the current literature as an effective nonpharmacological intervention for children with asthma [5]. Previous studies have also proposed that swimming has a beneficial impact on pulmonary functions and respiratory muscle strength of healthy boys [6] and cardiorespiratory fitness and body composition of healthy children [7,8]. Moreover, swimming

develops motor competence (MC) of healthy children [9,10]. On the contrary, if the water fails to meet water quality standards, exposure to disinfection byproducts in indoor swimming pool water may indicate numerous health problems (e.g., cough, eye irritation, and rash) [11,12]. Otherwise, the air inhaled above the surface of the water is clean and rich in oxygen.

Swimming ability requires the development of motor skills in the aquatic environment, although the current literature has been provided with the proofs about swimming reflex occurrence as an infantile reflex [13]. Basic motor skills in the aquatic environment (aquatic motor skills) are balance, breathing, propulsion, jumps, and manipulations [14]. According to Langendorfer and Bruya's adaptation of Gallahue's motor skills development model [15], the development of swimming ability in early childhood onsets with adaptation to the aquatic environment. The International Swimming Federation (FINA) [14] proposed a three-stage teaching method that allows for children's progressive behavioral change as a result of the sequential learning of basic motor skills [16] while ensuring the following three underlying cornerstones: hierarchy, differentiation, and individualization of basic aquatic motor skills [15]. Therefore, the first stage establishes the fundamentals of adaptation to the aquatic environment by developing MC. MC's primary focus is the learning of gross motor skills (adaptation to the place, flotation, displacement, immersion, passages, and jump) and fine motor skills (manipulations, spatial orientation, rhythm, kinaesthetic differentiation, and reaction) while aiming to develop basic aquatic motor skills at the second stage. Adaptation to the aquatic environment involves the acquisition of basic aquatic motor skills, which corresponds to the first two phases of the model, the reflex skills and aquatic readiness skills stages, according to Langendorfer and Bruya. Blanksby et al. suggested that the period between five and six years of age is optimal for children to learn the front crawl swimming stroke [17].

Evaluation of MC development and gross and fine motor skills in preschool children is limited to several frequently used assessments acknowledged in the current literature: Athletic Skills Track (AST), Democritos Movement Screening Tool for preschool children (DEMOST-PRE), Movement Assessment Battery for Children (MABC), Body Coordination Test for Children (KTK), Test of Gross Motor Development second edition (TGMD-2), and Motor-Proficiency-Test for children 4–6 year (MOT 4–6) [18]. Each of these battery tests uniquely assesses MC and is either a process- or product-oriented MC assessment (or both) [19]. KTK is a product-oriented assessment and is widely used to investigate the MC development in longitudinal designs because each test item is congruent across ages [20,21], as well as the MC development dependency on other physiological variables [22], and intervention-induced effects [23].

To the best of our knowledge, only three studies previously modeled children's swimming ability—two in the function of sociodemographic characteristics [24,25], and one in the function of body size [26]. Previous studies have instead investigated the effects of swimming practice on MC [9,10]. Nonetheless, neither of them investigated the impact of MC on swimming performance nor swimming ability in preschool and school-age children and adolescents. However, several studies disclosed that higher levels of soccer- and karate-specific motor skills are related to higher levels of MC [27–30]. Moreover, preschool children who developed MC at higher levels were more frequently involved in physical activity, games, and sports, as compared to inactive peers [31]. The current literature yields that changes in preschool children's MC is positively related to changes in time spent physically active [31–33] and levels of physical fitness [34–36]. Physical fitness levels follow increasing children's physical activity levels [37] and essentially impact health [38]. Thus, developing and establishing positive health behaviors at an early age alter growth trajectories of health behaviors throughout development and into adulthood [32,39,40].

The physiological, biomechanical, and anthropometric predictors of swimming performance in young athletes have been broadly examined [29,41–44]. Nevertheless, to our knowledge, only one study investigated anthropometric (AM) predictors of swimming ability in preschool children [26]. They emphasized body weight as a predictor of swimming ability in preschool children. Among AM predictors of swimming performance in athletes are limb length and arm span [41,43]. From everything

identified, few studies provide an in-depth analysis of AM measurements influence preschool children's swimming ability in the current literature.

Therefore, this study aimed to find classifiers of swimming ability among the studied AM and MC variables in preschool children, thus building a predictive model that classifies children at the age of five years according to swimming ability group.

## 2. Materials and Methods

### 2.1. Participants

A total of 92 children (girls  $n = 45$ ) at the age of five years (mean  $\pm$  SD:  $5.58 \pm 0.5$ ) were included in this pilot cross-sectional study. The inclusion criteria were that children were healthy preschoolers who had attended the ELC "English Language Centre" in Prishtina, Kosovo, who previously had familiarization and the first contact with the aquatic environment, and whose parents/guardians signed the written informed consent. The exclusion criteria were children who have any acute and/or chronic diseases (e.g., musculoskeletal injury, asthma), and who cannot swim at all (fear of water and cannot float without swimming float). The children's parents/guardians were given written informed consent to read and sign, during which they were asked does a child have a fear of water and can float without any kind of swimming float. The study was carried out following the Declaration of Helsinki and approved by the ethics committee of the Faculty of Sport and Physical Education at the University of Novi Sad (ref. no. 21/2019).

### 2.2. Target Variable

#### Swimming Ability

Previous studies have evaluated swimming ability in children using the swimming ability scale (0–10-point scale) via a validated survey [24,25]. In this study, swimming coaches observed actual children's swimming ability given the swimming ability scale, unlike in the previous studies where parents rated their children's swimming ability without actual observation. Afterward, for research purposes, we labeled their swimming ability as POOR, GOOD, or EXCELLENT (Table 1).

The scale was slightly adapted for research purposes. The children were able to float without any kind of swimming float because all children previously had familiarization and first contact with the aquatic environment. Therefore, we did not include the lowest points (1 and 2). Furthermore, we excluded the highest points (8, 9, and 10) since no recruited children could swim more than one pool length.

**Table 1.** Swimming ability scale by grades.

Point	Item	SAG
0	I avoid getting near/in water except to bathe	Excluded from the study
1	Cannot swim at all	
2	Can splash around, shallow end	POOR
3	Can put face in water, blow bubbles	
4	Can hold head under water (5–10 s)	
5	Can glide a little, face in water, shallow end only	GOOD
6	Can swim a little in the deep end; face in water; can float a little	
7	Can swim with a true front crawl stroke, 1 pool length, no stooping	EXCELLENT
8	Can swim front crawl stroke, 2 or 3 pool lengths; can tread water for 5–10 min	Excluded from the study
9	Can swim 4 or more pool lengths, no stooping; knows 2 or 4 different strokes.	
10	Can swim many lengths without stopping; on a swim team or could be on a swim team	

### 2.3. Discriminating Variables

#### 2.3.1. Anthropometric (AM) Variables

The anthropometric measurements were made in accordance with the reference manual of anthropometric standardization [45]. All kids were barefoot and minimum dressed and measured from the left side.

We measured body weight (SECA 804, Hamburg, Germany), height (SECA 214, Hamburg, Germany), and body mass index (weight(kg)/height(m<sup>2</sup>)). Arm span, shoulder width, lengths (foot, trunk, hand, and arm), diameters (biacromial and bicristal), and breadths (elbow, knee, and ankle) were measured using the Martin anthropometer (GPM Anthropometer 100; DKSH Switzerland Ltd., Zurich, Switzerland). Circumferences (chest, abdominal, and thigh) were measured with tape adhered to the skin. Skinfolds (abdomen, thigh, and calf) were measured with a Lange skinfold caliper (Cambridge Scientific Instruments, Cambridge, MD), and the results were read 3 s after placing the caliper. The results for all anthropometric measurements were registered and recorded when two consecutive measurements have coincided inside 0.1 cm, except for body weight and skinfolds, which must have coincided with 0.1 kg and 4 mm, respectively.

#### 2.3.2. Motor Competence (MC) Variables

The construct of MC [46], gross motor skills (locomotor, stability and manipulative skills) and fine motor skills, has been referred to the fundamental movement skills in this study because preschool children are studied population [16]. We evaluated children's MC using the Körper-Koordinationstest für Kinder (KTK) battery test, a non-sport/skill-specific test consisting of the following four test items: balance beam, single-lever jumps, lateral jumps, and transfers on platforms [47]. Two gross motor skills components are assessed using the KTK—locomotor and stability skills. The raw performance score of each test item was converted into a standardized motor quotient (MQ), adjusted for age and gender according to normative data tables based on the performance of a standardization sample. In the same manner, the sum of all four item MQs was transformed into MQ total. KTK has been previously recognized as a reliable evaluation method of MC development in preschoolers (ICC = 0.89) [48], and hence, it has been used for the criterion validity studies of other MC evaluation method [49].

##### Balance Beam Task

We asked the children to walk backward on three balance beams. The beams' dimensions are 3 m in length, 5 cm in height, but with decreasing widths of 6, 4.5, and 3 cm. Children had three trails at each beam, and the number of successful steps was recorded; a maximum of 24 steps (eight per trial) was counted for each balance beam (maximum of 72 steps).

##### Single-Lever Jumps Task

Children were instructed to hop on one foot at the time, preceding the jump over a stack of foam blocks after a short run-up. After a successful hop with each foot, the height was increased by adding new blocks (50 cm, 20 cm, 5 cm). A successful hop indicated that a child jumped over the block without touching it and successfully continued hopping on the same foot at least two times. A child had three trails at each height and on each foot; three, two, or one point(s) were awarded for successful completion on the first, second, or third trial, respectively; a maximum of 39 points (12 stacks of blocks) could be awarded for each leg (maximum score of 78).

##### Jumping Sideways Task

Children were asked to make consecutive jumps, with both feet together, from side to side over a beam (60 × 4 × 2cm) as quickly as possible in 15 s. The number of correct jumps in two trials was summed and recorded.

### Moving Sideways Task

The child began a trial by standing with both feet on one platform (25 × 25 × 2cm) supported on four legs, 3.7 cm in height. The subject held the second identical platform in his/her hands; then, the children were instructed to place the second platform alongside the first one and, then, to step onto it; the first platform was then lifted and placed alongside the second, and the child stepped onto it. Two points were awarded for each successful transfer from one platform to another (one point for shifting the platform, the other for transferring the body onto the second one). If the child fell off the platform in the process, he/she stepped back onto the platform and continued the test. The total number of points for the 20 s from two trials was recorded.

#### 2.4. Procedures

The testing procedures were carried out in January–February 2020 at two locations, in the lighted gym (anthropometric measurements and MC evaluation) and indoor swimming pool in Prishtina, Kosovo. Three swimming coaches, licensed by the Federation of Water Sports of Kosovo, observed how children navigated in water according to the swimming ability scale (item-by-item) and recorded it accordingly. The agreement among the raters has been excellent (ICC = 0.81). The same experienced examiner, a research assistant, took all AM measures of all children. Two experienced examiners, also research assistants, evaluated children's MC using the KTK, and the agreement among them was excellent (ICC = 0.92).

We attempted to build a classification model of preschoolers' swimming ability (target variable: swimming ability group SAG—POOR, GOOD, and EXCELLENT) based on the following discriminating variables: gender, age, AM variables (body weight, body height, Body mass index, arm span, shoulder width, foot length, trunk length, hand length, arm length, chest circumference, abdominal circumference, thigh circumference, biacromial diameter, bicristal diameter, elbow breadth, knee breadth, ankle breadth, abdomen skinfold, thigh skinfold, and calf skinfold), and MC variables (MQs for balance beam, single-lever jumps, jumping sideways, moving sideways, and total).

#### 2.5. Statistical Analysis

Data were analyzed using SPSS v. 20.0 (IBM SPSS, Inc., Chicago, IL, USA) and presented as mean (SEM) unless otherwise stated. A Shapiro–Wilk test failed to reject normality, and the Levene's and Box's M tests indicated equal variance-covariance matrices within the groups. Before testing the primary study hypothesis, a T-test for independent samples (T-test) was used to evaluate the gender effect on discriminating variables.

We used a linear discriminant analysis (LDA) with equal prior probabilities to build classifiers of SAG membership. First, to identify potential classifiers of SAG before building a preschoolers' swimming ability classification model, the age, gender AM and MC variables, and SAG dependency were tested. A Mann–Whitney U tests estimated the gender and age effects on SAG, separately, and a one-way ANOVA with Bonferroni correction for multiple comparisons tested whether the AM and MC variables on average differ across the SAG. For ANOVA models, eta squared ( $\eta^2$ ) is reported as a measure of effect size, and defined as small ( $\eta^2 = 0.01$ ), medium ( $\eta^2 = 0.06$ ), and large ( $\eta^2 = 0.14$ ) [18]. Additionally, the correlation matrix of pairwise Pearson's correlation coefficient ( $r$ ) was created to assess multicollinearity ( $r > 0.7$ ) between potential classifiers [50].

Finally, we modeled the difference between the SAG by finding the linear combination of the independent variables. A predictive model of SAG membership included independent variables that found to be significantly affected by the main effect of SAG, according to the one-way ANOVA and Mann–Whitney U tests, and a stepwise method selected classifiers from the entered independent variables. Wilks' Lambda (Wilks'  $\lambda$ ) tested variable contribution to a discriminant function (Exact F test), and whether the discriminant function explains the group membership well (Chi-Square ( $\chi^2$ )). An LDA created one canonical discriminant function to maximize the difference in mean discriminant

score between POOR, GOOD, and EXCELLENT SAG (centroids). Thus, the canonical discriminant function was constructed in the following equation:

$$D_j = c + c_1X_{1j} \quad (1)$$

where  $D_j$  is discriminant score for  $j^{\text{th}}$  observation,  $c$  are unstandardized canonical coefficients, and  $X_{1j}$  is the  $j^{\text{th}}$  observation for the first variable.

There was a linear discriminant function (LDF) defined for the model that classifies kids' swimming skills as POOR, GOOD, EXCELLENT in the following form:

$$C_k = c_k + c_1X_{1j} \quad (2)$$

where  $C_k$  is classification score (classification function value) for group  $k$ ,  $c$  are standardized canonical coefficients of LDF, and  $X_{1j}$  is the  $j^{\text{th}}$  observation for the first variable.

We reported model fit information (eigenvalue  $\lambda$ , square of canonical correlation coefficient  $Rc^2$ ), and model's probability of detection (true positive rate; TPR) and probability of false alarm (true negative rate; TNR). Press's Q statistic was additionally computed to compare the discriminatory power of the classification with the classification accuracy expected by chance. The cross-validation estimated the classification performance of the predictive model. Level of significance was set a priori at  $p \leq 0.05$ .

### 3. Results

#### 3.1. Sample Characteristics

All children completed the testing procedures. The location and dispersion of characteristics for total and stratified sample by gender are presented in Table 2. The T-test showed that boys had significantly higher mean of diameter and breadth measures, and chest circumference, shoulder width, arm span, and length compared to girls. On average, boys also were significantly taller than girls (Table 2).

**Table 2.** Characteristics for the total sample and stratified by gender.

	Total	Boys (N = 47)	Girls (N = 45)
Age	5.58 ± 0.50	5.55 ± 0.57	5.60 ± 0.48
Body weight (kg)	23.62 ± 4.31	24.49 ± 4.91	22.72 ± 3.40
Body height (cm)	118.32 ± 5.48	119.33 ± 6.00 *	117.25 ± 4.70
BMI (kg/m <sup>2</sup> )	16.84 ± 2.22	17.20 ± 2.50	16.46 ± 1.84
Arm span (cm)	116.97 ± 6.27	118.29 ± 6.55 *	115.59 ± 5.71
Shoulder width (cm)	50.38 ± 2.90	51.01 ± 3.04 *	49.74 ± 2.62
Foot length (cm)	58.96 ± 3.75	58.80 ± 4.30	59.12 ± 3.13
Trunk length (cm)	65.79 ± 3.68	66.50 ± 4.42	65.04 ± 2.56
Hand length (cm)	18.85 ± 1.10	19.01 ± 1.18	18.68 ± 1.00
Arm length (cm)	13.01 ± 0.83	13.21 ± 0.84 *	12.80 ± 0.77
Chest circumference (cm)	59.05 ± 4.68	60.22 ± 4.74 *	57.84 ± 4.32
Abdominal circumference (cm)	54.98 ± 6.13	55.86 ± 6.79	54.06 ± 5.28
Thigh circumference (cm)	34.13 ± 3.47	33.87 ± 3.84	34.41 ± 3.04
Biacromial diameter (cm)	26.83 ± 1.65	27.25 ± 1.76 *	26.39 ± 1.40
Bicristal diameter (cm)	19.74 ± 1.44	20.04 ± 1.54 *	19.44 ± 1.27
Elbow breadth (cm)	4.83 ± 0.34	4.94 ± 0.36 **	4.72 ± 0.28
Knee breadth (cm)	7.13 ± 0.50	7.32 ± 0.53 **	6.94 ± 0.39
Ankle breadth (cm)	5.15 ± 0.48	5.31 ± 0.52 **	4.98 ± 0.38
Abdomen skinfold (cm)	5.80 ± 3.08	5.45 ± 2.90	6.18 ± 3.25
Thigh skinfold (cm)	14.97 ± 6.10	14.68 ± 6.67	15.27 ± 5.51
Calf skinfold (cm)	14.48 ± 4.96	13.94 ± 5.25	15.04 ± 4.63
Balance beam MQ	102.79 ± 12.69	101.45 ± 13.49	104.20 ± 11.78
Single-lever jumps MQ	120.29 ± 18.74	123.96 ± 17.23	116.47 ± 19.67
Jumping sideways MQ	80.30 ± 10.69	80.53 ± 11.45	80.07 ± 9.96
Moving sideways MQ	103.50 ± 15.00	101.66 ± 15.35	105.42 ± 14.54
MQ Total	102.43 ± 13.77	102.30 ± 13.71	102.58 ± 13.99

Values are mean ± SEM; Abbreviations: BMI—body mass index; MQ—Körper-Koordinationstest für Kinder (KTK) motor quotient; \*\* genders significantly different at  $p < 0.01$ ; \* genders significantly different at  $p < 0.05$ .

### 3.2. LDA of Swimming Ability and the AM and MC Variables

#### 3.2.1. SAG Characteristics

The children were assigned to one of three SAGs (POOR: girls  $n = 14$ , boys  $n = 17$ , age =  $5.71 \pm 0.08$ ; GOOD: girls  $n = 17$ , boys  $n = 14$ , age =  $5.55 \pm 0.09$ ; and EXCELLENT: girls  $n = 14$ ; boys  $n = 16$ , age =  $5.47 \pm 0.09$ ).

A Mann–Whitney U test did not show significant difference in SAG mean ranks between genders (boys vs. girls: 46.17 vs. 46.84;  $Z = -0.128$ ,  $p = 0.898$ ) and across ages (5 vs. 6: 52.36 vs. 42.19;  $Z = -1.915$ ,  $p = 0.056$ ).

#### 3.2.2. Difference in the AM and MC Variables across the SAG

Table 3 presents the main effect of SAG from a one-way ANOVA model. There has not been shown a significant main effect of SAG on the studied AM variables, and, thus, the children in POOR, GOOD, and EXCELLENT SAG on average did not differ in the studied AM variables.

A one-way ANOVA, however, demonstrated a large significant main effect of SAG on all MC variables (balance beam:  $\eta^2 = 0.269$ ; single-lever jumps:  $\eta^2 = 0.313$ ; jumping sideways:  $\eta^2 = 0.518$ ; moving sideways:  $\eta^2 = 0.612$ ), and a Bonferroni post-hoc test revealed that the mean MQ for all test items significantly differed across SAG, except for the balance beam and moving sideways. As compared to GOOD and EXCELLENT, POOR had significantly lower mean MQ for total ( $p < 0.001$ ) and all test items ( $p < 0.001$ ), except for balance beam, in which POOR and GOOD did not differ ( $p = 1.0$ ). We observed a significantly higher mean MQs of EXCELLENT, comparing to the remaining groups, for total ( $p < 0.001$ ) and all test items ( $p < 0.001$ ), except for moving sideways, where GOOD and EXCELLENT did not differ ( $p = 0.157$ ). Table 3 presents detailed information on the results from the analysis.

**Table 3.** Difference in the anthropometric (AM) and motor competence (MC) variables across the swimming ability group (SAG).

Outcomes	Poor (N = 31)	Good (N = 31)	Excellent (N = 30)	ANOVA $F_{2, 89}$
Body weight (kg)	23.30 (0.92)	23.69 (0.72)	23.89 (0.68)	0.15, $p = 0.864$ , $\eta^2 = 0.003$
Body height (cm)	117.95 (1.31)	118.52 (0.73)	118.49 (0.84)	0.10, $p = 0.902$ , $\eta^2 = 0.002$
BMI (kg/m <sup>2</sup> )	16.78 (0.45)	16.80 (0.41)	16.93 (0.34)	0.04, $p = 0.965$ , $\eta^2 = 0.001$
Arm span (cm)	115.42 (1.36)	117.11 (0.89)	118.42 (1.07)	1.78, $p = 0.175$ , $\eta^2 = 0.038$
Shoulder width (cm)	49.75 (0.67)	50.58 (0.41)	50.84 (0.44)	1.19, $p = 0.310$ , $\eta^2 = 0.026$
Foot length (cm)	58.64 (0.84)	58.95 (0.67)	59.30 (0.48)	0.23, $p = 0.796$ , $\eta^2 = 0.005$
Trunk length (cm)	66.15 (0.95)	65.50 (0.41)	65.71 (0.51)	0.25, $p = 0.779$ , $\eta^2 = 0.006$
Hand length (cm)	18.73 (0.25)	18.93 (0.17)	18.89 (0.17)	0.27, $p = 0.765$ , $\eta^2 = 0.006$
Arm length (cm)	12.84 (0.16)	13.12 (0.14)	13.07 (0.15)	1.02, $p = 0.366$ , $\eta^2 = 0.022$
Chest circumference (cm)	59.04 (0.95)	58.45 (0.75)	59.70 (0.83)	0.54, $p = 0.583$ , $\eta^2 = 0.012$
Abdominal circumference (cm)	55.03 (1.23)	54.88 (1.16)	55.04 (0.94)	0.01, $p = 0.993$ , $\eta^2 = 0.000$
Thigh circumference (cm)	33.89 (0.62)	34.17 (0.65)	34.35 (0.62)	0.13, $p = 0.878$ , $\eta^2 = 0.003$
Biacromial diameter (cm)	6.86 (0.36)	26.51 (0.25)	27.13 (0.27)	1.11, $p = 0.335$ , $\eta^2 = 0.024$
Bicristal diameter (cm)	19.72 (0.29)	19.72 (0.23)	19.80 (0.26)	0.03, $p = 0.967$ , $\eta^2 = 0.001$
Elbow breadth (cm)	4.81 (0.07)	4.76 (0.06)	4.93 (0.05)	2.11, $p = 0.126$ , $\eta^2 = 0.045$
Knee breadth (cm)	7.09 (0.10)	7.15 (0.10)	7.16 (0.06)	0.15, $p = 0.861$ , $\eta^2 = 0.003$
Ankle breadth (cm)	5.12 (0.11)	5.15 (0.08)	5.19 (0.07)	0.15, $p = 0.865$ , $\eta^2 = 0.003$
Abdomen skinfold (cm)	5.65 (0.46)	6.35 (0.69)	5.40 (0.50)	0.79, $p = 0.457$ , $\eta^2 = 0.017$
Thigh skinfold (cm)	14.13 (1.16)	15.23 (1.07)	15.57 (1.10)	0.46, $p = 0.633$ , $\eta^2 = 0.010$
Calf skinfold (cm)	14.35 (0.92)	14.03 (0.97)	15.07 (0.80)	0.34, $p = 0.712$ , $\eta^2 = 0.008$
Balance beam MQ	96.97 (1.59)	99.65 (1.87)	112.07 (2.42)*	16.37, $p < 0.001$ , $\eta^2 = 0.269$
Single-lever jumps MQ	107.29 (3.19)	121.13 (3.20)‡	132.87 (1.86)	20.27, $p < 0.001$ , $\eta^2 = 0.313$
Jumping sideways MQ	71.81 (1.32)	78.97 (1.33)‡	90.47 (1.41)	47.84, $p < 0.001$ , $\eta^2 = 0.518$
Moving sideways MQ	91.35 (2.15) *	106.68 (2.35)	112.77 (2.03)	25.52, $p < 0.001$ , $\eta^2 = 0.365$
MQ Total	89.35 (1.66)	102.71 (1.51)‡	115.67 (1.52)	70.06, $p < 0.001$ , $\eta^2 = 0.612$

Values are mean (SEM); Abbreviations: BMI—body mass index; MQ—KTK motor quotient;  $\eta^2$  eta squared; \* a group significantly different from the remaining groups at Bonferroni adjusted  $p < 0.05$ ; ‡ all groups significantly different at Bonferroni adjusted  $p < 0.05$ .



### 3.2.3. Correlation Matrix of Pearson's r for Discriminating Variables

Correlation matrix of Pearson's r was created only for MC variables (Table 4) because a one-way ANOVA demonstrated a significant main effect of SAG only on the MC variables, and a Mann–Whitney U test did not show significant difference between genders and across ages in SAG. Pearson's r indicates that only MQ Total and each MQ test item tend to be significantly and positively correlated (r from 0.618 to 0.844,  $p < 0.05$ ), and significant, but lower positive correlations were observed between the each MQ test item (r from 0.126 to 0.706,  $p < 0.05$ ), excluding MQ Total.

**Table 4.** The correlation matrix showing Pearson's r for MQ variables.

	Balance Beam MQ	Single-Lever Jumps MQ	Jumping Sideways MQ	Moving Sideways MQ	MQ Total
Balance beam MQ		0.126	0.460 *	0.438 **	0.618 **
Single-lever jumps MQ			0.542 *	0.338 **	0.700 **
Jumping sideways MQ				0.706 **	0.844 **
Moving sideways MQ					0.766 **
MQ Total					

Abbreviation: MQ—KTK motor quotient; \* significantly correlated at  $p < 0.05$ ; \*\* significantly correlated at  $p < 0.01$ .

### 3.2.4. Model Specification

The AM variables, gender, and age were not included in a predictive model of SAG membership, because a one-way ANOVA did not demonstrate a significant main effect of SAG on AM variables, and a Mann–Whitney U test did not show significant difference between boys and girls, and across ages in the SAG. Therefore, we tested a predictive model of SAG membership based on all MQs using a stepwise LDA. Box's M test indicated equal population covariance matrices within groups (Box's M = 0.429,  $F_{(2, 178|2.01)} = 0.211$ ,  $p = 0.810$ ). A LDA created one canonical discriminant function in the first step, that differentiates scores among the groups significantly (model fit:  $\lambda = 1.574$ ,  $Rc^2 = 0.612$ ,  $\chi^2(2) = 84.161$ ,  $p < 0.0005$ ), and explains the SAG membership well (Wilk's  $\lambda_{(1, 2, 89)} = 0.388$ ). Standardized canonical discriminant function coefficient implied that only MQ total (1.0) among studied discriminating variables has ability to predict SAG. One canonical discriminant function was created, because the MQ total was extracted as a single significant contributor to the canonical discriminant function (Exact  $F_{(2, 89)} = 70.063$ ,  $p < 0.0005$ ). MQs for balance beam (Wilk's  $\lambda_{(1, 2, 89)} = 0.731$ ), single-lever jumps (Wilk's  $\lambda_{(1, 2, 89)} = 0.687$ ), jumping sideways (Wilk's  $\lambda_{(1, 2, 89)} = 0.482$ ), and moving sideways (Wilk's  $\lambda_{(1, 2, 89)} = 0.635$ ) contributed less to the canonical discriminant function, in comparison with MQ total (Wilk's  $\lambda_{(1, 2, 89)} = 0.388$ ). Although the canonical structure matrix showed correlations above 0.3 (Table 5), the MQ total had the highest discriminant loading on discriminant function, and thus, we assigned a label to the discriminant function accordingly. The following canonical discriminant function was used to compute discriminant score ( $D_j$ ) for each subject:

$$D_j = -11.801 + 0.115 \times MQTotal \quad (3)$$

The lowest centroid was observed in POOR (group centroid =  $-1.507$ ) as compared to GOOD (group centroid = 0.032), and EXCELLENT (group centroid = 1.524).

**Table 5.** The canonical structure matrix.

Motor Coordination Tests	MQ Function
Balance beam MQ <sup>e</sup>	0.449
Single-lever jumps MQ <sup>e</sup>	0.509
Moving sideways MQ <sup>e</sup>	0.617
Jumping sideways MQ <sup>e</sup>	0.663
MQ Total	1.000

Values are discriminant loadings. Abbreviation: MQ—KTK motor quotient; <sup>e</sup> Variable excluded from the analysis.

### 3.2.5. Classification Model of SAG Membership

Finally, we defined three LDFs (Equation (2)) for the model to classify kids' swimming ability as POOR, GOOD, or EXCELLENT based on their MQ total, by computing subject's classification score ( $C_k$ ) for each group (Table 6), and assigning children to a SAG for which the classification score was the highest.

**Table 6.** Linear discriminant functions.

Computation of Classification Score for:	Model
POOR SSLbG	$C_k = -54.080 + 1.186 \times MQ_{Total}$
GOOD SSLbGs	$C_k = -71.100 + 1.363 \times MQ_{Total}$
EXCELLENT SSLbGs	$C_k = -89.876 + 1.535 \times MQ_{Total}$

Abbreviation: MQ—KTK motor quotient.

LDA correctly classified 65.2% of original grouped cases. The model's probability of detection of children with EXCELLENT SAG is the highest (TPR = 76.7%) as compared to POOR SAG (TPR = 71.0%), and GOOD SAG (TRP = 48.4%), while probability of false alarm is the highest for GOOD SAG (TNR = 51.6%). POOR (TNR = 32.2%) and EXCELLENT SAG (TNR = 19.4%) tend to have lower probabilities of false alarm as compared to GOOD SAG (Table 7). According to Press's Q statistic, the predictive model of SAG membership based on MQ total exceeds the classification accuracy expected by chance at a statistically significant level (Press's  $Q = 42.09 >$  critical value for  $\chi^2_{(1)} = 6.63$ ). Model cross-validation indicates an accuracy of 64.1%.

**Table 7.** Classification table.

	SAG	Predicted Group Membership			Total
		POOR	GOOD	EXCELLENT	
Count	POOR	22	9	0	31
	GOOD	10	15	6	31
	EXCELLENT	0	7	23	30
%	POOR	71.0	29.0	0.0	100.0
	GOOD	32.3	48.4	19.4	100.0
	EXCELLENT	0.0	23.3	76.7	100.0
Cross-Validated					
Count	POOR	21	10	0	31
	GOOD	10	15	6	31
	EXCELLENT	0	7	23	30
%	POOR	67.7	32.3	0.0	100.0
	GOOD	32.3	48.4	19.4	100.0
	EXCELLENT	0.0	23.3	76.7	100.0

## 4. Discussion

This is the first study on identifying AM and MC predictors of swimming ability in preschool children by building classifiers of SAG membership. Our preliminary results indicate that swimming ability does not depend upon age, gender, and AM variables in five-year-old children. Hence, LDA defined a linear classification model of SAG (model fit:  $\lambda = 1.574$ ,  $\chi^2_{(2)} = 84.161$ ,  $p < 0.0005$ ) solely based on MQ total, that classifies kids into SAG with an accuracy of 64.1% (cross-validation). The proposed linear classification model explains 61.2% of the variance in the SAG, and the SAG membership well (Wilk's  $\lambda_{(1,2,89)} = 0.388$ ). Three LDFs were defined for classification score computation for POOR (intercept =  $-54.080$ , standardized canonical coefficient = 1.186), GOOD (intercept =  $-71.100$ , standardized canonical coefficient = 1.363), and EXCELLENT (intercept =  $-89.876$ , standardized

canonical coefficient = 1.535) SAG. The most likely detected children were those for the EXCELLENT (TRP = 76.7%) and POOR (TRP = 71%), while the children for the GOOD were most likely misclassified (TNR = 51.6%), as compared to the remaining classes.

To the best of our knowledge, only three studies have previously modeled the swimming ability in children [24–26]. Pharr et al. identified several biological (race, gender, age) and socioeconomic and environmental predictors. Significant socioeconomic and environmental predictors are (parental swimming ability, parent encourages a child to swim, best friend enjoys swimming, the pool opened all year, a child knows how to be safe around water, and fear of drowning). In preschool children, these predictors explained 53% of the total swimming ability variance [24]. Both studies that examined demographic SAG predictors observed significantly higher swimming ability levels in older children and adolescents. Also, male children and adolescents, compared to younger and female peers, respectively [24,25]. Our findings, however, suggest that swimming ability did not significantly depend upon the gender ( $p = 0.898$ ) and age ( $p = 0.056$ ), although five-year-old kids tended to have higher mean SAG rank comparing to 6-years-old kids, and previous studies showed that children's swimming ability significantly depends on age [24,25]. However, the lack of a significant age effect on SAG may be attributed to the small size of the subsample of subjects and short age-interval (5–6 years old). Previous studies observed a significant age effect on swimming ability in the broader age interval (4–11 years old). To the authors' knowledge, previous studies have mostly addressed gender and age effects on swimming performance in young athletes [29,42,43] but rarely on swimming ability among children.

The third study examined the bodyweight influence on swimming ability in children and found it a significant predictor of swimming ability [26]. Otherwise, the impact of anthropometric measurements in children on swimming ability has not yet been broadly investigated. Still, preceding studies demonstrated that swimming performance significantly depends on AM variables in young athletes [42], especially on arm span [41,43]. Our study, however, emphasized no significant differences between kids in POOR, GOOD, and EXCELLENT SAG in anthropometric measurements. The mean body height and weight, BMI, shoulder width, lengths (foot, trunk, arm, and hand), circumferences (chest, abdominal, and thigh), diameters (biacromial, bicristal), breadths (elbow, knee, ankle), and skinfolds thickness (abdomen, thigh, and calf) were most likely similar across the SAG. On average, POOR, GOOD, and EXCELLENT SAG also had, but less likely, similar arm span ( $p = 0.175$ ) as compared to those above. Therefore, it can be assumed that at an early stage of swimming skill development, the anthropometric measurements do not play a significant role and that their contribution grows with long-term swimming performance development. We can also theorize that the small size of the subsamples ( $n \approx 30$ ) could have contributed to a non-significant difference occurrence in arm span if the effect of SAG was small. Hitherto, examining the real relationship between swimming ability and AM variables among children, remains the focus of future studies. Additionally, providing a representative sample of subjects and reliable diagnostic tools to assess body composition (e.g., DEXA) and swimming ability (e.g., 3D human motion analysis).

There has been a lack of researches about MC effects on the swimming performance and swimming ability of preschool children in the current literature. However, previous studies investigated the effects of swimming practice on MC [9,10]. Hence, this is the first study that relates MC to swimming ability and evaluates its contribution to preschool children's swimming ability. Our study highlighted the MQ total as a classifier that contributes the most to the canonical discriminant function comparing to each MQ test item, given the correlation canonical structure matrix. The MQ total was selected as a classifier of SAG using a stepwise method, and withal MQ total integrates MQs for all test items, as well as gender and age. Selecting MQ total overall four test items as a classifier of SAG may also have benefit, because, utilizing the correlation matrix of MC variables, the observed correlation between MQs for jumping and moving sideways indicates multicollinearity.

This pilot study indicates that the MQ total, as it has solely contributed to the canonical discriminant function, can differentiate (group centroid) POOR (−1.507), GOOD (0.032), and EXCELLENT (1.524)

and that children with higher MC total levels ought to have higher levels of swimming ability (standardized canonical coefficients: POOR 1.186; GOOD 1.363; and EXCELLENT 1.535). This is in line with the previous studies which reported that higher MC levels were related to higher levels of other sport-specific motor skills in beginner karatekas [30] and youth soccer players [27,28].

Early childhood is highlighted as a critical period for development of MC (fundamental movement skills) [13], and thus, it is congruent to the adaptation to aquatic environment [14]. Adaptation to the aquatic environment depends on the acquisition of basic gross and fine motor skills, whose acquisition will, in turn, ensure MC foundation, which will allow for the acquisition of basic and then specific aquatic motor skills as a result of sequential learning [14,16]. Therefore, significantly fewer swimming lessons were optimal to learn basic front crawl strokes at the age of five compared to 2, 3, and 4-year-old peers [17]. Hence, MC, which refers to fundamental movement skills here, should be developed *a priori*.

In agreement with those mentioned above, the practice of various sports activities resulted in a greater increase of physical fitness compared to single-sport activity in preschool and school-age children [51,52]. Also, preschool children who practiced single-sport activity developed MC more than inactive peers [9]. Webster et al. disclosed that engagement in vigorous physical activity has the highest impact on the MC development in preschool children [53].

Numerous factors influence MC development besides behavioral factors (sedentary time, intensity-specific physical activity, and type of organized sports activities), and, hence, mediate MC effect on the SAG. Niemistö et al. [54] found that the MC levels (model fit = 38%) assessed using the KTK in preschool children significantly depend on biological factors (biological maturation, gender, and temperament traits), participation in organized sports, as well as parents' education level. We did not find gender as a significant predictor of the MQ variables, although their study showed a significantly higher mean MC in boys and higher mean score for balance test item in girls. Another study showed that the residential density was negatively associated with MC levels assessed by TGMD-3 [55].

Previous studies reported that higher MC levels, especially higher levels of locomotor skills, are positively related to time spent physically active and enjoyment in physical activity during childhood and adolescence, while positively affecting health [32,33,39,40]. Therefore, besides being necessary for the learning of aquatic motor skills, the emerging role of age-appropriate MC development of preschool children is also in establishing long-term physical activity and motor skill performance.

This classification model may be introduced to kindergarten teachers and coaches who could assess children's MC using the KTK and predict if a child is ready to start to learn to swim by predicting how will be a child's swimming ability rated. This would ensure optimal MC basis for acquiring basic and later, specific, aquatic motor skills, which would result in a shorter duration of the learning process. Moreover, this confirms that swimming coaches should also incorporate non-specific MC development in early childhood teaching programs.

We evaded exploring the relationship between swimming ability and manipulative skills and fine motor skills, although we inspected the relationships between swimming ability and stability and locomotor skills. Therefore, future studies should provide an in-depth analysis of MC relative to swimming ability, while encompassing the whole MC construct by evaluating actual MC using available battery tests that are both, process- and product-oriented. Moreover, the replicability of the swimming ability scale and this classification model should be further examined. Finally, to build a better-fitted model of SAG membership, preceding findings of sociodemographic and environmental contributions to swimming ability should also be incorporated in a swimming ability classification model. Ultimately, the mediating effects of behavioral, biological, and sociodemographic factors which influence MC development should be embraced as well. Therefore, future studies are obliged.

## 5. Conclusions

These preliminary results indicate that the KTK battery test can differentiate children's swimming ability at the age of five years and that children with higher MQ ought to be classified into higher

levels of SAG. Thus, a model has been built to predict into which SAG children will be classified. Our pilot study, however, did not identify age, gender, and AM variables as the significant classifiers of SAG membership. Therefore, the MC development should be primary in focus in early childhood, which will allow mastering gross and fine motor skills at an age-appropriate level. This approach will consequently provide optimal MC foundation for learning of specific motor skills in preschool children.

**Author Contributions:** Conceptualization, I.G., N.T., and D.M.; methodology, N.T. and D.M.M.; software, D.M. and A.K.Z.; validation, I.G. and T.Š.; formal analysis, D.M.; investigation, B.H.; resources, A.P.; data curation, I.G. and F.G.; writing—original draft preparation, I.G., B.H., and D.M.; writing—review and editing, I.G., N.T., and D.M.; visualization, T.Š. and A.K.Z.; supervision, D.M.M.; project administration, I.G. and D.M.M.; funding acquisition, D.M.M. All authors have read and agreed to the published version of the manuscript.

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Број: 08-1419  
Датум, 28.05.2015 г.

УНИВЕРЗИТЕТ ЦРНЕ ГОРЕ  
ФАКУЛТЕТ ЗА СПОРТ И ФИЗИЧКО ВАСПИТАЊЕ

Ref: 12.06.2015

Date: \_\_\_\_\_

Број	Прилог	Вриједност
<u>046</u>		

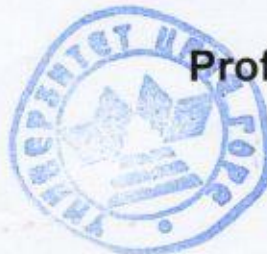
Na osnovu člana 72 stav 2 Zakona o visokom obrazovanju (Službeni list Crne Gore br. 44/14) i člana 32 stav 1 tačka 9 Statuta Univerziteta Crne Gore, Senat Univerziteta Crne Gore, na sjednici održanoj 28. maja 2015. godine, donio je

**ODLUKU  
O IZBORU U ZVANJE**

**Dr KEMAL IDRIZOVIĆ** bira se u akademsko zvanje **redovni profesor Univerziteta Crne Gore** za predmete: Osnovi antropomotorike, Metodika antropomotorike, Atletika I i Atletika II na Fakultetu za sport i fizičko vaspitanje.

**REKTOR**

**Prof. Radmila Vojvodić**





## BIOGRAFIJA

U zvanje redovnog profesora Univerziteta Crne Gore za predmete: Osnovi antropomotorike, Metodika antropomotorike, Atletika I i Atletika II na Fakultetu za sport i fizičko vaspitanje u Nikšiću izabran sam odlukom Senata Univerziteta Crne Gore, broj: 08-1419, u Podgorici 28. 05. 2015. godine.

Rođen sam 12. avgusta 1970. godine u Nikšiću. Osnovnu školu sam završio u rodnom gradu 1984. godine. U toku osnovne škole dva puta sam biran za učenika godine i nosilac sam diplome "Luča".

Srednju Mašinsko tehničku školu sam završio u Sarajevu 1988. godine, a u istom gradu sam u periodu od 1989. do 1992. godine odslušao prve tri godine Fakulteta za fizičku kulturu. Bio sam najuspješniji student prve godine.

Na Filozofskom fakultetu u Nikšiću 3. novembra 1992. godine stičem diplomu nastavnika fizičkog vaspitanja, a 5. maja 1995. godine diplomu nastavnika razredne nastave. U Prištini na Fakultetu za fizičku kulturu 24. juna 1998. godine diplomiram sa ocjenom 10 i postajem profesor fizičke kulture.

Poslijediplomske studije upisujem na Fakultetu fizičke kulture u Novom Sadu školske 1999/2000. godine i završavam ih kao prvi u generaciji 15. jula 2002. godine odbranivši magistarsku tezu «Relacije motoričkih sposobnosti i morfoloških karakteristika sa sprinterskom brzinom kod učenica srednje škole». Na istom fakultetu sam 29. 10. 2004. godine odbranio doktorsku disertaciju «Struktura i relacije motoričkih sposobnosti i morfoloških karakteristika sa brzinom i eksplozivnom snagom školske omladine».

U dva navrata sam, februar 2006. i februar 2008. godine, studijski boravio na Kineziološkom fakultetu u Zagrebu sa ciljem specijalističkog usavršavanja iz oblasti kondicionog treninga.

Specijalističko usavršavanje sam nastavio i u narednom periodu kroz studijske boravke u:

- Dublinu (Republika Irska) septembar mjesec 2010. godine,
- Madridu (Španija) novembar mjesec 2011. godine,
- Istanbulu (Turska) avgust mjesec 2013. godine i u
- Amsterdamu (Holandija), novembar mjesec 2013. godine.

Stalni radni odnos sam zasnovao 23. oktobra 1995. godine u Osnovnoj školi „Savo Pejanović“ u Podgorici.

Kao saradnik stipendista Univerziteta Crne Gore od 6. marta 2001. godine počinjem da radim na Filozofskom fakultetu u Nikšiću i to na Odsjeku za fizičku kulturu. U zvanje asistenta sam biran 23. septembra 2003. godine. U početku sam izvodio vježbe samo na predmetu Osnovi antropomotorike, dok sam u školskoj 2002/2003. godini osim iz predmeta Osnovi antropomotorike izvodio vježbe i iz predmeta Plivanje i Logorovanje, a u 2003/2004. i iz predmeta Skijanje. Od početka školske 2004/2005. godine na osnovu Odluke Univerziteta Crne Gore i Studijskog programa za fizičku kulturu Filozofskog fakulteta, pored vježbi započinjem izvoditi i predavanja za predmet Osnovi antropomotorike, a u ljetnjem semestru i za predmet Metodika antropomotorike.

Odlukom Senata Univerziteta Crne Gore, broj 01-1167, u Podgorici 26. 05. 2005. godine, izabran sam u akademsko zvanje docent Univerziteta Crne Gore za predmete: Osnovi antropomotorike i Metodika antropomotorike na Studijskom programu fizička kultura na Filozofskom fakultetu u Nikšiću.

Odlukom Senata Univerziteta Crne Gore, broj: 08-710, u Podgorici 29. 04. 2010. godine, izabran sam u akademsko zvanje vanredni profesor Univerziteta Crne Gore za predmete: Osnovi antropomotorike, Metodika antropomotorike, Atletika I i Atletika II na Fakultetu za sport i fizičko vaspitanje u Nikšiću.

Oženjen sam i otac sam dvoje djece.

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#### **Istraživački projekti**

1. Senior research Associate in the scientific project entitled: „Sublingual Nucleotides and Immune Response to exercise“, project identifier no. 175-03/10. Project is partially supported by HIT Southern Pty Ltd, Denistone, Australia (Grant No. SO-11-752) from 2012 to 2013.
2. Research Associate in the scientific project entitled: „Guanidinoacetic Acid (GAA) Administration in Physically Active Men and Women“ which is registered via database Clinical Trials, a service of the US National Institutes of Health (Study Identifier No: NCT01133899). Project is partially funded by AlzChem, Trostberg, Germany (Grant No. AN\_85E\_S09) from 2010 to 2012.

3. Učesnik u Istraživačkom projektu „Incidencija, faktori rizika i protektivni faktori ozljeđivanja kod nogometnih sudaca“, Kineziološki fakultet, Sveučilišta u Splitu.

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### **Uvodno, objavljeno plenarno predavanje**

#### **Na sastancima sa međunarodnim učesnicima**

1. Calleja, J., Jukić, I., Ostojić, S., **Idrizović, K.**, & Terrados, N. (2014). Uloga znanosti u sportu – Razmišljanja poslije Olimpijskih igara. In 12. Međunarodna godišnja konferencija Kondicijska priprema sportaša. Zagreb, (49-50).
2. **Idrizović, K.**, Nićin, Đ., Pavlović, R. & Raković, A. (2013). Transferi u kondicijskom treningu. In 11. Međunarodna godišnja konferencija Kondicijska priprema sportaša. Zagreb, 22-23. 02. 2013, (36-41).
3. **Idrizović, K.** (2011). Šta je to koordinacija. In 9. Međunarodna godišnja konferencija Kondicijska priprema sportaša. Zagreb, 25-26. 02. 2011, (28-41).
4. Calleja, J., Ostojić, S., Jukić, I., **Idrizović, K.**, Delextrat, A., Milanović, L. & Terrados, N. (2011). Veliki potencijal adaptacije i treniranja živčanog sustava. In 9. Međunarodna godišnja konferencija Kondicijska priprema sportaša. Zagreb, 25-26. 02. 2011, (81-82).
5. **Idrizović, K.** (2010). Revolucija u treningu atletskog sprinta. In 8. Međunarodna godišnja konferencija Kondicijska priprema sportaša. Zagreb, 26-27. 02. 2010, (99-104).
6. Terrados, N., Calleja, J., Jukić, I., **Idrizović, K.** & Ostojić, S., (2010). Učinak procesa oporavka u rješavanju umora kao posljedice kratkih sportskih disciplina. In 8. Međunarodna godišnja konferencija Kondicijska priprema sportaša. Zagreb, 26-27. 02. 2010, (36-40).
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8. **Idrizović, K.** (2008). Kombinirani trening snage. VI Međunarodna konferencija Kondicijska priprema sportaša. Zbornik radova, 40-49, (ISBN 978-953-6378-77-7).



Број: 04-29/2  
14. фебруар 2011. године

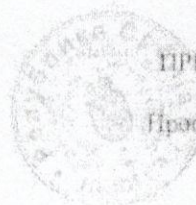
На основу члана 48. став 3. тачка б. и члан 65. Закона о високом образовању („Службени гласник РС” бр. 76/2005, 100/2007-ауθενнично тумачење, 97/2008 и 44/2010) и члана 73. тачка 5. и члана 136. тачка 9. Статута Универзитета (Савет Универзитета, 28. децембар 2010. године) Сенат Универзитета на седници одржаној 10. фебруара 2011. године, једногласно је донео

#### ОДЛУКУ

о избору др Дејана Младића, у звање редовног професора на Факултету спорта и физичког васпитања Универзитета у Новом Саду, за ужу научну област Олимпијске научне дисциплине у спорту и физичком васпитању група предмета Гимнастика

#### Образложење

Након сprovedеног поступка у складу са Законом о високом образовању, Статутом Универзитета и Правилником о начину и поступку стицања звања и заснивања радног односа наставника Универзитета у Новом Саду, Сенат Универзитета је размотрио и прихватио Одлуку о утврђивању предлога за избор у звање и заснивање радног односа Изборног већа Факултета спорта и физичког васпитања у Новом Саду од 26.1.2011. године и Закључка Стручног већа за хуманистичке науке и уметност од 4.2.2011. године и донео Одлуку као у диспозитиву.



ПРЕДСЕДНИК СЕНАТА

Проф. др Мирослава Весковић

Dr DEJAN MADIĆ

1. Ime, ime jednog roditelja i prezime:

Dejan Miodrag Madić

2. Zvanje:

Redovni profesor

7. Naslov magistarske teze:

„Konstrukcija i metrijske karakteristike motoričkih testova specifične gipkosti gimnastičarki“ M72

8. Naslov doktorske disertacije, godina odbrane i stečeno naučno zvanje:

„Povezanost antropoloških dimenzija studenata fizičke kulture sa njihovom uspešnošću vežbanja na spravama“, odbranjena 2000. godine čime je kandidat stekao zvanje – Doktor nauka u fizičkoj kulturi

9. Znanje svetskih jezika –

Kandidat odlično govori, piše i čita engleski jezik.

10. Profesionalna orijentacija :

Nauke u sportu i fizičkom vaspitanju, Osnovne naučne discipline u sportu i fizičkom vaspitanju. Kandidat je orijentisan na proučavanje i kinanantropološku analizu fizičke aktivnosti (fizičkog vežbanja) i njenog uticaja na čoveka sa posebnim akcentom na biološki razvoj dece i omladine. Prirodom svoga posla usmeren je na pedagoški proces prenošenja znanja sa akcentom iz ovih oblasti na što širu populaciju dece, omladine i stručnjaka u sportu i fizičkom vaspitanju.

11. Mesto i trajanje specijalizacija i studijskih boravaka u inostranstvu:

- Nacionalni gimnastički centar „Rakovski“- Sofija (Bugarska)- 15 dana, 2002.godina.
- Univerzitet sporta i fizičkog vaspitanja, Peking (Kina)- 20 dana, 1999. Godine

12. Članstvo u stručnim i naučnim asocijacijama

- Olimpijski Komitet Srbije
- European College of Sport Science
- European nongouvermental sports organisation
- Antropološko društvo Jugoslavije i Srbije
- Gimnastički savez Vojvodine
- Gimnastički savez Srbije
- Sokolski savez Srbije
- Društvo nastavnika fizičkog vaspitanja Novog Sada i Srbije.

## II NAUČNO ISTRAŽIVAČKI ODNOSNO UMETNIČKI, STRUČNI I PROFESIONALNI DOPRINOS

1. Monografije, posebna poglavlja u naučnim knjigama (naslov, autori, godina izdavanja i izdavač):

M14

Madić D. (2015). Da li vrhunski sportski rezultati jedne nacije treba da predstavljaju ogledalo zdravlja i sposobnosti njenog stanovništva? U: Duško Bjelica (Ur) Sport danas, Nikšić, Fakultet sporta i fizičkog vaspitanja i Crnogorska sportska akademija. Str. 66-78.

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M 45-1,5

Madić, D. (1996). Uticaj bavljenja sportskom gimnastikom na zglojni status lakta i kolena gimnastičarki Vojvodine. U Zborniku radova nastavnika i saradnika Fakulteta fizičke kulture u Novom Sadu, 9, 139-143. Novi Sad: Fakultet fizičke kulture.

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Veličković S., Kugovnik O., Kolar E., Madić, D., Piletić S. (2006). Predlog metode definiranja kinematičnog modela tehnike izvedbe kompleksnih gimnastičnih prvin. Gimnastika za trenerje i pedagoge, 1, (2), 30- 38, ISSN ISBN 13978-961-90.

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3. Reference međunarodnog nivoa (publikacije u međunarodnim časopisima, međunarodne izložbe i umetnički nastupi):

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Balkansko prevenstvo, Solun, 1997. god., trener za Kešanski, 3. mesto.

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Adamović T., Kosanović R., Madić D., Ribarić-Jankes K., Sovilj M., Đoković S. (2015). Correaltion between balance ability and speech-language development in children. *Collegium Antropologicum*, 39 Suppl. (1), 11-20.

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Bala, G., Adamović, T., Madić, D., & Popović, B. (2015). Effects of acute physical exercise on mathematical computation depending on the parts of the training in young children. *Collegium Antropologicum*, 39 Suppl. (1) 29-34.

M23

Pantović M., Popović B., Madić D., Obradović J. (2015). Effects of neuromuscular electrical stimulation and resistance training on knee extensor/fexsor muscles. *Collegium Antropologicum*, 39 Suppl.. 153-157

4. Reference nacionalnog nivoa u drugim državama (publikacije u stranim nacionalnim časopisima, samostalne ili kolektivne izložbe, umetnički ili sportski nastupi na bilateralnom nivou):

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Veličković S., Kugovnik O., Kolar E, Madić, D., Stupej M. (2005): Primerjava nekaterih kinematičnih spremenljivk med točem z obratom na bradlji, *Šport*, 1, 63-69. Ljubljana: Fakulteta za

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5. Reference nacionalnog nivoa (publikacije u domaćim časopisima, samostalne ili kolektivne domaće izložbe i umetnički ili sportski nastupi u zemlji):

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Savić M., Božić Krstić V., Bala G., Rakić R., Pavlica T., Madić, D.(1998): Osetljivost ukusa na PTC u dva selekcionisana uzorka mladih ljudi u Novom Sadu. U Glasniku Antropološkog društva Jugoslavije,34, 129-133. Beograd: Antropološko društvo Jugoslavije.

M52-2

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Madić, D. (2004): Sport i zdravlje stanovništva sa aspekta vladinih i nevladinih organizacija. Aktuelno u praksi, 2, 60- 69. Novi Sad: Pokrajinski zavod za sport. Sportske reference dr Dejana Madića (prema potvrdi od Gimnastičkog saveza Srbije): 50 x M51=150

Državno prvenstvo 1996. trener - Kešanski, 5 medalja

Državno prvenstvo 1997. trener - Kešanski, 5 medalja

Državno prvenstvo 1998. trener - Kešanski, 5 medalja

Državno prvenstvo 1999. trener - Kešanski, 5 medalja

Državno prvenstvo 2000. trener - Kešanski, 5 medalja

Državno prvenstvo 2001. trener - Kešanski, 5 medalja

Državno prvenstvo 2002. trener - Teodorović, 5 medalja

Državno prvenstvo 2003. trener - Teodorović, 5 medalja

Državno prvenstvo 2004. trener - Teodorović, 5 medalja

Državno prvenstvo 2005. trener - Teodorović, 5 medalja

M52-2

Madić, D., Popović, B., Kaličanin, N. (2009). Antropometrijske karakteristike devojčica uključenih u program razvojne gimnastike. Glasnik Antropološkog društva Srbije, 44, 79-86.

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Obrađović J., Madić D., Pantović M. (2010). Akutni efekti vibracionog treninga na



performanse gipkosti. Glasnik Antropološkog društva Srbije, 45, 343-347.

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Madić, D., Popović, B., Tumin, D., Obradović, J., Pantović, M., Cvetković, M. (2011). Uticaj telesne kompozicije na izvođenje složenih kretnih struktura kod devojčica uzrasta 11-12 godina [The impact of body composition on the performance of complex locomotive structures of girls 11-12 years of age]. Glasnik Antropološkog društva Srbije, sv 46, 287-292. Novi Sad.

M52-2

Popović B., Madić D., Tumin D., Jezdimirović T., Radanović D. (2012). Razlike u motoričkim sposobnostima devojčica mlađeg školskog uzrasta različitog morfološkog statusa. Sportmont, (u štampi).

M52-2

Tumin D., Madić D., Popović D. (2012). Relacije kognitivnih sposobnosti i koordinacije u ritmu. Sportmont, .

M52-2

Popović B., Madić D., Tumin D., Jezdimirović T. (2012). Razlike u motoričkim sposobnostima devojčica mlađeg školskog uzrasta različitog kognitivnog funkcionisanja. Sportmont.

M52-2

Orlić D., Cvetković M., Madić D., Fratrić F., Badža V., Stupar D. (2012). Razlike u motoričkim sposobnostima dečaka i devojčica mlađeg školskog uzrasta. Sportmont, (u štampi).

Sportske reference dr Dejana Madića (prema potvrdi od Gimnastičkog saveza Srbije):

M51

Državno prvenstvo, 2010., trener za Kočić, 4 medalje = 4 x M51=12

6. Saopštenja na međunarodnim naučnim skupovima:

M34-0,5

Protić-Gava B., Radojević J., Madić, D. (1996): The most frequent injuries in both gender Yugoslav gymnasts. Medicina Sportiva Bohemica and Slovaca, 5(3), 105).

Sportske reference dr Dejana Madića izdate od Gimnastičkog saveza Srbije:

Evropsko prvenstvo 1997. Birmingem, trener, selektor Kešanski

Evropsko prvenstvo 2000. Pariz, trener, selektor Kešanski i Teodorović

Evropsko prvenstvo 2002. Atina, trener, selektor Teodorović

Evropsko prvenstvo 2004. Amsterdam, trener, selektor Teodorović

Svetsko prvenstvo 1999. Peking i Tijan Jin, trener, selektor Kešanski

Svetsko prvenstvo 2003. Los Anđeles, trener, selektor Teodorović.

M31- 3

Madić, D., Mikalački, M., Popović, B. (2008). Effects of the Traditional and Modern Approach to Physical Education on Obesity of Girls at Younger School Age. International Symposium Research and Education in Innovation Era. (p.r. 577-582). Arad: University „Aurel Vlaicu“. (pozivno predavanje)

M31-3

Madić, D., Popović, B., Marić, D. (2008). Reliability and Objectivity of Hips Flexibility Motor Tests in the Female Sports Gymnastics. International Symposium Research and Education in Innovation Era. (p.r. 595-600). Arad: University „Aurel Vlaicu“. (pozivno predavanje)

M63-1

Veličković S., Petković D., Madić D., Đorđević M. (2010). Uticaj programiranog vežbanja na transformaciju motoričkih sposobnosti kod dečaka Zbornik radova sa 5. evropskog

kongresa FIEP (str. 383-387). Niš.

M33-1

Madić, D., Popović, B., Kaličanin, N. (2009). Total Body Fat – Important Component of Life Health Status. How to Evaluate? 1st International Scientific Conference – Exercise and Quality of Life. Proceedings Book (r.r. 399-403). Novi Sad: Faculty of Sport and Physical Education.

M33-1

Tumin, D., Madić, D., Popović, B. (2009). Morphological and Postural Status of Girls in Initial Selection For Rhythmic Gymnastics in Vojvodina. 1st International Scientific Conference – Exercise and Quality of Life. Proceedings Book (r.r. 177-182). Novi Sad: Faculty of Sport and Physical Education.

M33-1

Madić, D., Popović, B., Tumin, D., Obradović, J., Radanović, D. (2011). The impact of motor abilities on the performance of complex locomotive structures of girls 11-12 years of age. 2nd International scientific conference – exercise and quality of life. Proceedings book (p. 323-328). Novi Sad: Faculty of sport and physical education.

M31

Ostojić, S.M., Madić, D. & Stojanović, M. (2014). Aerobic fitness VS. Adiposity in children: Is it better to be fat and fit then thin and sedentary? In R. Pisot (Ed.) The 8th International scientific conference „Child in motion“. October 2014., 13-15. Portorož: University of Primorska, Science and Research Centre. (Invited lecture) ISBN 978-961-6862-98-1.

M33

Šćepanović, T., Marinković, D., Korovljević, D., Madić, D. (2015). Status kičmenog stuba u sagitalnoj ravni kod devojčica. U Z. Grgantov, S. Krstulović, J. Paušić, T. Bavčević, D. Čular, A. Kezić, A. Miletić (Urd.), *Zbornik radova 5. Međunarodnog znanstvenog kongresa „Suvremena kineziologija“* (str. 435-440). Split: Kineziološki fakultet, Sveučilište u Splitu.

M33

Korovljević, D., Marinković, D., Roška, M., Madić, D. (2015). Posturalni status kičmenog stuba kod dečaka uzrasta od 4-13 godina. U Z. Grgantov, S. Krstulović, J. Paušić, T. Bavčević, D. Čular, A. Kezić, A. Miletić (Urd.), *Zbornik radova 5. Međunarodnog znanstvenog kongresa „Suvremena kineziologija“* (str. 425-432). Split: Kineziološki fakultet, Sveučilište u Splitu.

M33

Aleksic-Veljkovic A, Madić D, Herodek K, Vukadinović M. (2015). Age-group differences in vertical jump performance of young female gymnasts. U Z. Grgantov, S. Krstulović, J. Paušić, T. Bavčević, D. Čular, A. Kezić, A. Miletić (Urd.), *Zbornik radova 5. Međunarodnog znanstvenog kongresa „Suvremena kineziologija“* (str. 453-457). Split: Kineziološki fakultet, Sveučilište u Splitu.

M33

Veličković S., Uzunović N., Madić D., Vukašinović V. (2015). Application of motoric measuring instruments in process of talent identification for artistic gymnastics. U Saša Pantelić (Urd.), Book of Proceedings / XVIII Scientific Conference "FIS Communications 2015" in physical education, sport and recreation and III International Scientific Conference (p. 52-55). Niš: Faculty of sport and physical education, 2015.

M33

Aleksić Veljković A., Đurović D., Madić D., Herodek K., Vukadinović M. (2015). Coaches knowledge about eating disorders en athletes from aesthetic sports: pilot study. U Saša Pantelić (Urd.), Book of Proceedings / XVIII Scientific Conference "FIS Communications 2015" in physical education, sport and recreation and III International Scientific Conference (p. 313-316). Niš: Faculty of sport and physical education, 2015. M33

## 7. Saopštenja na domaćim naučnim skupovima:

M64

Madić, D., Protić-Gava B., Rubin P. (1996). Neki problemi u procenjivanju gipkosti motoričkim testovima u kojima se koristi dužinska jedinica mere. u Zborniku sažetaka sa I Međunarodnog savetovanja "Nauka u funkciji sporta" (31). Skopje: Fakultet za fizička kultura.

M64

- Ulić D., Madić, D., Protić-Gava B. (1997). Promene posturalog statusa gimnastičarki Srbije U Zborniku radova sa Naučnog simpozijuma sa međunarodnim učešćem "Sport i zdravlje stanovništva" (194-196). Novi Sad: Fakultet fizičke kulture.  
M64
- Madić D., Arlov D. (1998). Objektivnost procenjivanja sopstvene snage studenata fizičke kulture. Međunarodni simpozijum "Fizička kultura i sport". Novi Sad: Fakultet fizičke kulture.  
M33
- Madić, D. (1998). Struktura specifične motorike potrebne za uspešno vežbanje na spravama kod studenata fizičke kulture. Međunarodni simpozijum "Fizička kultura i sport". Novi Sad: Fakultet fizičke kulture .  
M33
- Madić, D., Rubin, P. (2001). Objektivnost studenata fizičke kulture pri subjektivnom procenjivanju sopstvenih motoričkih sposobnosti. U Zborniku radova sa Naučnog skupa sa međunarodnim učešćem »Sport i zdravlje« organizovanog povodom Novosadskog maratona 1999. (88-93). Novi Sad: Novosadski maraton.  
M33
- Rubin P., Madić, D. (2001). Funkcionalne sposobnosti košarkaša kadetskog uzrasta. U Zborniku radova sa Naučnog skupa sa međunarodnim učešćem »Sport i zdravlje« organizovanog povodom Novosadskog maratona (75-78). Novi Sad: Novosadski maraton.  
M33
- Madić, D. (2001). Relacije između bazično motoričkih sposobnosti i uspešnosti vežbanja na spravama kod studenata fizičke kulture. U Zborniku radova sa Naučnog skupa sa međunarodnim učešćem povodom Novosadskog maratona, 2000., (245-252). Novi Sad: Novosadski maraton.  
M33
- Madić, D. (2002). Relacije kognitivnih sposobnosti i uspešnosti u vežbanju na spravama. U Zborniku radova sa Naučnog skupa sa međunarodnim učešćem povodom Novosadskog maratona 2001., (90-95). Novi Sad: Novosadski maraton.  
M33
- Madić, D. (2005). Relacije konativnih karakteristika i uspešnosti u vežbanju na spravama. U Zborniku radova sa Naučnog skupa sa međunarodnim učešćem povodom Novosadskog maratona 2003. (285-289). Novi Sad: Novosadski maraton.  
M33
- Madić, D. (2005). Uloga crta ličnosti pri izvođenju motoričkih testova u kojima preovladava sposobnost suprostavljanja zamoru U Zborniku radova sa Naučnog skupa sa međunarodnim učešćem povodom Novosadskog maratona 2004. (90-94). Novi Sad: Novosadski maraton.  
M33
- Bala G., Ambrožić F., Madić, D. (2005). Značaj izbora uzorka motoričkih testova u nekom hipotetičkom modelu faktora. U Zborniku radova sa Naučnog skupa sa međunarodnim učešćem povodom Novosadskog maratona. (154-164). Novi Sad: Novosadski maraton.  
M64
- Madić, D., Protić-Gava B. (1995). Faktorska struktura prostora specifične gipkosti gimnastičarki. U Zborniku sažetaka sa 4. Međunarodnog savetovanja FIS komunikacije 95. (50). Niš: Studijska grupa za fizičku kulturu Filozofskog fakulteta Univerziteta Nišu.  
M63
- Madić, D., Protić-Gava B., Bala G. (1996). Efikasnost različitih metoda obučavanja u vežbanju na spravama kod studenata fizičke kulture. U Zborniku radova sa Simpozijuma sa međunarodnim učešćem "Arandelovac 96" (122-126). Novi Sad: Fakultet fizičke kulture.  
M64

Protić-Gava B., Radojević J., Madić, D. (1996). Trening i takmičenja u sportskoj gimnastici kao izvori povreda. U Zborniku sažetaka sa 4. Međunarodnog savetovanja "Sportske povrede i trenažni proces" (76). Novi Sad: Kultura, Bački Petrovac.

M63

Madić D., Protić-Gava B. (1996). Gipkost značajan faktor u prevenciji sportskih povreda U Zborniku sažetaka sa 4. Međunarodnog savetovanja "Sportske povrede i trenažni proces" (50). Novi Sad: Kultura, Bački Petrovac.

M64

Madić, D. (1996). Neki problemi u određivanju objektivnosti motoričkih mernih instrumenata. U Zborniku sažetaka sa 5. Međunarodni simpozijum FIS komunikacije 96, (50). Niš: Studijska grupa za fizičku kulturu Filozofskog fakulteta Univerziteta.

M63

Madić, D, Rubin P. (1997). Neki problemi u vezi sa lateralnom dominacijom kod školske dece. U Zborniku radova sa Letnje škole pedagoga fizičke kulture sa međunarodnim učešćem, Aranđelovac, (193-197). Novi Sad: Fakultet fizičke kulture.

M64

Madić, D., Bala, G., Božić-Krstić, V., Rakić, N., Pavlica, T., Savić, M. (1998). Kompleksnost antropometrijskih mera u proceni morfoloških karakteristika muškaraca. U Zborniku sažetaka sa Kongresa antropologa Jugoslavije sa međunarodnim učešćem, Kotor (48). Beograd: Antropološko društvo Jugoslavije.

M64

Bala, G., Božić Krstić, V., Rakić ,N., Pavlica, T., Madić, D., Savić, M.(1998). Analiza modela za izbor antropometrijskih merai njihovih latentnih dimenzija kod osoba muškog i ženskog pola. U Zborniku sažetaka sa Kongresa antropologa Jugoslavije sa međunarodnim učešćem, Kotor (48). Beograd: Antropološko društvo Jugoslavije.

M63

Madić, D. (2006). Relacije konativnih karakteristika i uspešnosti u motoričkim testovima u kojima preovladava sposobnost suprotstavljanja zamoru kod dece predškolskog uzrasta Zbornik radova interdisciplinarnе naučne konferencije sa međunarodnim učešćem „Antropološki status i fizička aktivnost dece i omladine“, (243-248). Novi Sad. Univerzitet u Novom Sadu, Fakultet sporta i fizičkog vaspitanja.

M63

Madić, D. (2006). Relacije motoričkog i posturalnog statusa dece predškolskog uzrasta u Vojvodini. Zbornik radova interdisciplinarnе naučne konferencije sa međunarodnim učešćem „Antropološki status i fizička aktivnost dece i omladine“, (185-199). Novi Sad. Univerzitet u Novom Sadu, Fakultet sporta i fizičkog vaspitanja.

M63

Madić, D., Popović, B. (2007). Morfološki i posturalni status dečaka sa aspekta inicijalne selekcije za sportsku gimnastiku. Zbornik radova interdisciplinarnе naučne konferencije sa međunarodnim učešćem „Antropološki status i fizička aktivnost dece, omladine i odraslih“, (21-30). Novi Sad. Univerzitet u Novom Sadu, Fakultet sporta i fizičkog vaspitanja.

M64

Madić, D., Popović, B. (2007). Morfološki status devojčica sa aspekta inicijalne selekcije za sportsku gimnastiku. Petnaesti međunarodni interdisciplinarni simpozijum "Sport, fizička aktivnost i zdravlje mladih", Zbornik sažetaka, (55-56). Novi Sad: Univerzitet u Novom Sadu, Novosadski maraton. 15. međunarodni interdisciplinarni simpozijum "Sport, fizička aktivnost i zdravlje mladih", Novi Sad.

M61

Madić, D., Popović, B. (2008). Gipkost u hipotetskom modelu uspešnosti u sportskoj gimnastici . Šesnaesti međunarodni interdisciplinarni simpozijum "Ekologija, sport,

fizička aktivnost i zdravlje mladih", Zbornik sažetaka, (182-189). Novi Sad: Univerzitet u Novom Sadu, Novosadski maraton. (pozivno predavanje)

M61

Madić D., Kolar E. (2008). Struktura specifične gipkosti u ženskoj sportskoj gimnastici. Šesnaesti međunarodni interdisciplinarni simpozijum "Ekologija, sport, fizička aktivnost i zdravlje mladih", Zbornik radova, (190-194). Novi Sad: Univerzitet u Novom Sadu, Novosadski maraton. (pozivno predavanje).

M64

Madić, D. (2009). Differences in aggressiveness between male and female sport and physical education students. Sedamnaesti međunarodni interdisciplinarni simpozijum "Ekologija, sport, fizička aktivnost i zdravlje mladih", Zbornik radova, (72). Novi Sad: Univerzitet u Novom Sadu, Novosadski maraton.

M64

Madić D., Popović B., Mitić J., Obradović J., Pantović M. (2010). Uticaj motoričkih sposobnosti na izvođenje složenih kretnih struktura kod devojčica uzrasta 11-12 godina. Program i izvodi saopštenja „49. kongresa Antropološkog društva Srbije“, (109). Vrdnik.

M64

Madić, D., Popović, B., Pantović, M. Tumin, D., Cvetković, M. (2010). Uticaj telesne kompozicije na izvođenje složenih kretnih struktura kod devojčica uzrasta 11-12 godina. Program i izvodi saopštenja „49. kongresa Antropološkog društva Srbije“, (110). Vrdnik.

#### 14. Priznanja, nagrade i odlikovanja za profesionalni rad:

- Zahvalnica Pokrajinskog sekretarijata za sport u omladinu za doprinos sportu Vojvodine

- Majska nagrada SSS grada Novog Sada

Na osnovu potvrde Gimnastičkog saveza Srbije:

- Plaketa Gimnastičkog saveza Jugoslavije za najboljeg trenera juniorki i seniorki od 1995. do 2003.

Na osnovu potvrde Gimnastičkog saveza Srbije:

- Plaketa za najboljeg trenera juniorki u 2006. Gimnastičkog saveza Srbije i Crne Gore.

- Plaketa za najboljeg trenera juniorki u 2007. Gimnastički savez Srbije.

- Zahvalnica za doprinos razvoju povodom 100 godina Sokolskog društva u Novom Sadu.

- Nagrada „JOVAN MIKIĆ SPARTAK“, najprestižnije društveno priznanje u oblasti sporta u Vojvodini, za 2010 godinu.

#### b) Sadašnji nastavni rad

1. Naziv studijskog programa, predmeta (modula, kursa), godina studijskog programa i fond časova (na osnovnim, diplomskim odnosno specijalističkim, magistarskim i doktorskim studijama):

- Doktorske studije: Nauke o fizičkom vežbanju
- Diplomске akademske studije – master: Kinantropološka analiza sportova.
- Osnovne akademske studije: Razvojna gimnastika, Školska gimnastika, Teorija i metodika sportske gimnastike, Stručna praksa sportske gimnastike Teorija sportskog terninga.
- Osnovne strukovne studije: Sportska gimnastika - dopunski sport (3+6)

2. Uvođenje novih oblasti, nastavnih predmeta (modula, kurseva):

Dr Dejan Madić je kao nastavnik bio inicijator redizajniranja nastavnog plana i programa predmeta Vežbe na spravama formiranjem predmeta Razvoja gimnastika i Školska gimnastika.

Kao glavni koordinator akreditacionih aktivnosti na Fakultetu sporta i fizičkog vaspitanja, a pored toga i kao član Komisije za kvalitet i internu evaluaciju Univerziteta u Novom Sadu, Madić Dejan je dao doprinos promenama koje je zahtevao novi

zakon u visokom obrazovanju.

3. Uvođenje novih metoda u realizaciji nastave i razvoju kvalitetnog materijala za upotrebu u nastavi (zadataka, demonstracionih oglada, grupnih radova i sl.):

Dr Dejan Madić je, od početka svog angažovanja na predmetu, neprekidno unapređivao procesa nastave originalnim rešenjima za prikaze pojedinih tematskih područja. Koautor je video prikaza vezanih za objašnjenja terminologije tehnike i metodike učenja niza vežbi iz

programa, kao i pisanih materijala poput priručnika "Osnove pravila za ocenjivanje gimnastičkih sastava u muškoj i ženskoj sportskoj gimnastici".

4. Udžbenici (naslov, autori, godina izdavanja, izdavač):

1. Madić D., Popović B. (2005). Vežbe na spravama i tlu - Osnove praktičnog rada. Edicija "Univerzitetski udžbenik". Novi Sad: Univerzitet u Novom Sadu.

5. Druga didaktička sredstva (priručnici, skripte i sl. – naslov, autor, godina izdavanja, izdavač):

Protić Gava, B. i Madić, D. (1996). Gimnastika (sportska). U: Kovačević, A., Pravila 28 olimpijskih disciplina. Beograd.

Madić D., Babić A. (1999). Osnove pravila za ocenjivanje gimnastičkih sastava u muškoj i ženskoj sportskoj gimnastici. Priručnik za studente fakulteta fizičke kulture. Novi Sad: samostalno izdanje.

## RUKOVOĐENJE – MENTORSTVO

1. Rukovođenje

Magistarske teze: 1

• Mitić Jelena, Osnovne naučne discipline u sportu i fizičkom vaspitanju- Gimnastika - „Efikasnost sintetičke i kompleksne metode obučavanja gimnastičkih vežbi kod učenika različitog morfološkog i motoričkog statusa“

2. Rukovođenje – mentorstvo doktorskih disertacija (broj radova, ime i prezime doktoranta, uža naučna oblast i naslov disertacije) 4:

1) Veličković Saša – Osnovne naučne discipline u sportu i fizičkom vaspitanju- Gimnastika. Naslov disertacije „Definisanje kinematičkog modela najsloženijih gimnastičkih vežbi“

2) Aleksić Dragana – Osnovne naučne discipline u sportu i fizičkom vaspitanju- Gimnastika. Naslov disertacije „Efekti primene gimnastičkih sadržaja u nastavi fizičkog vaspitanja na transformaciju nekih antropoloških sposobnosti i karakteristika kod učenica mlađeg školskog uzrasta“

3) Popović Boris - Osnovne naučne discipline u sportu i fizičkom vaspitanju- Gimnastika. Naslov disertacije "Specifičnosti antropološkog statusa devojčica uključenih u program razvojne gimnastike"

3. Učešće u komisijama za odbranu diplomskih i specijalističkih radova, magistarskih teza i doktorskih disertacija:

## DOPRINOS AKADEMSKOJ I ŠIROJ ZAJEDNICI

1. Učešće u radu organa i tela fakulteta i Univerziteta:

Važnija zaduženja i funkcije Dejana Madića:

- Dekan Fakulteta sporta i fizičkog vaspitanja Univerziteta u Novom Sadu
- Prodekan za nastavu Fakulteta sporta i fizičkog vaspitanja u Novom Sadu
- Član Odbora za kvalitet i internu evaluaciju Univerziteta u Novom Sadu
- Član Saveta Univerziteta u Novom Sadu

- . Član Senata Univerziteta u Novom Sadu
- Član Saveta eksperata ACIMSI Univerziteta u Novom Sadu
- Koordinator Komisije za akreditaciju Fakulteta sporta i fizičkog vaspitanja u Novom Sadu
- Član Saveta fakulteta
- Predsednik sindikata Fakulteta sporta i fizičkog vaspitanja.

3. Vođenje profesionalnih (strukovnih) organizacija:

- Član Komisije za dečiji sport European nongouvermental sports organisation (ENGSO) ispred Jugoslovenskog olimpijskog komiteta;
- Član Komisije za programe Jugoslovenskog olimpijskog komiteta;
- Predsednik Gimnastičkog saveza Srbije;
- Predsednik stručnog odbora ŽSG Gimnastičkog saveza Srbije;
- Selektor reprezentacije Srbije i Jugoslavije u sportskoj gimnastici.
- Predsednik Sokolskog društva „Vojvodina“ Novi Sad

4. Organizacija, učešće i vođenje lokalnih, regionalnih, nacionalnih ili međunarodnih umetničkih i sportskih manifestacija:

Dr Dejan Madić je učestvovao na sledećim velikim sportskim takmičenjima i umetničkim projektima:

Organizacija i vođenje važnijih sportskih manifestacija:

- European Youth Olympic Festival (EYOF) – Beograd 2007
- Univerzijada (gimnastički turnir) - Beograd 2009

Od 1995. do 2010:

- Državna prvenstva
- Kupovi Srbije
- Druga regionalna takmičenja u okviru Gimnastičkog saveza Srbije
- Takmičenja u okviru saradnje evropskih regija (Dunav- Kriš -Moriš –Tisa (DKMT))

Učešće na važnijim međunarodnim sportskim manifestacijama:

- Balkansko prvenstvo (Beograd, 1982, Haskovo, 1983, Solun, 1997),
- Evropska prvenstva (Birmingem, 1996.; Pariz, 2000.; Patras, 2002.; Amsterdam, 2004.),
- Olimpijski dani mladih Evrope (Bat, 1995.),
- Kup Centralne Evrope (Zabrze, 1999),
- Svetska Prvenstva (Tijan Jin, 1999. i Los Anđeles, 2003.)

5. Učešće u radu odbora, zakonodavnih tela, profesionalnih organizacija:

- Član Komisije za dečiji sport European nongouvermental sports organisation (ENGSO) ispred Jugoslovenskog olimpijskog komiteta;
- Član komisije za programe Jugoslovenskog olimpijskog komiteta;
- Član Upravnog odbora Gimnastičkog saveza Srbije;
- Član Upravnog odbora Gimnastičkog saveza Vojvodine;
- Član starešinstva „Sokola“ Srbije;
- Član Odbora za dodelu priznanja u oblasti sporta koji je imenovalo Izvršno veće AP Vojvodine Vojvodine.

6. Izrada profesionalnih ekspertiza i recenziranje radova i projekata:

- Stručni konsultant za reformu obrazovanja (deo za fizičko vaspitanje) u Ministarstvu za obrazovanje Vlade Republike Srbije;
- Član Radne grupe za izradu predloga Zakona o sportu Ministarstva za omladinu i sport Vlade Republike Srbije;
- Odbor za dodelu priznanja u oblasti sporta koji je imenovalo Izvršno veće AP

Vojvodine;

- Koordinator za školski sport Komisije za izradu strategije razvoja sporta u Vojvodini, Ministarstva za sport i omladinu Vlade AP Vojvodine;
- Recenzent u međunarodnom časopisu „Acta peadiatrica“ (na SCI listi);
- Recenzent u časopisu „Journal of Rehabilitation Research & Development“ (na SCI listi);
- Recenzent u međunarodnom časopisu „Archive of sport and exercise desease“;
- Recenzent „Glasnik antropološkog društva Srbije“
- Recenzent u međunarodnom časopisu „Facta univesitates“
- Recenzent univerzitetskog udžbenika „Psihologija sporta“ autorke dr Tatjane Tubić
- Recenzent univerzitetskog priručnika „Osnove antropomotorike“ autorke dr Jelene Obradović
- Recenzent časopisa „Aktuelno u praksi“.

Prof. dr Dejan Madić je oženjen i otac četvorice dečaka.







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Broj / Ref 03 - 3305

Datum / Date 09. 10. 2018

Универзитет Црне Горе  
ФАКУЛТЕТ ЗА СПОРТ И ФИЗИЧКО ВАСПИТАЊЕ

Примљено: <u>11. 10. 2018</u>			
Орг. јед.	Број	Прилог	Вриједност
	<u>2163</u>		

Na osnovu člana 72 stav 2 Zakona o visokom obrazovanju („Službeni list Crne Gore“ br. 44/14, 47/15,40/16,42/17,71/17) i člana 32 stav 1 tačka 9 Statuta Univerziteta Crne Gore, Senat Univerziteta Crne Gore na sjednici održanoj 09.10. 2018.godine, donio je

## ODLUKU O IZBORU U ZVANJE

Dr **STEVO POPOVIĆ** bira se u akademsko zvanje **vanredni profesor Univerziteta Crne Gore za oblast Sportske nauke (Antropologija tjelesnog vježbanja i sporta, Liderstvo u sportu i Društveni odnosi u sportu)** na Fakultetu za sport i fizičko vaspitanje Univerziteta Crne Gore, na period od pet godina.



**SENAT UNIVERZITETA CRNE GORE  
PREDSJEDNIK**

**Prof.dr Danilo Nikolić, rektor**

## BIOGRAFIJA

Stevo (Radivoja) Popović je državljanin sam Republike Crne Gore sa stalnim prebivalištem u Podgorici. Rođen sam 16. septembra 1979. godine u gradu Bačka Topola u Republici Srbiji.

Godine 1994. je završio Osnovnu školu „Nikola Đurković“ u Feketiću, gdje je zaslužio najprestižniju diplomu za postignuti uspjeh tokom školovanja, Vukovu diplomu i pet posebnih diploma iz sljedećih predmeta: matematika, srpsko-hrvatski jezik i književnost, geografija, njemački jezik i fizika. Godine 1998. je završio Gimnaziju „Dositej Obradović“ u Bačkoj Topoli sa odličnim uspjehom, gdje je tokom završne godine, kao predsjednik svog odjeljenja bio izabran za potpredsjednika zajednice učenika svoje škole. Dana, 6. novembra 2003. godine je diplomirao na Fakultetu fizičke kulture Univerziteta u Novom Sadu sa temom „Mogućnosti realizacije sportsko – rekreativnih programa u Nacionalnom parku Fruška gora“ pod mentorstvom prof. dr Milene Mikalački, šefa na katedri za sportsku rekreaciju. Time je stekao zvanje profesora fizičkog vaspitanja i diplomiranog trenera fudbala. Tokom završne godine studija se isticao u vannastavnim aktivnostima tj. kao sekretar Studentske unije Fakulteta fizičke kulture i član izvršnog odbora pomenute studentske organizacije. Dana, 3. novembra 2009. godine je magistrirao na Univerzitetu u Novom Sadu (ACIMSI) na smjeru Menadžment u sportu pod mentorstvom prof. dr Stevana Vasiljeva, redovnog profesora u oblasti Marketinga u sportu. Javnom odbranom magistarske teze sa temom „Uloga marketinga u savremenim tokovima na primjeru sportskih organizacija“ je stekao zvanje magistra nauka iz interdisciplinarnе oblasti menadžmenta u sportu. Dana, 2. juna 2011. godine je doktorirao na Univerzitetu u Novom Sadu (ACIMSI) na smjeru Menadžment u sportu pod mentorstvom prof. dr Dragana Kokovića, redovnog profesora u oblasti sociologije sporta. Javnom odbranom doktorske disertacije sa temom „Reklamiranje u sportu kao efektivno sredstvo savremene poslovne komunikacije“ je stekao zvanje doktora nauka iz interdisciplinarnе oblasti menadžmenta u sportu, koje je odlukom Ministarstva prosvjete i sporta br. 05-1-452 od 1.10.2011. godine izjednačeno sa zvanjem doktor nauka fizičke kulture. Tokom školske 2011/2012 je pohađao post-doktorske studije na Fakultetu za sport Univerziteta u Ljubljani pod mentorstvom prof. dr Jakoba Bednarika, vanrednog profesora na katedri za menadžment u sportu. Ovaj dvosemestralni studijski boravak koji je uspješno priveo kraju 15. jula 2012. godine, omogućila mi je stipendija koju sam dobio putem međunarodnog projekta BASILEUS III.

Honorarno je angažovan na Univerzitetu Crne Gore od 7. februara 2011. godine, dok je u radnom odnosu kao saradnik u nastavi na Fakultetu za sport i fizičko vaspitanje u Nikšiću od 1. aprila 2011. godine do izbora u zvanje docenta (19. decembra 2013. godine) i u zvanje vanrednog profesora (9. oktobra 2018. godine). Izabran je u zvanje na sljedećim predmetima: Društveni odnosi u sportu, Liderstvo u sportu i Antropologija tjelesnog vježbanja i sporta. Od decembra 2014. godine je obavljao funkciju prodekana za nauku, do izbora za v.d. Dekana, na koju funkciju je postavljen u maju 2015. godine, dok je za Dekana Fakulteta za sport i fizičko vaspitanje Univerziteta Crne Gore izabran u junu 2015. godine za prvi mandat, i u junu 2018. godine za drugi mandat, a na toj poziciji se i trenutno nalazi. Takođe je sticao iskustvo u ljetnjem kampu za djecu, Camp Ramapo Anchorage u Sjedinjenim Američkim Državama, u državi New York, u gradu Rhinebeck. Predstavljao je Američki institut za inostrane studije (AIFS) i fondaciju Camp America iz Londona i njihove programe kulturne razmjene, zatim je radio kao animator u kompaniji „Montenegro Stars Hotel Group“, u hotelu Montenegro u Bečićima. Pripravnički staž je odradio u Osnovnoj školi „Stefan Mitrov Ljubiša“ u Budvi. Zatim je položio stručni ispit sa temom „Mogućnosti ostvarivanja sportsko–rekreativnih aktivnosti u Nacionalnom parku Skadarsko jezero“. Radio je kao sportski novinar tj. dopisnik iz Budve za beogradski Dnevni sportski list „Sport“. Obavljao je funkciju lokalnog predstavnika u Crnoj Gori i intervjuera za fondaciju CCUSA iz San Franciska, a bio je zadužen za promociju njihovih programa kulturne razmjene i selekciju polaznika. Bio je potpredsjednik Sportske asocijacije Budve, kao i potpredsjednik Smučarskog kluba „Mogren“ iz Budve i izvršni direktor „Crnogorskog društva za sportski menadžment“ iz Budve. Bio je honorarno angažovan i kao skaut u švajcarskoj firmi „Sport Data“ koja se bavi prikupljanjem statističkih podataka u oblasti sporta.

Vrijedno je istaći da je biran u zvanje saradnika u nastavi na Fakultetu sporta i fizičkog vaspitanja Univerziteta u Novom Sadu za realizaciju istraživačkih projekata Fakulteta i vježbi po studijskim programima

za osnovne i primijenjene studije, gdje je radio dvije školske godine. Takođe i da je dobitnik stipendije u međunarodnom projektu JoinEU SEE I od strane Erasmus Mundus External Cooperation Window i Evropske komisije a proveo je mjesec dana na akademskoj razmjeni osoblja tokom ljetnjeg semestra 2009/2010 školske godine na Middle East Technical University u Ankari. Nakon povratka sa studijskog boravka, postao je aktivan član oficijelne mreže „Buddy Network“ koju je pokrenula Kancelarija za međunarodnu saradnju Univerziteta u Novom Sadu sa ciljem da što kvalitetnije dočeka i ugosti inostrane studente i nastavno osoblje koji borave na Univerzitetu putem brojnih programa mobilnosti. Takođe je vrijedno napomenuti da je, pored BASILEUS III, dobio stipendiju putem međunarodnog projekta BASILEUS IV, te da je proveo mjesec dana na akademskoj razmjeni osoblja tokom 2013/2014 školske godine na ATEI u Solunu. Nakon toga, u okviru TEMPUS projekta „QinR“ je izabran da kao mladi istraživač provede na studijskom boravku na Univerzitetu u Munsteru u Njemačkoj, te boravio na Univerzitetu u Ljubljani u tri navrata po 7 dana u okviru bilateralnog projekta tokom školske 2016/2017 i 2017/2018 godine, kao i 21 dana na Univerzitet u Nici tokom školske 2016/2017 godine i 7 dana na AUTH u Solunu tokom školske 2017/2018 godine. U okviru CEEPUS mreže bio je gostujući profesor na Univerzitetu u Novom Sadu i Univerzitetu u Splitu tokom školske 2017/2018 godine.

Aktivno se bavi istraživačkim radom, a objavio je u saradnji sa svojim kolegama više od 20 radova u međunarodnim časopisima koji se nalaze u bazama podataka (Web of Science), kao i niz radova u međunarodnim časopisima koji se nalaze u ostalim međunarodnim bazama podataka i imaju redovnu međunarodnu distribuciju i rezime na stranom jeziku. Takođe, redovno posjećuje nacionalne i međunarodne naučne konferencije na kojima prezentuje najnovije pronalaskeske iz oblasti svog interesovanja, prije svega iz društvenih odnosa u sportu, zatim menadžmenta u sportu i antropologije tjelesnog vježbanja i sporta. Vrijedno je dodati da je anagažovan i u naučnim odborima u naučnim časopisima i na naučnim konferencijama, gdje uredno recenzira prispjele rukopise, dok je već četiri godine šef naučnog odbora u okviru godišnje međunarodne naučne konferencije koju organizuje Crnogorska sportska akademija i Fakultet za sport i fizičko vaspitanje Univerziteta Crne Gore i jedan od glavnih urednika časopisa „Montenegrin Journal of Sports Science and Medicine“ koji je indeksiran u „Web of Science - ESCI“ i „Scopus“ bazama podataka. Takođe, aktivno se bavi projektnim menadžmentom i rukovodi pripremama za nacionalne i međunarodne prijave, kako na konkurse otvorene za naučno-istraživačke projekte, tako i za projekte u oblasti unaprjeđenja obrazovanja u oblasti sportskih nauka. Bio je nacionalni koordinator na dva završena bilateralna projekta, sa Slovenijom i Makedonijom, odobrena od strane Ministarstva nauke i na dva koja su još uvijek u toku, sa Srbijom i Slovenijom. Koordinator je CEEPUS mreže u okviru koje participira jedanaest institucija iz različitih zemalja iz centralne Evrope. Član je Centra mladih naučnika u okviru Crnogorske akademije nauka i umjetnosti kao i glavni i odgovorni urednik Uređivačkog odbora Univerziteta Crne Gore, a bio je i član Centara za studije i kontrolu kvaliteta Univerziteta Crne Gore i Odbora za monitoring magistarskih studije Univerziteta Crne Gore. Što se participiranja u profesionalnih udruženja u oblasti sporta tiče, nacionalni je delegat Crne Gore u FIEP Europe, zatim član borda direktora u FIEP World, kao i član akademskog borda u Azijskoj asocijaciji za sportske nauke i vježbanje, institucionalni predstavnik i član izvršnog odbora HEPA Europe, član Evropskog koledža za sportske nauke, ISAFA, SPOLINT i dr.

Tokom svog školovanja i vremena provedenog u inostranstvu naučio je tečno govoriti engleski jezik a, pored toga služi se i njemačkim jezikom koji sam učio tokom svog osnovnog i srednjeg školovanja. Tokom jednogodišnjeg boravka u Sloveniji naučio se koristiti i slovenačkim jezikom. Odlično rukuje računarom, a pored operativnog programa Windows, služim se i sljedećim programima: MS Office - Word, Excel, FrontPage, PowerPoint, zatim SPSS, Corel Draw, Internet Explorer, Outlook Express i E-banking.

## **Stevo R. POPOVIC (Mr.)**

**"The winner is a dreamer who never gives up!" – NELSON MENDELA**

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### **EDUCATIONAL BACKGROUND**

**DOCTOR OF PHILOSOPHY:** University of Novi Sad  
Center for Sport Management  
Ph.D. in Sport Management  
December 2009 - June 2011

**MASTER OF SCIENCE:** University of Novi Sad  
Center for Sport Management  
M.Sc. in Sport Management  
October 2005 - November 2009

**BACHELOR OF SCIENCE:** University of Novi Sad  
Faculty of Sport and Physical Education  
B.Sc. in Physical Education and Football  
October 1998 - November 2003

### **PROFESSIONAL EXPERIENCE**

**Associate Professor,** Faculty for Sport and Physical Education, University of Montenegro, Narodne omladine bb, MNE – 81400 Niksic. Oct 2018 – Present.

**Dean,** Faculty for Sport and Physical Education, University of Montenegro, Narodne omladine bb, MNE – 81400 Niksic. May 2015 – Present.

**Vice-Dean of Research and Interntional Relations,** Faculty for Sport and Physical Education, University of Montenegro, Narodne omladine bb, MNE – 81400 Niksic. Dec 2014 – May 2015.

**Assistant Professor,** Faculty for Sport and Physical Education, University of Montenegro, Narodne omladine bb, MNE – 81400 Niksic. Dec 2013 – Oct 2018.

**Post-doctoral Fellow,** Faculty of Sport, University of Ljubljana, Gortanova 22, SLO – 1000 Ljubljana. Sept 2011 – July 2012.

**Teaching Assistant,** Faculty for Sport and Physical Education, University of Montenegro, Narodne omladine bb, MNE – 81400 Niksic. Feb 2008 – Dec 2013.

**Teaching Assistant,** Faculty of Sport and Physical Education, University of Novi Sad, Lovcenska 16, SRB – 21000 Novi Sad. September 2008 – October 2010.

## SCHOLARLY PUBLICATIONS

### I. Books

- Bjelica, D. & **Popovic, S.** (2012). *Football – theory, technique and tactics* (In Montenegrin). Podgorica: Montenegrin Sports Academy. [ISBN 978-9940-569-05-1]
- Bjelica, D. & **Popovic, S.** (2016). *Football – technique and tactics* (In Montenegrin). Podgorica: University of Montenegro. [ISBN 978-86-7664-120-8]
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- Bjelica, D., **Popovic, S.**, Vukotic, M. & Zoric, G. (2018). *Physical activity of Montenegrin Young People: Handbook* (In Montenegrin). Podgorica: Montenegrin Sports Academy. [ISBN 978-9940-569-23-5]

### II. Book Chapters

- Popovic, S.** (2015). Sport Nowadays (In Montenegrin). In D. Bjelica (Ed.), *Advertising Role of Sponsorship in Modern Sport* (pp. 111-116). Podgorica: Montenegrin Sports Academy. [ISBN 978-9940-569-14-3]

### II. Conference proceedings

- Bjelica, D., **Popovic, S.**, & Akpinar, S. (2014). Book of Abstracts of the 11th International Scientific Conference on Transformation Process in Sport "Sport Performance". Podgorica: Montenegrin Sports Academy. [ISBN 978-9940-569-09-9]
- Bjelica, D., **Popovic, S.**, & Akpinar, S. (2015). Book of Abstracts of the 12th International Scientific Conference on Transformation Process in Sport "Sport Performance". Podgorica: Montenegrin Sports Academy. [ISBN 978-9940-569-12-9]
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### III. Journal articles (Web of Science)

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- Bjelica, D., **Popovic, S.**, Kezunovic, M., Petkovic, J., Jurak, G., & Grasgruber, P. (2012). Body Height and Its Estimation Utilizing Arm Span Measurements in Montenegrin Adults. *Anthropological Notebooks*, 18(2), 69–83.
- Hadzic, R., Bjelica, D., Vujovic, D. & **Popovic, S.** (2012). Influence of Motor Abilities on Quality of Performing Technical Elements in alpine Skiing. *Technics Technologies Education Management*, 7(4), 1641-1645.
- Kezunovic, M., Bjelica, D., & **Popovic, S.** (2013). Comparative study of surgical treatment with acromioclavicular luxation. *Vojno-sanitetski pregled*, 70(3), 292-297.
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- Popovic, S.**, Bjelica, D., Tanase, G.D., & Milasinovic, R. (2015). Body Height and Its Estimation Utilizing Arm Span Measurements in Bosnian and Herzegovinian Adults. *Montenegrin Journal of Sports Science and Medicine*, 4(1), 29-36.
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- Gusic, M., **Popovic, S.**, Molnar, S., Masanovic, B., Radakovic, M. (2016). Sport-specific morphology profile: differences in anthropometric characteristics among elite soccer and handball players. In *Book of Abstracts of the 13th International Scientific Conference on Transformation Process in Sport "Sport Performance" (26-27), Podgorica: Montenegrin Sports Academy.*
- Popovic, S.**, Milasinovic, R., Matic, R., Gardasevic, J., Bjelica, D. (2016). Body height and its estimation utilizing arm span measurements in male adolescents from southern region in Montenegro. In *Book of Abstracts of the 13th International Scientific Conference on Transformation Process in Sport "Sport Performance" (29-30), Podgorica: Montenegrin Sports Academy.*
- Popovic, S.**, Milasinovic, R., Jaksic, D., Vasiljevic, I., Bjelica, D. (2016). Body height and its estimation utilizing arm span measurements in female adolescents from southern region in Montenegro. In *Book of Abstracts of the 13th International Scientific Conference on Transformation Process in Sport "Sport Performance" (30), Podgorica: Montenegrin Sports Academy.*
- Milasinovic, R., Bjelica, D., Gardasevic, J., **Popovic, S.** (2016). Historical development of skiing: case study in Durmitor area. In *Book of Abstracts of the 13th International Scientific Conference on Transformation Process in Sport "Sport Performance" (33), Podgorica: Montenegrin Sports Academy.*
- Bjelica, D., Gardasevic, J., Vasiljevic, I., **Popovic, S.** (2016). Ethical dilemmas of sport advertising. In *Book of Abstracts of the 13th International Scientific Conference on Transformation Process in Sport "Sport Performance" (41), Podgorica: Montenegrin Sports Academy.*
- Popovic, S.**, Bjelica, D., Milasinovic, R., & Gardasevic, J. (2016). Body height and its estimation utilizing arm span measurements in male adolescents from northern region in Montenegro. In *Book of Abstracts of 4<sup>th</sup> International Scientific Conference "Exercise and Quality of Life" (38), Novi Sad: Faculty of Sport and Physical Education.*
- Milasinovic, R., **Popovic, S.**, Bjelica, D., & Vasiljevic, I. (2016). Body height and its estimation utilizing arm span measurements in female adolescents from northern region in Montenegro. In *Book of Abstracts of 4<sup>th</sup> International Scientific Conference "Exercise and Quality of Life" (39), Novi Sad: Faculty of Sport and Physical Education.*
- Popovic, S.**, Bjelica, D., Milasinovic, R., Gardasevic, J., & Rasidagic, F. (2016). Body height and its estimation utilizing arm span measurements in male adolescents from Herzeg-Bosnia entity in Bosnia and Herzegovina. In *Book of Abstracts of IUAES Inter Congress "World anthropologies and privatization of knowledge: engaging anthropology in public" (148), Dubrovnik: International Union of Anthropological and Ethnological Sciences.*

- Milasinovic, R., **Popovic, S.**, Bjelica, D., & Gardasevic, J. (2016). Effect of swimming on body mass index in athletes winning the medal at the London 2012 Summer Olympics. In *Book of Abstracts of IUAES Inter Congress "World anthropologies and privatization of knowledge: engaging anthropology in public"* (167-168), Dubrovnik: International Union of Anthropological and Ethnological Sciences.
- Popovic, S.**, Bjelica, D., Gardasevic, J., Milasinovic, R., & Kovacevic, B. (2016). Identifying the local Spa Consumers during Off-season in Budvanska Riviera, Montenegro. In *Book of Abstracts of Global Forum 2016 for Physical Education Pedagogy "Technology, Networking and Best Practice in Physical Education and Health:Local to global"* (44), Ankara: Hacettepe University.
- Popovic, S.** (2016). Body Height and its Estimation Utilizing Arm Span Measurements in Montenegrin Adults: National Survey. In *Book of Summaries of 11<sup>th</sup> FIEP European Congress "Anthropological Aspects of Sport, Physical Education and Recreation"* (5-6), Banjaluka: University of Banjaluka, Faculty of Physical Education and Sport.
- Gardasevic, J., Bjelica, D., **Popovic, S.** & Milasinovic, R. (2016). Preparation Period and its Effects on the Speed of Ball Leading at Players U16. In *Book of Summaries of 11<sup>th</sup> FIEP European Congress "Anthropological Aspects of Sport, Physical Education and Recreation"* (30-31), Banjaluka: University of Banjaluka, Faculty of Physical Education and Sport.
- Milasinovic, R. & **Popovic, S.** (2016). Possible Differences in Body Composition of Montenegrin Top Athletes and Sedentary Population. In *Book of Summaries of 11<sup>th</sup> FIEP European Congress "Anthropological Aspects of Sport, Physical Education and Recreation"* (32-33), Banjaluka: University of Banjaluka, Faculty of Physical Education and Sport.
- Popović, S.**, & Bjelica, D. (2016). Body Mass Index of Montenegrin athletes participating in waterpolo at the London 2012 Summer Olympics. In *Conference Abstract Book of the 7th Conference of HEPA Europe "Walking The Walk"* (69), Belfast: HEPA Europe.
- Popovic, S.** & Bjelica, D. (2016). Body Height and its Estimation Utilizing Arm Span Measurements in Kosovan Adolescence: National Survey. In *Abstract Book of International Eurasian Conference on Sport, Education, and Society* (9), Antalya: International Science Culture and Sport Association.
- Gardasevic, J., **Popovic, S.** & Bjelica, D. (2016). After preparation period ball shooting accuracy at players U15. In *Abstract Book of the 8th Conference for Youth Sport* (88), Ljubljana: Faculty of Sport, University of Ljubljana.
- Akpinar, S., Micoogullari, B.O., & **Popovic, S.** (2016). The Effect of Age On Hand Asymmetry and Motor Performance of Female Handball Players. In *Proceedings book of the 14th International Sport Sciences Congress* (282). Belek-Antalya: Sport Sciences Association.
- Bjelica, D., & **Popovic, S.** (2017). Contemporary Sports Product and Making a Brand in Montenegro. In *Book of Abstracts of the 14th International Scientific Conference on Transformation Process in Sport "Sport Performance"* (59), Budva: Montenegrin Sports Academy.
- Popovic, S.** (2017). Changing Publication Patterns in the Multidisciplinary Field of Sports Sciences (2003–2016) in Montenegro. In *Book of Abstracts of the 14th International Scientific Conference on Transformation Process in Sport "Sport Performance"* (60), Budva: Montenegrin Sports Academy.
- Popovic, S.** & Bjelica, D. (2017). Body Height and its Estimation Utilizing Foot Length Measurements in Kosovan Adults: National Survey. In *Abstract Book of the Sport Science Conference AESA 2017* (2), Amol: Faculty of Sport Sciences, Shomal University; Asian Exercise and Sport Science Association.
- Popovic, S.**, Bjelica, D., & Gardasevic, J. (2017). Changing Publication Patterns in the Field of Physical Education from 2003 to 2017 in Montenegro. In *Proceedings of 12<sup>th</sup> FIEP European Congress "Changes in Childhood and Adolescence: Current Challenges for Physical Education"* (276), Luxembourg: University of Luxembourg.
- Gardasevic, J., **Popovic, S.**, & Bjelica, D. (2017). Agility Transformation at U18 Football Players Under the Influence of Training. In *Proceedings of 12<sup>th</sup> FIEP European Congress "Changes in Childhood and Adolescence: Current Challenges for Physical Education"* (212-213), Luxembourg: University of Luxembourg.
- Bjelica, D., Gardasevic, J., Vasiljevic, I., & **Popovic, S.** (2017). Body Mass Index of athletes participating in football premier league in Montenegro. In *Proceedings Book of the 6<sup>th</sup>*

*International Scientific Conference "Contemporary Kinesiology" (81-82), Split: Faculty of Kinesiology, University of Split.*

- Popović, S.,** & Bjelica, D. (2017). Body mass index of Montenegrin athletes participating in U21 national basketball team. In *Conference Book of Abstract of the 8th Conference of HEPA Europe "Modern Approaches to Physical Activity promotion and measurement"* (121), Belfast: HEPA Europe.
- Popović, S.,** & Bjelica, D. (2017). Effects of physical activity on social exclusion among older people: a literature review. In *Conference Book of Abstract of the 8th Conference of HEPA Europe "Modern Approaches to Physical Activity promotion and measurement"* (122), Zagreb: HEPA Europe.
- Markus, Z., Pekovic, S. & **Popovic, S.** (2017). The role of sport-recreational activities in the creation of tourism satisfaction. In *Conference Proceedings from 7th International Scientific Conference "Knowledge and Business Challenge og Globalization in 2017"* (367-373), Celje: Faculty of Commercial and Business Science.
- Bjelica, D., Masanovic, B., Jarani, J., & **Popovic, S.** (2018). Estimation of stature from arm span in Albanian population. In *Book of Abstracts of the 15th International Scientific Conference on Transformation Process in Sport "Sport Performance"* (57), Budva: Montenegrin Sports Academy.
- Masanovic, B., **Popovic, S.,** & Bjelica, D.1 (2018). Comparative study of anthropometric measurement and body composition between junior soccer and volleyball players from national league. In *Book of Abstracts of the 15th International Scientific Conference on Transformation Process in Sport "Sport Performance"* (58), Budva: Montenegrin Sports Academy.
- Popovic, S.,** Bjelica, D., Vukotic, M., & Masanovic, B. (2018). Describing physical activity profile of older Montenegrin females using the International Physical Activity Questionnaire (IPAQ). In *Book of Abstracts of the 15th International Scientific Conference on Transformation Process in Sport "Sport Performance"* (60-61), Budva: Montenegrin Sports Academy.
- Masanovic, B., Vukotic, M., Bjelica, D., & **Popovic, S.** (2018). Describing physical activity profile of older Montenegrin males using the International Physical Activity Questionnaire (IPAQ).. In *Book of Abstracts of the 15th International Scientific Conference on Transformation Process in Sport "Sport Performance"* (61), Budva: Montenegrin Sports Academy.
- Popovic, S.** (2018). Research and writing development in the area of sport science publishing in Montenegro from 2002 to 2017. In *Book of Abstracts of the 15th International Scientific Conference on Transformation Process in Sport "Sport Performance"* (77-78), Budva: Montenegrin Sports Academy.
- Popovic, S.,** Bjelica, D., Masanovic, B., & Vukotic, M. (2018). Describing physical activity profile of young Montenegrin females using the international physical activity questionnaire (IPAQ). In *Proceedings of the World Congress of Performance Analysis of Sport XII (344)*, Opatija: Faculty of Kinesiology, University of Zagreb.
- Masanovic, B., **Popovic, S.,** Bjelica, D., Vukotic, M., Zoric, G. (2018). The effects of physical activity on depressive symptoms among elderly people: a systematic review. In *Proceedings of the World Congress of Performance Analysis of Sport XII (423)*, Opatija: Faculty of Kinesiology, University of Zagreb.
- Masanovic, B., Vukotic, M., **Popovic, S.,** & Bjelica, D. (2018). Comparative study of anthropometric measurement and body composition between junior basketball and volleyball players from Serbian national league. In *Proceedings of the World Congress of Performance Analysis of Sport XII (340)*, Opatija: Faculty of Kinesiology, University of Zagreb.
- Popovic, S.,** & Bjelica, D. (2018). Effects of physical inactivity on body composition of older people: A meta analysis. In *Journal of Physical Activity and Health Supplement of 7th International Society for Physical Activity and Health Congress, 15(10 Suppl 1), S212*, London: International Society for Physical Activity and Health; doi: 10.1123/jpah.2018-0535.

## SCIENTIFIC AND BILATERAL PROJECTS

## I. Funded Projects

- Participant** of JoinEU-SEE (Scholarship scheme for academic exchange between EU and Western Balkan countries). Erasmus Mundus External Cooperation Window (Erasmus Mundus Action 2 – Strand 1); Coordinator of the project: University of Graz from Graz, Austria; Duration: 2009-2013 (48 months).
- Participant** of DeLLco (Development of the LLL Concept at the University of Montenegro). TEMPUS, Structural Measures; Coordinator of the project: University of Montenegro, Montenegro; Duration: 2010-2012 (24 months).
- Participant** of Mobility-based technology services for new lifestyle with sport and tourism. EUREKA; Coordinator of the project: OKS-OLIMP from Ljubljana, Slovenia; Duration: 2010-2012 (24 months).
- Participant** of Basileus III (Balkans Academic Scheme for the Internationalization of Learning in cooperation with EU universities). Erasmus Mundus External Cooperation Window (Erasmus Mundus Action 2 – Strand 1); Coordinator of the project: University of Ghent from Ghent, Belgium; Duration: 2011-2015 (48 months).
- Participant** of Enhancing Cross-regional Cooperation with Erasmus Mundus (ECCE Mundus). Erasmus Mundus Action 3: Promotion of higher education; Coordinator of the project: TEMPUS PUBLIC FOUNDATION from Budapest, Hungary; Duration: 2011-2013 (28 months).
- Participant** of Basileus IV (Balkans Academic Scheme for the Internationalization of Learning in cooperation with EU universities). Erasmus Mundus External Cooperation Window (Erasmus Mundus Action 2 – Strand 1); Coordinator of the project: University of Ghent from Ghent, Belgium; Duration: 2012-2016 (48 months).
- Participant** of QinR (Quality in Research). TEMPUS, Joint Projects; Coordinator of the project: University of Sarajevo, Bosnia and Herzegovina; Duration: 2011-2014 (36 months).
- Coordinator** of TIONNI (Impact of national team identification on national identity in Montenegro and Macedonia). Ministry of Science, Bilateral Project; Coordinator of the project: University of Montenegro, Montenegro & Cirill and Methodius University, Macedonia; Duration: 2016-2017 (24 months).
- Coordinator** of TVRR-CGS (Body height and its estimation utilizing arm span measurements in Montenegrin and Slovenian population). Ministry of Science, Bilateral Project; Coordinator of the project: University of Montenegro, Montenegro & University of Ljubljana, Slovenia; Duration: 2016-2017 (24 months).
- Principal Investigator** of COSI (Childhood Obesity Surveillance Initiative). World Health Organization; Coordinator of the project: Ministry of Health, Montenegro; Duration: April 2016-October 2016 (8 months).
- Management Committee Member** of COST Action CA15137: ENRESSH (European Network for Research Evaluation in the Social Sciences and the Humanities). European Cooperation in Science and Tehnology (COST); Coordinator of the project: EU Framework Programme Horizon 2020, European Commission; Duration: April 2016-April 2020 (4 years).
- Management Committee Member** of COST Action CA15221: WeRELaTE (Advancing Effective Institutional Models towards Cohesive Teaching, Learning, Research and Writing Development). European Cooperation in Science and Tehnology (COST); Coordinator of the project: EU Framework Programme Horizon 2020, European Commission; Duration: October 2016-October 2020 (4 years).
- Management Committee Member** of COST Action CA15122: ROSEnet (Reducing Old-Age Social Exclusion: Collaborations in Research and Policy). European Cooperation in Science and Tehnology (COST); Coordinator of the project: EU Framework Programme Horizon 2020, European Commission; Duration: April 2016-April 2020 (4 years).
- Review Panel Expert** of COST Action Proposal Submission, Evaluation, Selection and Approval (SESA) procedure; Coordinator of the project: EU Framework Programme Horizon 2020, European Commission; Duration: September 2017 – September 2018 (1 years).
- Coordinator** of EPA-SIOP (Effects of Physical Activity on Social Inclusion of Older People). Ministry of Science, Programme for Encouragement of Participation in COST and Horizon2020 projects; Coordinator of the project: University of Montenegro, Montenegro; Duration: 2018-2019 (24 months).



**Participant** of QinR-SSH (Quality in Research in Social Science and Humanities). Ministry of Science, Programme for Encouragement of Participation in COST and Horizon2020 projects; Coordinator of the project: University of Montenegro, Montenegro; Duration: 2018-2019 (24 months).

**Coordinator** of EPA-SIYP (Effects of Physical Activity on Social Inclusion of Young People). Ministry of Sport, Directorate for Youth; Coordinator of the project: Montenegrin Sports Academy, Montenegro; Duration: 2018 (12 months).

**Coordinator** of COSI-2E (Obesity Surveillance Initiative for children aged 6 to 9 in Montenegro and Slovenia). Ministry of Science, Bilateral Project; Coordinator of the project: University of Montenegro, Montenegro & University of Ljubljana, Slovenia; Duration: 2018-2019 (24 months).

## II. Unfunded projects

**Coordinator** of DPSIM (Development of Partnerships between Higher Education Institutions and Sport Industry enterprises through Student Internship in Montenegro). TEMPUS, Joint Projects; Coordinator of the project: University of Montenegro, Montenegro; Duration: 2012-2015 (36 months).

**Institutional Coordinator** of MSc PAH (Master Degree in Physical Activities and Health). TEMPUS, Joint Projects; Coordinator of the project: University of Greenwich, UK; Duration: 2012-2015 (36 months).

**Applicant** of TionNI (Impact of National Football Team Identification on National Identity in the Context of Major Events in the World of Sport). FP7, Marie Curie actions (Intra-European Fellowships); Scientific in Charge of the project: Prof. John Hughson, University of Central Lancashire, UK; Duration: 2012-2014 (24 months).

**Institutional Coordinator** of EDSSEP (Establishing Doctoral Studies in Sports Education and Pedagogy). TEMPUS, Joint Projects; Coordinator of the project: University of Split, Croatia; Duration: 2013-2016 (36 months).

**Institutional Coordinator** of CIS (Competencies in Sport). TEMPUS, Joint Projects; Coordinator of the project: University of Split, Croatia; Duration: 2013-2016 (36 months).

**Applicant** of FTonNIM (Impact of Significant Achievement of National Football Team on National Identity in Montenegro). FP7, Marie Curie actions (Career Integration Grant); Scientific in Charge of the project: Dr. Milan Hosta, University of Primorska, Slovenia; Duration: 2013-2015 (24 months).

## EXPERIENCE IN EVALUATION

**Independent Expert** for Evaluation of Study Programmes. Council of Higher Education, Ministry of Education, Vaka Đurovića b.b.. 81000 Podgorica; year 2016.

## EDITING OF PUBLICATIONS

**Ad-Hoc Reviewer** for "Teme", Faculty of Occupational Safety, Carnojeviceva street No10A, 18000 Nis, Serbia; year 2009. ISSN 0353-7919.

**Ad-Hoc Reviewer** for "Sport Scientific and Practical Aspects", Faculty of Physical Education and Sport at Tuzla University, 2 October street No1, 75000 Tuzla, Bosnia and Herzegovina; year 2010. ISSN 1840-4413.

**Editorial Board Member** of "Sport Mont", Montenegrin Sport Academy, Dzordza Vasingtona street No445, 81000 Podgorica, Montenegro; year 2011-2018. ISSN 1451-7485.

**Ad-Hoc Reviewer** for "Collegium Antropologicum", Institute for Anthropological Research, Gajeva No32, 10000 Zagreb, Croatia; year 2012. ISSN 0350-6134.

**Editorial Board Member** of "Sport Scientific and Practical Aspects", Faculty of Physical Education and Sport at Tuzla University, 2 October street No1, 75000 Tuzla, Bosnia&Herzegovina; year 2012-2018. ISSN 1840-4413.

**Managing Editor** of "Montenegrin Journal of Sports Science and Medicine", Montenegrin Sport Academy, Dzordza Vasingtona street No78, 81000 Podgorica, Montenegro; year 2012-2013. ISSN 1800-8755.

- Executive Editor** of "*Montenegrin Journal of Sports Science and Medicine*", Montenegrin Sport Academy, Džordža Vasiingtona street No78, 81000 Podgorica, Montenegro; year 2014-2016. ISSN 1800-8755.
- Ad-Hoc Reviewer** for "*Motriz. Journal of Physical Education*", Department of Physical Education, Institute of Biosciences, São Paulo State University, Rua Cristóvão Colombo, 2265 - Jardim Nazareth, São José do Rio Preto - SP, 15054-000, Brazil; year 2014. ISSN 1415-9805.
- Ad-Hoc Reviewer** for "*International Journal of Sport Management, Recreation and Tourism*", Association of Sport Tourism and Recreation, Democritus University of Thrace, Dept of Physical Education and Sport, Laboratory of Recreation and Tourism, University Campus, Komotini, 69100, Greece; year 2014-2016. ISSN 1791-874X.
- Editorial Board Member** of "*International Journal of Sport Management, Recreation and Tourism*", Association of Sport Tourism and Recreation, Democritus University of Thrace, Dept of Physical Education and Sport, Laboratory of Recreation and Tourism, University Campus, Komotini, 69100, Greece; year 2014-2018. ISSN 1791-874X.
- Ad-Hoc Reviewer** for "*Kinesiology*", University of Zagreb, Faculty of Kinesiology, Horvacanski zavoj 15, HR-10000 Zagreb, Croatia; year 2014-2015, 2017. ISSN 1331-1441.
- Editor** of the Library for Sport, Leisure and Art, University of Montenegro Press, Cetinski put 2, 81000 Podgorica, Montenegro; year 2014-2015.
- Ad-Hoc Reviewer** for "*Journal of Sports Sciences*", The British Association of Sport and Exercise Sciences (BASES), Room 103, Headingley Carnegie Stand, St Michael's Lane, Headingley, Leeds LS6 3BR, United Kingdom; year 2015-2016. ISSN 0264-0414.
- Editor** of the Library for Social Sciences, University of Montenegro Press, Cetinski put 2, 81000 Podgorica, Montenegro; year 2015-2017.
- Ad-Hoc Reviewer** for "*Research in Sports Medicine*", Taylor & Francis Ltd, 4 Park Square, Milton Park, Abingdon, Oxon, Ox14 4rn, England, United Kingdom; year 2016. ISSN 1543-8627.
- Ad-Hoc Reviewer** for "*Cultura, Ciencia Y Deporte*", UCAM Universidad Católica de Murcia, Facultad de Ciencias de la Actividad Física y del Deporte, Campus de Los Jerónimos, 30107 Guadalupe, Murcia, Spain; year 2015-2016. ISSN 1696-5043.
- Editorial Board Member** of "*Cultura, Ciencia Y Deporte*", UCAM Universidad Católica de Murcia, Facultad de Ciencias de la Actividad Física y del Deporte, Campus de Los Jerónimos, 30107 Guadalupe, Murcia, Spain; year 2015-2018. ISSN 1696-5043.
- Editorial Board Member** of "*Journal of Sport and Kinetic Movement*", Physical Education and Sport Faculty of University of Craiova, Brestei Street No156, 200207 Craiova, Romania; year 2015-2018. ISSN 2286-3524.
- Editorial Board Member** of "*Sport and Physical Activity for Everyone*", Portuguese Federation of Sport for Persons with Disabilities, Rua Presidente Samora Machel Lote 7 r/c Dtº 2620 - 061 Olival Basto, Portugal; year 2015-2018. ISSN 2183-511X.
- Editorial Board Member** of "*Annals of Applied Sport Science*", Asian Exercise and Sport Science Association, Sport Science Faculty, 84596 - 46161, Shomal University, 5km Haraz Road, Amol, Mazandaran, Iran; year 2017-2018. ISSN 2476-4981.
- Ad-Hoc Reviewer** for "*European Sport Management Quarterly*", Taylor & Francis Ltd, 4 Park Square, Milton Park, Abingdon, Oxon, Ox14 4rn, England, United Kingdom; year 2016-2017. ISSN 1618-4742.
- Ad-Hoc Reviewer** for "*The Anthropologist*", Kamla-Raj Enterprises, 4771/23, 1st Floor, Mahavirshree Building, Bharat Ram Road, Darya Ganj, New Delhi 110 002, India; year 2016-2017. ISSN 0972-0073.
- Ad-Hoc Reviewer** for "*International Journal of Industrial Ergonomics*", Elsevier Science Bv, Po Box 211, 1000 Amsterdam, Netherlands; year 2017-2018. ISSN 0169-8141.
- Editor-in-Chief** of "*Montenegrin Journal of Sports Science and Medicine*", Montenegrin Sport Academy, Džordža Vasiingtona street No78, 81000 Podgorica, Montenegro; year 2017-2018. ISSN 1800-8755.
- Ad-Hoc Reviewer** for "*Kinesiology Slovenica*", University of Ljubljana, Faculty of Sport, 1000 Ljubljana, Slovenia; year 2017-2018. ISSN 1818-2269.
- Ad-Hoc Reviewer** for "*International Wound Journal*", Wiley Publishing, 111 River St, Hoboken, NJ 07030, USA; year 2017. ISSN 1742-4801.

**Editorial Board Member** of "Theory and Methods of the Physical Education", National University of Physical Education and Sport of Ukraine, Maidan Kostytutsii 18, 61003, Kharkiv, Ukraine; year 2017-2018. ISSN 1993-7989.

**Ad-Hoc Reviewer** for "Exercise and Quality of Life", Faculty of Sport and Physical Education, University of Novi Sad, Lovcenska 16, 21000 Novi Sad, Serbia; year 2017. ISSN 1821-3480.

**Editor-in-Chief** of the University of Montenegro Press, Cetinski put 2, 81000 Podgorica, Montenegro; year 2017-2020.

**Ad-Hoc Reviewer** for "BioMed Research International", Hindawi Publishing Corporation, 315 Madison Ave, New York, NY 10017, USA; year 2018. ISSN 2314-6133.

**Ad-Hoc Reviewer** for "Journal of Motor Behaviour", Taylor & Francis Group, 2&4 Park Square, Milton Park, Abingdon, OX14 4RN, UK; year 2018. ISSN 0022-2895.

## KEYNOTE SPEACHES AND BOARD MEMBERSHIPS

**Chair of Scientific Committee** at 11th International Scientific Conference on Transformation Process in Sport "Sport Performance". Podgorica, Montenegro, 3-6 April 2014.

**Invited Speaker** at 7th International Scientific Conference on Kinesiology "Fundamental and Applied Kinesiology – Steps Forward". Opatija, Croatia, 22-25 May 2014.

**International Member of Scientific Committee** at 9th FIEP European Congress and 7th International Scientific Congress "Sport, Stress, Adaptation". Sofia, Bulgaria, 9-12 October 2014.

**Invited Speaker** at International Conference on Economics and Management of Sports. Brno, Czech Republic, 21-22 November 2014.

**Chair of Scientific Committee** at 12th International Scientific Conference on Transformation Process in Sport "Sport Performance". Podgorica, Montenegro, 2-5 April 2015.

**Chair of Scientific Committee** at 13th International Scientific Conference on Transformation Process in Sport "Sport Performance". Podgorica, Montenegro, 31 March - 2 April 2016.

**Member of Advisory Board** at 4th International Scientific Conference "Exercise and Quality of Life". Novi Sad, Serbia, 22-23 April 2016.

**Invited Speaker** at 11th FIEP European Congress "Anthropological Aspects of Sport, Physical Education and Recreation". Banjaluka, Bosnia and Herzegovina, 14-18 September 2016.

**Member of Scientific Committee** at International Eurasian Conference on Sport, Education, and Society. Antalya, Turkey, 13-15 October 2016.

**Invited Speaker** at International Eurasian Conference on Sport, Education, and Society. Antalya, Turkey, 13-15 October 2016.

**Chair of Scientific Committee** at 14th International Scientific Conference on Transformation Process in Sport "Sport Performance". Budva, Montenegro, 30 March - 2 April 2017.

**Invited Speaker** at Sport Science Conference AESA 2017. Amol, Iran, 11-12 July 2017.

**Chair of Scientific Committee** at 15th International Scientific Conference on Transformation Process in Sport "Sport Performance". Budva, Montenegro, 12-15 April 2018.

**Member of Organizing Committee** at World Congress of Performance Analysis of Sport XII. Opatija, Croatia, 19-23 September 2018.

**Member of Scientific Committee** at 13th FIEP European Congress and 29th FIEP World Congress. Istanbul, Turkey, 26-29 September 2018.

**Chair of Scientific Committee** at 16th Annual Scientific Conference of Montenegrin Sports Academy "Sport, Physical Activity and Health: Contemporary Perspectives". Dubrovnik, Croatia, 4-7 April 2019.

**Vice-Chair of Scientific Committee** at 5th International Scientific Conference on Exercise and Quality of Life "From Active Childhood to Healthy Aging". Novi Sad, Serbia, 12-13 April 2019.

## TEACHING ACTIVITIES

### I. University of Ljubljana

Undergraduate Course

Entrepreneurship in Sport (Visiting Lecturer)

## **II. University of Montenegro**

### Undergraduate Courses

Swimming and Waterpolo  
Sports Leadership  
Social Issues of Sport  
Sport Management  
Anthropology of Sport and Physical Education

### Postgraduate Course

Sport and Fitness Management  
Social Issues of Sport  
Research Methods in Kinesiology  
Preparation of Master Thesis Project

### Doctoral Course

Research Methods in Kinesiology  
Data Analyses in Kinesiology

## **III. University of Novi Sad**

### Undergraduate Courses

Official Football Rules  
Techniques, Didactics and Tactics of Football

## **IV. Shomal University**

### Postgraduate and doctoral Courses

Research Methods in Kinesiology (Visiting Lecturer)

## **LEADING STUDENT THESIS**

### **I. Completed**

- Dacic, S. (2011). Analysis of attitudes toward advertising through sport in Budva (in Montenegrin). Master I Thesis.
- Mihajlovic, V. (2013). Impact of visitor's motivation and their interaction to attitudes toward sports websites in Bar (in Montenegrin). Master I Thesis.
- Vukotic, B. (2014). Impact of nationalism to the motivation of fans to visit the matches of national football team in Montenegro (in Montenegrin). Master I Thesis.
- Dragnic, A. (2014). Water polo club „Primorac“ from Kotor – from foundation to European champion (in Montenegrin). Bachelor Thesis.
- Kovacevic, B. (2015). Analysis of Consumer Attitudes toward SPA Industry and their Intentions to use SPA products and services again in Budvanska Riviera (in Montenegrin). Master II Thesis.
- Selic, U. (2017). Attitudes of Sports Websites Visitors from Niksic toward Factor that Influence their Motivation and Its Mutual Interaction (in Montenegrin). Master I Thesis.
- Vujadinovic, N. (2018). Analysis of body proportions in relation to sports discipline and gender of participants in the Olympic Games in London (in Montenegrin). Master I Thesis.
- Sutulovic, M. (2018). The attitudes toward sport websites by visitors from Podgorica and factors that affect their mutual interaction (in Montenegrin). Master I Thesis.
- Darkovich, A. (2018). The attitudes toward sport websites by visitors from Moscow and factors that affect their mutual interaction (in Montenegrin). Master I Thesis.
- Markus, Z. (2018). Role of Sport and Recreational Activities in Creation of Tourist Satisfaction (in Montenegrin). Master II Thesis.

- Asanin, I. (2018). Attitudes of Citizens of Budva to Sports Sites and Factors Affecting Their Interaction (in Montenegrin). Master I Thesis.
- Calija, D. (2018). Analysis of body proportions in relation to sports discipline and gender of participants in the Olympic Games in Athens (in Montenegrin). Master I Thesis.
- Spaic, S. (2018). Attitudes of Citizens of Tivat to Sports Sites and Factors Affecting Their Interaction (in Montenegrin). Master I Thesis.
- Cupac, T. (2018). Analysis of Consumer Attitudes toward SPA Industry and their Intentions to use SPA products and services again in Tivat Riviera (in Montenegrin). Master II Thesis.
- Arifi, F. (2018). Body Height of Kosovan Adolescents and its relationship with other anthropometric parameters as potential predictors (in Montenegrin). PhD Thesis.
- Kandic, S. (2018). Attitudes of Citizens of Kotor to Sports Sites and Factors Affecting Their Interaction (in Montenegrin). Master I Thesis.
- Kuveljic, M. (2018). Attitudes of Citizens of Danilovgrad to Sports Sites and Factors Affecting Their Interaction (in Montenegrin). Master I Thesis.

## **II. Ongoing**

- Kolakovic, S. Attitudes of Players toward Professional Behavior of Handball Coaches in Montenegro (in Montenegrin). Master II Thesis.
- Sermahaj, S. Effects of Stretching Programme on Anthropological Status of Young Football Players (in Montenegrin). PhD Thesis.
- Osmani, A. Body Composition, Lifestyle and Attitudes of Kosovan Youngsters toward Physical Activity (in Montenegrin). PhD Thesis.

## **RESEARCH INTERESTS**

Anthropology of Sport and Physical Education  
Sport Management and Leadership  
Social Aspects of Sport

## **CERTIFICATES**

IVSI, 2008–2013, Ski Instructor's Certification  
ISIA, 2016, Ski Instructor's Certification

## **PROFESSIONAL AFFILIATIONS/ MEMBERSHIP**

- From 2011 to 2017: Executive Director at Montenegrin Society for Sport Management, Montenegro
- From 2011 to 2017: Member of Advisory Board at SPOLINT, Institute for Sports Development, Slovenia
- Since 2012: Member of ISAF Board at International Science and Football Association, UK
- Since 2013: Member of Executive Board at Montenegrin Sports Academy, Montenegro
- Since 2013: Member of European Collage of Sports Science, Germany
- Since 2014: National Delegate of FIEP EUROPE, Slovakia
- Since 2014: Member of Center of Young Scientists at Montenegrin Academy of Sciences and Arts, Montenegro
- Since 2015: Institutional Delegate of HEPA EUROPE, Denmark
- From 2015 to 2016: Expert for Accreditation of Study Programs in Montenegro at Ministry of Education, Montenegro
- Since 2016: Member of International Union of Anthropological and Ethnological Sciences, Japan
- Since 2017: Steering Committee Member of HEPA EUROPE, Denmark
- Since 2017: FIEP Board Directors, FIEP World, Brasil
- Since 2017: Academic Member of Asian Exercise and Sport Science Association (AESAS), Iran

From 2017 to 2018: Academic Member of Committee for Monitoring of Master Studies at University of Montenegro, Quality Assurance Center, University of Montenegro, Montenegro  
From 2017 to 2018: Academic Member of Committee for Quality Assurance at University of Montenegro, Quality Assurance Center, University of Montenegro, Montenegro

## **ACHIEVEMENTS AND AWARDS**

Outstanding undergraduate student, University of Novi Sad, Scholarship, 1998  
Outstanding postgraduate student, University of Novi Sad, Scholarship, 2005  
Erasmus Mundus Action 2 - JoinEU-SEE, Research Fellowship (Middle East Technical University), 2009  
Scientific & Technological Research Council of Turkey, Research Fellowship (Middle East Technical University), 2011  
Erasmus Mundus Action 2 - BASILUES III, Research Fellowship (University of Ljubljana), 2011  
Erasmus Mundus Action 2 - BASILUES IV, Research Fellowship (Alexander Technological Educational Institute of Thessaloniki), 2013  
Mevlana Exchange Programme, Research Fellowship (Ondokuz Mayıs University), 2013  
Nominee for the Best Young Researcher (under 35) Award in Montenegro, 2013  
Quality in Research, TEMPUS Programme, Research Fellowship (University of Munster), 2014  
Nominee for the Best Researcher Award in Montenegro, 2014  
Mevlana Exchange Programme, Research Fellowship (Nevşehir Hacı Bektaş Veli University), 2015  
Erasmus+ International Credit Mobility, Research Fellowship (University of Nice Sophia Antipolis), 2017  
Nominee for the Best Researcher Award in Montenegro, 2017  
Erasmus+ International Credit Mobility, Research Fellowship (Aristotle University of Thessaloniki), 2018  
CEEPUS International Mobility, Teaching Fellowship (University of Novi Sad), 2018  
CEEPUS International Mobility, Teaching Fellowship (University of Split), 2018  
CEEPUS International Mobility, Teaching Fellowship (University of Novi Sad), 2018  
University of Montenegro Plaque for the scientific contribution in Social Science and Humanities, 2018