

Fakultet za sport i fizičko vaspitanje  
Univerzitet Crne Gore  
Narodne omladine bb  
81400 Nikšić  
Crna Gora



Faculty for Sport and Physical Education  
University of Montenegro  
Narodne omladine bb  
81400 Nikšić  
Montenegro

T: +382 40 235 207 \* F: +382 40 235 200 \* W: www.fsnk.ucg.ac.me \* E: fakultetzasportnk@t-com.me

Broj: 1251  
Nikšić, 18.06.2018

## UNIVERZITET CRNE GORE

### ODBORU CENTRA ZA DOKTORSKE STUDIJE

### SENATU

Poštovani,

Molim Vas da u skladu sa članom 41 Pravila doktorskih studija Univerziteta Crne Gore, imenujete Komisiju za ocjenu doktorske disertacije pod nazivom: "Efekti pliometrijskog trenažnog programa na morfološke karakteristike, bazično-motoričke sposobnosti i situaciono-motričke sposobnosti odbojkašica", kandidata mr Bahrija Gjinovcija.

U prilogu Vam dostavljamo Vam dostavljamo:

- D 2 obrazac
- Potvrdu o predaji doktorske disertacije organizacionoj jedinici
- Odluku Vijeća o imenovanju komisije za pregled i ocjenu doktorske disertacije broj 1246 od 18.06.2018.
- Kopiju rada kandidata publikovanog u časopisu sa odgovarajuće liste
- Saglasnost mentora
- Bio-bibliografiju kandidata
- Bio-bibliografije sa odlukama o izbornim zvanjima predloženih članova Komisije

S poštovanjem,

Dekan



Doc.dr Stevo Popović

*Stevo Popović*



## ISPUNJENOST USLOVA DOKTORANDA

OPŠTI PODACI O DOKTORANDU			
Titula, ime, ime roditelja, prezime	Bahri Adem Gjinovci		
Fakultet	Fakultet za sport i fizičko vaspitanje		
Studijski program	Fizička kultura		
Broj indeksa	4/2012		
NAZIV DOKTORSKE DISERTACIJE			
Na službenom jeziku	EFEKTI PLIOMETRIJSKOG TRENAŽNOG PROGRAMA NA MORFOLOŠKE KARAKTERISTIKE, BAZIČNO - MOTORIČKE SPOSOBNOSTI I SITUACIONO - MOTORIČKE SPOSOBNOSTI ODBOJKAŠICA		
Na engleskom jeziku	EFFECTS OF PLYOMETRIC TRAINING PROGRAM ON MORPHOLOGICAL CHARACTERISTICS, BASIC - MOTORIC ABILITIES AND SITUATIONAL - MOTORIC ABILITIES IN VOLLEYBALL FEMALE PLAYERS		
Naučna oblast	Sportske nauke		
MENTOR/MENTORI			
Prvi mentor	Prof. dr Kemal Idrizović	Univerzitet Crne Gore	Sportske nauke
KOMISIJA ZA PREGLED I OCJENU DOKTORSKE DISERTACIJE			
Prof. dr Duško Bjelica	Univerzitet Crne Gore	Sportske nauke	
Prof. dr Kemal Idrizović	Univerzitet Crne Gore	Sportske nauke	
Prof. dr Marin Ćorluka	Sveučilište u Mostaru	Sportske nauke	
Datum značajni za ocjenu doktorske disertacije			
Sjednica Senata na kojoj je data saglasnost na ocjenu teme i kandidata	27. 10. 2016.		
Dostavljanja doktorske disertacije organizacionoj jedinici i saglasnost mentora	14. 06. 2018.		
Sjednica Vijeća organizacione jedinice na kojoj je dat prijedlog za imenovanje komisija za pregled i ocjenu doktorske disertacije	18. 06. 2018.		
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 i u jednom radu kao drugi autor.			
Spisak radova doktoranda iz oblasti doktorskih studija koje je publikovao u časopisima sa Science Citation Index Expanded (SCIE)			
Gjinovci, B., Idrizovic, K., Uljevic, O., & Sekulic, D. (2017). Plyometric Training Improves Sprinting, Jumping and Throwing Capacities of High Level Female Volleyball Players Better Than Skill-Based Conditioning. <i>The Journal of Sports Science and Medicine</i> , 16(4): 527-535. <a href="https://www.jssm.org/hf.php?id=jssm-16-527.xml">https://www.jssm.org/hf.php?id=jssm-16-527.xml</a>			

Idrizovic, K., Gjinovci, B., Sekulic, D., Uljevic, O., Vicente João P., Spasić, M., & Sattler, T. (2018). The Effects of 3-Month Skill-Based and Plyometric Conditioning on Fitness Parameters in Junior Female Volleyball Players. *Pediatric Exercise Science*, <https://doi.org/10.1123/pes.2017-0178>. <https://journals.humankinetics.com/doi/abs/10.1123/pes.2017-0178>  
Science Citation Index Expanded (SCIE)

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

Za mentora je imenovan prof. dr Kemal Idrizović na sjednici Senata održanoj 09. novembra 2015. godine, a imenovani je saglasan da je kandidat ispunio sve uslove za prelazak na sljedeći proceduralni korak, odnosno u proces imenovanja Komisije za pregled i ocjenu doktorske disertacije, a što je dokumentovano potpisanom saglasnošću istog broj 1218 od 13. 06. 2018. godine. Mentor, takođe, ističe da je kandidat u publikovanim radovima, koje je objavio u časopisima indeksiranim u SCIE indeksnoj bazi, koristio rezultate iz doktorske disertacije na adekvatan način, odnosno u navedenom radu su prezentovani djelovi doktorske disertacije kako nalažu Pravila doktorskih studija.

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

U Nikšiću,  
18. 06. 2018. godine



DEKAN

*Čučević Dobroslav*

**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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T: +382 40 235 207 \* F: +382 40 235 200 \* W: www.fsnk.ucg.ac.me \* E: fakultetzasportnk@t-com.me

Broj: 1250  
Datum: 18.06.2018

Na osnovu službene evidencije i dokumentacije Fakulteta za sport i fizičko vaspitanje u Nikšiću izdaje se:

### POTVRDA

**Mr Bahri Gjinovci** student doktorskih studija na Fakultetu za sport i fizičko vaspitanje u Nikšiću dana 14.06.2018.godine dostavio je ovom Fakultetu doktorsku disertaciju pod nazivom „**Efekte pliometrijskog trenažnog programa na morfološke karakteristike, bazično – motoričke sposobnosti i situaciono-motoričke sposobnosti odbojkašica**“, na dalji postupak.



Sekretar  
*Z. Brod*  
Đurđa Vukotić

**UNIVERZITET CRNE GORE**  
**FAKULTET ZA SPORT I FIZIČKO VASPITANJE**

**ZA: KOMISIJI ZA DOKTORSKE STUDIJE**

Црна Гора  
УНИВЕРЗИТЕТ ЦРНЕ ГОРЕ  
ФАКУЛТЕТ ЗА СПОРТ И ФИЗИЧКО ВАСПИТАЊЕ

Примљено: 14.06.2018			
Орг. јед.	Број	Прилог	Вриједност
	1220		

**Predmet: Zahtjev za formiranje komisije za ocjenu doktorske disertacije**

Posto sam sproveo potrebnu procedure, danas dana 14.06.2018, podnosim ovaj zahtjev za formiranje komisije za ocjenu doktorske disertacije pod naslovom "EFEKTI PLIOMETRIJSKOG TRENAŽNOG PROGRAMA NA MORFOLOŠKE KARAKTERISTIKE, BAZIČNO-MOTORIČKE SPOSOBNOSTI I SITUACIONO-MOTORIČKE SPOSOBNOSTI ODBOJKAŠICA"

Sa nadom da moj zahtjev dobije pozitivan odgovor.

Srdačan pozdrav.

Nikšić,

14. 06. 2018

Podnosilac zahtjeva,

Mr.sc. Bahri Gjinovci





T: +382 40 235 207 \* F: +382 40 235 200 \* W: www.fsnk.ucg.ac.me \* E: fakultetzasportnk@t-com.me

Broj: 1246  
Nikšić, 18.06.2018

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 18.06.2018.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: "Efekti pliometrijskog trenažnog programa na morfološke karakteristike, bazično-motoričke sposobnosti i situaciono-motričke sposobnosti odbojkašica", kandidata mr Bahrija Gjinovcija, u sastavu:

1. Prof.dr Duško Bjelica, redovni profesor Fakulteta za sport i fizičko vaspitanje Univerziteta Crne Gore, predsjednik
2. Prof.dr Kemal Idrizović, redovni profesor Fakulteta za sport i fizičko vaspitanje Univerziteta Crne Gore, mentor
3. Prof.dr Marin Ćorluka, vanredni profesor Fakulteta prirodoslovno-matematičkih i odgojnih znanosti Sveučilišta u Mostaru

Sekretar  
*Z. Đurđević*  
Đurđa Vukotić

Dekan  
Doc.dr Stevo Popović  
*Stevan Popović*

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



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Research article

## Plyometric Training Improves Sprinting, Jumping and Throwing Capacities of High Level Female Volleyball Players Better Than Skill-Based Conditioning

Bahri Gjinovci<sup>1</sup> Kemal Idrizovic<sup>2</sup> Ognjen Uljevic<sup>3</sup> and Damir Sekulic<sup>3</sup>✉

<sup>1</sup>University of Prishtina, Faculty of Physical Education and Sports, Prishtina, Kosovo

<sup>2</sup>University of Montenegro, Faculty for Sport and Physical Education, Podgorica, Montenegro

<sup>3</sup>University of Split, Faculty of Kinesiology, Split, Croatia

### Abstract

There is an evident lack of studies on the effectiveness of plyometric- and skill-based-conditioning in volleyball. This study aimed to evaluate effects of 12-week plyometric- and volleyball-skill-based training on specific conditioning abilities in female volleyball players. The sample included 41 high-level female volleyball players ( $21.8 \pm 2.1$  years of age;  $1.76 \pm 0.06$  cm;  $60.8 \pm 7.0$  kg), who participated in plyometric- ( $n = 21$ ), or skill-based-conditioning-program ( $n = 20$ ). Both programs were performed twice per week. Participants were tested on body-height, body-mass (BM), countermovement jump (CMJ), standing broad jump (SBJ), medicine ball throw, (MBT) and 20-m sprint (S20M). All tests were assessed at the study baseline (pre-) and at the end of the 12-week programs (post-testing). Two-way ANOVA for repeated measurements showed significant ( $p < 0.05$ ) "Group x Time" effects for all variables but body-height. Plyometric group significantly reduced body-mass (trivial effect size [ES] differences; 1% average pre- to post-measurement changes), and improved their performance in S20M (moderate ES; 8%), MBT (very large ES; 25%), CMJ (large ES; 27%), and SBJ (moderate ES; 8%). Players involved in skill-based-conditioning significantly improved CMJ (large ES; 18%), SBJ (small ES; 3%), and MBT (large ES; 9%). The changes which occurred between pre- and post-testing were more inter-correlated in plyometric-group. Although both training-modalities induced positive changes in jumping- and throwing-capacities, plyometric-training is found to be more effective than skill-based conditioning in improvement of conditioning capacities of female senior volleyball players. Future studies should evaluate differential program effects in less experienced and younger players.

**Key words:** Volleyball, plyometric exercise, small-sided games, conditioning.

### Introduction

Volleyball places high requirements on a player's speed, agility, upper-body and lower-body muscular power, and maximal aerobic power (Gabbett, 2008; Sattler et al., 2015). Therefore, coaches and professionals involved in volleyball are interested in the potential effectiveness of different training regimes and improvement of those conditioning capacities are known to be important determinants of success (Pereira et al., 2015). One of such training regimes is plyometric training. Plyometric training uses the physiological phenomenon of a stretch-shortening cycle in order to enhance the ability of the neuromuscular system to produce maximal force in the

shortest possible time (Markovic and Mikulic, 2010). Due to the characteristics of the game, which involve repeated jumping, frequent sprinting and changes in directions, this training regime is a particularly popular method for fitness development in volleyball players (Kim and Park, 2016; Pereira et al., 2015; Trajkovic et al., 2016).

Previous studies have investigated the effects of plyometric training on conditioning capacities in volleyball (Lehnert et al., 2017; Marques et al., 2008; Sheppard et al., 2008; Voelzke et al., 2012). Voelzke et al. (2012) evaluated the effectiveness of resistance training with additional plyometric exercises ( $n = 8$ ) and electromyostimulation plus plyometric exercise ( $n = 9$ ). In general, their results showed significant improvement in jumping performance as a result of both modalities (improvement of approximately 5%), whereas the latter additionally promoted speed and agility performance in male volleyball players (Voelzke et al., 2012). Sheppard et al. (2008) investigated the concurrent effects of training using accentuated eccentric load during jumping ( $n = 8$ ) vs. non-loaded training ( $n = 8$ ) in high-performance volleyball players (mixed gender groups). The results indicated that more intensive plyometric training (with additional loads) yielded superior jumping performance (improvement of 11% in displacement capacity) in comparison to regular jumping training with the player's own body mass. In a study on 10 elite female volleyball players, Marques et al., 2008 reported changes in strength and power performance as a result of a 12-week program performed during the in-season (10 regular plus 2 additional sessions consisting of combined resistance- and plyometric-exercises), and reported improvements in muscular strength (13% and 18% for squat and bench-press, respectively), ball-throwing- (13%), and countermovement jump (4%). In two studies done on female junior volleyball players, the authors reported significant improvements as a result of 5-week and 6-week plyometric training on generic- and specific-jumping performances (Kristicevic and Krakan, 2016; Trajkovic et al., 2016). Similarly, Pereira et al. (2015) confirmed significant improvements in jumping- and throwing-capacities (between 5.3% and 20.1%) among 14-year old female volleyball players after 8-week plyometric training. Very recently, Polish authors reported training-induced changes in different physical performances in 12 female junior volleyball players (<18 years) as a result of 8-week pre-season conditioning programs (including plyometric training), and they showed trivial to small changes in jumping performances (improvement of



3.0% to 4.5%) (Lehnert et al., 2017).

Skill-based conditioning games (training-games or small-sided games) are a popular method for improving the skill and fitness levels of players from different team sports, including volleyball (Corvino et al., 2014; Gabbett and Mulvey, 2008; Schelling and Torres, 2016). The basic idea behind skill-based conditioning is the fact that the greatest improvements in fitness and performance occur when the training stimulus simulates the physiological and technical demands of competition (Gabbett, 2008). In volleyball, it is reasonable to expect that skill-based conditioning can improve those capacities that are regularly improved through plyometric training, such as jumping and throwing. Indeed, volleyball skill-based conditioning includes different plyometric exercises (jumping, spiking, etc.), which are also included in plyometric training in different forms. Therefore, skill-based conditioning games have already been studied as potentially effective not only for improving technical skills but also for increasing the conditioning capacities of volleyball players (Gabbett et al., 2006; Gabbett, 2008). In short, skill-based conditioning improved sprinting capacities over 5 and 10 meters but did not contribute to better results in vertical jump, spike jump, or overhead medicine ball throw in junior volleyball players (Gabbett et al., 2006). In additional investigation, it has been suggested that a combination of skill-based-conditioning (i.e. training oriented toward improvement of conditioning capacities), and skill-based-instructional training (oriented toward development of specific volleyball skills), is likely to confer the greatest improvements in conditioning parameters and skill in junior elite volleyball players (Gabbett, 2008). To the best of our knowledge, no study has simultaneously examined the effects of plyometric- and skill-based conditioning on possible improvements in volleyball player physical capacities.

From the previous literature overview, it is evident that there is a lack of studies on the effectiveness of plyometric training on fitness indices in high-level female volleyball players. Additionally, information on the differential effects between plyometric- and skill-based-conditioning in female volleyball players is particularly lacking. Therefore, the aim of this study was to evaluate the concurrent effects of plyometric- and volleyball-skill-based training on changes in sprinting-, jumping- and throwing-capacities in high-level female volleyball players. Increased knowledge about these training modalities will allow a better understanding of the concurrent effects of these two popular training methods in volleyball. The initial hypothesis of this study was that the plyometric-training will induce more positive changes than skill-based conditioning, in studied conditioning qualities.

## Methods

### Participants

In this randomized controlled study, the sample of participants originally consisted of 50 high-level female volleyball players from Kosovo, members of teams participating at the highest competitive level (i.e., first division players) ( $21.9 \pm 2.0$  years of age;  $1.76 \pm 0.06$  m;  $61.2 \pm 7.1$  kg).

Total sample was divided into plyometric- ( $n = 25$ ) and skill-based group ( $n = 25$ ). All participants were older than 18 years, and had played volleyball for at least 8 years prior to the study. Plyometric- and skill-based conditioning were performed as an addition to the regular technical and tactical volleyball training (see later for training details). Prior to the study, the participants were informed about the possible risks and benefits of the study, and their participation in the study was voluntary. The study was approved by the corresponding author's Institutional Ethical Board, and all participating players provided written consent for the study participation. However, in this study we included only those participants who participated in at least 80% of training sessions. Therefore, a final sample included 41 participants ( $21.8 \pm 2.1$  years of age;  $1.76 \pm 0.06$  m;  $60.8 \pm 7.0$  kg; 21 and 20 participants in plyometric- and skill-based-group, respectively).

### Training protocols

The plyometric- and skill-based conditioning protocols were performed twice per week during the 12-week period at the beginning of the season. A single session for both programs lasted up to 60 minutes (10-15 min of standardized warm-up, 25-40 min of skill-based or plyometric conditioning depending on program, and 10-15 min of cool-down and stretching).

Plyometric training in general included lower-body plyometric exercises (jumping exercises), and upper body plyometric exercises (throwing exercises). Lower body plyometrics included (from low- to high-demanding exercises): leg hops, vertical jumps, tuck jumps, lateral/diagonal jumps, broad jumps, obstacle jumps, different types of box jumps (step-ups, box shuffles, etc.), and drop-jumps. In general, jumps were performed as (i) two-leg jumps with two leg landings (low intensity), (ii) two leg jumps with one leg landings (medium and high intensity, depending on exercise), and (iii) one-leg jumps with alternate leg landings, or one-leg jumps with same leg landing (high intensity). High intensity jumps were introduced to training from 6th to 8th week, and regularly applied from 9th to 12th week. From 9th to 12th week of training, some players performed loaded (weighted) jumps, with loads of maximally 5% of player's body mass, depending on one's fitness level and motor proficiency. Upper body plyometric exercises included: explosive push-ups, jumping spider (combination of explosive push-ups and jump), clapping push-ups, and different forms of exercises with medicine ball (i.e. throws, passes). Throws were performed in different directions (upward, horizontal, downward, etc.) with 1-kg medicine ball (one-arm throws for medium intensity, and two-arm throws for low intensity), and 3-kg medicine ball (two-arm throws for medium and high intensity depending on exercises. When it was possible upper-body exercises were done in pairs, otherwise individually. Plyometric training is presented in Table 1.

Skill based conditioning is presented in Table 2 and generally consisted of: (i) volleyball drills, (ii) small-sided games, and (iii) real-game drills. First mode of skill-based conditioning (volleyball drills) included spiking-

**Table 1. Plyometric-training program.**

Week	Body part	Exercises	Intensity	Reps (total)	Sets (total)	Rest between sets
1	Lower body	Leg hops, tuck jumps, vertical jumps	Low	40	12	2-3 min
	Upper body	Explosive push-ups, jumping spider	Low	40	12	2-3 min
2	Lower body	Lateral/diagonal and broad jumps	Low	40	12	2-3 min
	Upper body	Clapping push-ups, medicine ball presses, rotational throws	Low	40	12	2-3 min
3	Lower body	Vertical and obstacle jumps, box shuffles	Low	46	18	2-3 min
	Upper body	Clapping push ups, medicine ball presses, chest passes	Low	50	21	2-3 min
4	Lower body	Lateral/diagonal jumps, obstacle jumps, box shuffles	Medium	46	18	2-3 min
	Upper body	Clapping push-ups, rotational throws, chest passes	Medium	50	21	2-3 min
5	Lower body	Broad jumps, box jumps, box shuffles, drop jumps	Low	46	18	2-3 min
	Upper body	Medicine ball presses, rotational throws, overarm throws	Low	50	21	2-3 min
6	Lower body	Vertical jumps, obstacle jumps, box shuffles, drop jumps	Medium	48	18	2-3 min
	Upper body	Jumping spider, chest passes, overarm throws	Medium	52	21	2-3 min
7	Lower body	Lateral jumps, drop jumps (+ vertical jumps), box jumps	Medium	46	18	2-3 min
	Upper body	Explosive push-ups, clapping push-ups, rotational throws, overarm throws	Medium	52	21	2-3 min
8	Lower body	Tuck jumps, box jumps, drop jumps, box shuffles, obstacle jumps	High	46	18	3-4 min
	Upper body	Jumping spider, chest passes, overarm throw	High	52	21	3-4 min
9	Lower body	Obstacle jumps, box shuffles, drop jumps, broad jumps, box jumps	Medium	48	18	3-4 min
	Upper body	Jumping spider, rotational throws, overarm throws	Medium	52	21	3-4 min
10	Lower body	Drop jumps, drop jumps + vertical jump, lateral/diagonal jumps, obstacle jumps	High	46	18	3-4 min
	Upper body	Jumping spider, medicine ball throw, chest passes, overarm throws	High	56	24	3-4 min
11	Lower body	Tuck jumps, drop jumps, broad jumps, box jumps	High	48	20	3-4 min
	Upper body	Rotational throws, Chest passes, overarm throws	High	58	24	3-4 min
12	Lower body	Drop jumps, drop jumps + vertical jumps, lateral/diagonal jumps, obstacle jumps	High	48	20	3-4 min
	Upper body	Chest passes, overarm throws	High	58	24	3-4 min

blocking-, and digging-drills, performed as a single-element- (for low-intensity) or combined-element-tasks (for medium- and high-intensity). In small-sided games players participated in 3 vs. 3 (for medium- and high-intensity), and 4 vs. 4 games (for low- and medium-intensity drills). These conditioning games were performed on smaller court (9 x 4.5m). The third type of skill-based conditioning consisted of real-game volleyball drills. Throughout these exercises players were involved in standard 6 vs. 6 game, but majority of free balls were thrown by the coach. After each rotation, players took strict 1-2 min break, depending on necessary level of intensity (i.e. shorter breaks implied higher intensity of the training).

Both trainings were planned in advance. However, team coaches and main investigator (first author of this study) were in permanent contact, and single training sessions were frequently modified according to current needs (i.e. forthcoming game, health-related problems, recovery status). Therefore, the increase of the intensity for both training programs (see Tables 1 and 2 for details) is determined on a basis of the quality of performance evidenced throughout each week. Apart from specific conditioning program, all participants were involved in 7-8 regular volleyball training sessions per week (i.e. technical and tactical training), plus one game.

### Variables and testing

The variables in this study included anthropometric indi-

ces (body height and body mass), and following conditioning qualities: sprinting performance over 20 meters (S20M), vertical countermovement jump – CMJ, standing broad jump – SBJ, and medicine ball toss (MBT).

All participants were assessed for all variables throughout pre-testing (4-5 days before the start of the training protocol) and post-testing (5-6 days after finalization of training). Pre-testing and post-testing were done over two days. The first day of testing included evaluation of anthropometrics, S20M, and MBT. The next day, the players were tested on CMJ and SBJ in a random order. All players were familiarized with testing procedures throughout several non-maximal attempts (not included in analyses).

The anthropometric variables were measured with stadiometer and scale (Seca, Birmingham, UK). Body height was measured to the nearest 0.5 cm, and body mass to the nearest 0.1 kg.

All conditioning capacities were measured over three trials with 30 seconds of rest between trials for MBT, 1-2 minutes of rest between trials for CMJ and SBJ, and 3-4 minutes of rest between trials for S20M. For all variables, the best achievement was retained as a final result after calculation of intra-session reliability for pre- and post-testing.

The SBJ was performed from a standing position using a standardized measuring mat (ELAN, Begunje, Slovenia). Standardized instructions were given to the participants to begin the jump with bent knees and to

**Table 2. Skill-based conditioning program.**

Week	Drills	Exercises	Intensity	Percentage of total for skill-based conditioning
1	Volleyball drills	Performed as a single-element	Low	50%
	Small sided games	4 vs. 4 games	Low	25%
	Game drills	6 vs. 6 games	Low	25%
2	Volleyball drills	Performed as a single-element	Low	50%
	Small sided games	4 vs. 4 games	Low	25%
	Game drills	6 vs. 6 games	Low	25%
3	Volleyball drills	Performed as a single-element	Medium	40%
	Small sided games	4 vs. 4 games	Medium	30%
	Game drills	6 vs. 6 games	Low	30%
4	Volleyball drills	Performed as a combined-element	Medium	40%
	Small sided games	4 vs. 4 games	Medium	30%
	Game drills	6 vs. 6 games	Low	30%
5	Volleyball drills	Performed as a combined-element	Medium	40%
	Small sided games	4 vs. 4 games; 3 vs. 3 games	Medium	30%
	Game drills	6 vs. 6 games	Medium	30%
6	Volleyball drills	Performed as a combined-element	Medium	30%
	Small sided games	3 vs. 3 games	Medium	40%
	Game drills	6 vs. 6 games	Medium	30%
7	Volleyball drills	Performed as a combined-element	Medium	30%
	Small sided games	3 vs. 3 games	High	40%
	Game drills	6 vs. 6 games	Medium	30%
8	Volleyball drills	Performed as a combined-element	Medium	30%
	Small sided games	3 vs. 3 games	Medium	40%
	Game drills	6 vs. 6 games	Medium	30%
9	Volleyball drills	Performed as a combined-element	Medium	25%
	Small sided games	3 vs. 3 games	High	50%
	Game drills	6 vs. 6 games	Medium	25%
10	Volleyball drills	Performed as a combined-element	Medium	20%
	Small sided games	3 vs. 3 games	High	40%
	Game drills	6 vs. 6 games	High	40%
11	Volleyball drills	Performed as a combined-element	Low	20%
	Small sided games	3 vs. 3 games	High	40%
	Game drills	6 vs. 6 games	High	40%
12	Volleyball drills	Performed as a combined-element	Medium	20%
	Small sided games	3 vs. 3 games	High	40%
	Game drills	6 vs. 6 games	High	40%

swing their arms to assist in the jump. The intra-class-coefficient (ICC) calculated for the three testing trials indicated high reliability of the test in the pre-test (ICC: 0.91) and post-test (ICC: 0.92)

For the 20-meter-sprint, two electronic timing gates (Speedtrap II, Brower Timing Systems, Draper, UT, USA) were positioned 1 m and 21 m from a pre-determined starting line. The participants were instructed to begin with their preferred foot forward placed on a line marked on the floor and to run as quickly as possible along the test distance. Times were recorded in hundredths of seconds. The reliability was appropriate (ICC: 0.73 and 0.75 for pre- and post-testing).

The CMJ test was measured by Optojump equipment (Microgate, Bolzano, Italy). Test began with the athlete standing in an upright position. A fast downward movement to an approximately 90° knee flexion was immediately followed by a quick upward vertical movement as high as possible, all in one sequence. The test was performed with an arm swing to mimic a real-game volleyball performance. The ICC showed good reliability of testing (ICC: 0.87 and 0.93 for pre- and post-test, respectively).

The MBT was used to assess throwing capacity, and standardized 2-kg medicine ball (ELAN, Begunje,

Slovenia) was used for the measurement. The players stood still with the ball held at chest level with the arms extended horizontally so that the ball was located above the starting line. The players were asked to move the ball towards their chest and then to throw the medicine ball in a horizontal direction as far as possible using a 2-handed chest pass. During the throw, they were not allowed to step forward. The reliability of the testing was high (ICC: 0.90 and 0.85 for pre- and post-test, respectively).

### Statistical analyses

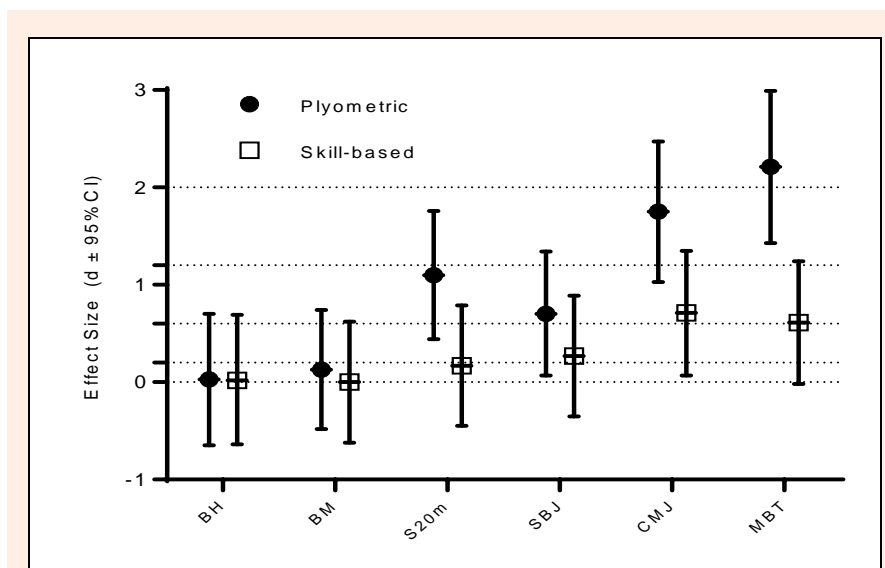
The normality of the distribution was confirmed by Kolmogorov-Smirnov test for all variables. Therefore, descriptive statistics included calculations of means and standard deviations. The homoscedasticity of all variables was proven by Levene's test.

A two-way analysis of variance (ANOVA) with repeated measures (group [plyometric- and skill-based-conditioning] × time [Pre- and Post-training]), with Scheffe post-hoc analysis was used to determine the effects of training on the studied variables. The differences between pre- and post-testing for each group were evaluated by magnitude-based Cohen's effect size (ES) statistics with modified qualitative descriptors. The effect size was assessed using the following criteria: <0.02 =

**Table 3.** Descriptive statistics (Mean  $\pm$  Standard Deviation) for pre- and post-training results in each group; results of two-way analysis of the variance for main effects (Group and Time) and Interaction (Group x Time), and pre- to post-training differences in percentages (%).

	Plyometric-group (n = 21)			Skill-based-group (n = 20)			Analysis of variance (F test)		
	Pre-	Post-	%	Pre-	Post-	%	Group	Time	Interaction
<b>BH (cm)</b>	177.9 $\pm$ 5.5	177.2 $\pm$ 5.1	<0.1	175.4 $\pm$ 7.0	176.0 $\pm$ 7.1	<0.1	2.9	0.1	0.1
<b>BM (kg)</b>	61.9 $\pm$ 5.2	61.2 $\pm$ 5.4 *	1.1	58.5 $\pm$ 7.5	58.5 $\pm$ 7.9	<0.1	2.2	4.0	4.3 #
<b>S20m (s)</b>	3.80 $\pm$ 0.32	3.53 $\pm$ 0.22 *	7.6	4.15 $\pm$ 0.27	4.10 $\pm$ 0.30	1.2	34.7 #	15.5 #	7.3 #
<b>SBJ (cm)</b>	190.7 $\pm$ 22.9	205.3 $\pm$ 17.3 *	7.6	167.3 $\pm$ 18.5	172.4 $\pm$ 18.7 *	3.1	21.8 #	96.8 #	22.4 #
<b>CMJ (cm)</b>	38.0 $\pm$ 6.5	48.5 $\pm$ 5.2 *	27.6	28.9 $\pm$ 7.2	34.1 $\pm$ 7.1*	18.0	34.3 #	275.1 #	31.5 #
<b>MBT (m)</b>	6.1 $\pm$ 0.6	7.6 $\pm$ 0.7 *	24.5	5.3 $\pm$ 0.8	5.8 $\pm$ 0.8 *	9.4	34.5 #	166.1 #	40.2 #

BH – body height, BM – body mass, S20m – sprint over 20 meters distance, SBJ – standing broad jump, CMJ – countermovement jump, MBT – medicine ball throw, # denotes F-test significance of  $p < 0.05$ , \* denotes pre- to post-measurement post-hoc significance of  $p < 0.05$ .



**Figure 1.** Effect Size (ES) differences between pre- and post-testing results for plyometric- and skill-based-conditioning group with 95% confidence interval (95%CI). BH – body height, BM – body mass, S20m – sprint over 20 meters distance, SBJ – standing broad jump, CMJ – countermovement jump, MBT – medicine ball throw, dashed lines present ES ranges (<0.02 = trivial; 0.2–0.6 = small; >0.6–1.2 = moderate; >1.2–2.0 = large; and >2.0 very large differences).

trivial; 0.2–0.6 = small; >0.6–1.2 = moderate; >1.2–2.0 = large; and >2.0 very large differences. Also, pre- to post-testing differences were presented as average percentage of changes.

To identify possible associations between changes that occurred as a result of both applied conditioning programs, we calculated the differences between pre- and post-testing for each variable. The associations between variables of differences for all outcome measures were assessed by Pearson's product moment correlation coefficients.

A significance level of  $p < 0.05$  was applied, and Statistica 13.0 (Dell Inc., Tulsa, OK) was used for all statistical analyses.

## Results

The results of factorial ANOVA (Group x Time) are presented in Table 3. Significant main effects for "Group" were evident for S20M ( $F = 34.74$ ,  $p = 0.01$ ), SBJ ( $F = 21.83$ ,  $p = 0.01$ ), CMJ ( $F = 34.3$ ,  $p = 0.01$ ), and MBT ( $F = 34.5$ ,  $p = 0.01$ ). Significant effects for "Time" were evidenced for body mass ( $F = 4.3$ ,  $p = 0.04$ ), S20M ( $F =$

15.5,  $p = 0.01$ ), SBJ ( $F = 96.8$ ,  $p = 0.01$ ), CMJ ( $F = 275.1$ ,  $p = 0.01$ ), and MBT ( $F = 166.1$ ,  $p = 0.01$ ). Significant "Group x Time" interactions were found for S20M ( $F = 7.34$ ,  $p = 0.02$ ), SBJ ( $F = 22.4$ ,  $p = 0.01$ ), CMJ ( $F = 31.5$ ,  $p = 0.01$ ), and MBT ( $F = 40.2$ ,  $p = 0.01$ ) (Table 3).

Over the course of the study, the plyometric group significantly ( $p < 0.05$ ) reduced body-mass (trivial ES differences; 1% pre- to post-measurement changes), improved their performance in Sprint-20m (moderate ES differences; 7.6% changes), MBT (very large ES differences; 24.5% changes), CMJ (large ES differences; 27.6% changes), and SBJ (moderate ES differences; 7.6% changes). Players involved in skill-based-conditioning improved their capacities in CMJ (large ES differences; 18% changes), SBJ (small ES differences; 3.1% changes), and MBT (large ES differences; 9.4% changes) (Table 3 and Figure 1)

Table 4 presents the correlations between variables of difference (i.e. differences between pre- and post-testing) in each group. In the plyometric group, pre- and post-differences in S20M values correlated significantly with the changes evidenced for CMJ ( $r = 0.62$ ,  $p < 0.05$ ) and SBJ ( $r = 0.53$ ,  $p < 0.05$ ).

**Table 4.** Product moment correlation coefficients for variables of differences (changes) calculated on a basis of pre- and post-testing for plyometric-conditioning and skill-based-conditioning.

		BH <sub>diff</sub>	BM <sub>diff</sub>	S20m <sub>diff</sub>	SBJ <sub>diff</sub>	CMJ <sub>diff</sub>	MBT <sub>diff</sub>
BM <sub>diff</sub>	Plyometric-	0.12	-				
	Skill-based-	0.20	-				
S20m <sub>diff</sub>	Plyometric-	0.02	-0.26	-			
	Skill-based-	0.09	0.18	-			
SBJ <sub>diff</sub>	Plyometric-	0.11	-0.32	0.62*	-		
	Skill-based-	-0.01	-0.33	-0.07	-		
CMJ <sub>diff</sub>	Plyometric-	0.05	0.01	0.53*	0.38	-	
	Skill-based-	0.13	-0.36	0.18	0.42	-	
MBT <sub>diff</sub>	Plyometric-	0.21	-0.03	-0.24	0.00	0.05	-
	Skill-based-	0.24	-0.21	0.36	0.29	0.43	-

BH<sub>diff</sub> – variable of difference in body height between pre- and post-testing, BM<sub>diff</sub> – variable of difference in body mass between pre- and post-testing, S20m<sub>diff</sub> – variable of difference in sprint over 20 meters distance between pre- and post-testing, SBJ<sub>diff</sub> – variable of difference in standing broad jump between pre- and post-testing, CMJ<sub>diff</sub> – variable of difference in countermovement jump between pre- and post-testing, MBT<sub>diff</sub> – variable of difference in medicine ball throw between pre- and post-testing, \* denotes coefficients significant at  $p < 0.05$

## Discussion

There are several important findings of this study. First, the plyometric-conditioning resulted in significant decrease in body mass (0.3% changes between pre- and post-measurement), and improvement in sprinting capacity (8% changes). Both training programs resulted in improvements in jumping and throwing capacities, but the changes induced by plyometric training were larger than those achieved by skill-based conditioning (8-22% and 3-15% changes, respectively). Therefore, initial hypothesis of the study is confirmed. Finally, the changes in fitness parameters that occurred as a result of plyometric conditioning were more inter-correlated than those induced by skill-based conditioning.

Our results showed significant decreases in body mass for plyometric-group. In one of the rare studies that reported the effects of plyometric exercise training on anthropometric indices in female volleyball players of advanced level, authors noted no significant influence on participants' body mass (Lehnert et al., 2017). However, our respected colleagues investigated junior players (<18 years of age) who were still experiencing maturational changes, irrespective of training (Malina et al., 2004). Therefore, it is likely that growth and developmental changes could override the training stimuli and consequently diminish the possible influence of plyometric exercises on changes in anthropometric indices (Lehnert et al., 2017).

Skill-based conditioning did not result in significant changes in body mass. Probably, the overall training workload (i.e., energetic demands) of the skill-based conditioning program was insufficient to result in changes in this measure. Most likely, this was due to the high level of the players involved and their familiarity with exercise programs, which consisted mostly of volleyball-specific skills. This could potentially cause low metabolic costs related to skill-based conditioning and low energy expenditure, which altogether resulted in retention of body mass at pre-training values in skill-based group (Beneke et al., 2001). However, since this investigation did not include any measurement of caloric expenditure and/or energetic demands of the training, for a more profound interpretation of this issue additional studies are needed.

Plyometric training induced significant improvement in sprinting capacity (improvement of 7.6 %), whereas skill-based conditioning did not contribute to changes in this conditioning ability. Although we were not able to find any study that directly compared effects of skill-based and plyometric training in volleyball players, our results are comparable to the results of studies from other sports. For example, 20-m sprint improved significantly in collegiate rugby players following a plyometric-based ( $3.34 \pm 0.25$  and  $3.25 \pm 0.16$  s) versus standard rugby conditioning-program ( $3.22 \pm 0.24$  and  $3.26 \pm 0.19$  s, for pre- and post-test results, respectively). Additionally, the 8-week plyometric training course resulted in significant improvement of sprint performances over 5, 10 and 20 meters in young tennis players, whereas no improvement in sprinting capacities was found for those participants who were involved in tennis-specific conditioning (Fernandez-Fernandez et al., 2016a; 2016b).

We must note that not all studies confirmed the differential effects of plyometric and sport-specific conditioning on sprinting performance. For example, combined plyometric-plus-soccer conditioning did not result in improved 40 m sprint performances relative to soccer conditioning alone (Rønnestad et al., 2008). Such inconsistency in findings could be possibly attributed to differences in sprinting tests (40 m in a soccer study vs. up to 20 m in tennis, rugby and our investigation) (Fernandez-Fernandez et al., 2016a; 2016b; Pienaar and Coetzee, 2013; Rønnestad et al., 2008). Finally, and contrary to our results, Australian study reported a positive influence for skill-based conditioning on 5- and 10-meter sprints in junior male volleyball players (Gabbett et al., 2006). However, a differences in gender and subject age (15.5 and 22 years in Australian and our study, respectively) partially explains the different findings.

Jumping and throwing capacities improved significantly in both training-groups. Considering the results of previous studies that repeatedly confirmed positive changes in jumping capacities in athletes from different sports, the positive effects of plyometric training are expected (Bogdanis et al., 2017; Impellizzeri et al., 2008; Kim and Park, 2016; Kristicevic and Krakan, 2016; Trajkovic et al., 2016). What is also important, when previous studies reported effects of plyometric training in

females, authors noted ES differences in CMJ between 1.00 (for untrained physically active females), up to 3.36 (for female soccer players) (Makaruk et al., 2011; Ozbar, 2015). Therefore, magnitude of changes in CMJ for plyometric group in our study (ES: 1.75) is within expected values.

It seems that even skill-based conditioning provided a solid base for the development of jumping and throwing capacities in female volleyball players. Indeed, the main advantage of skill-based conditioning is the hypothetical applicability of characteristic volleyball elements and movements (i.e., blocking, spiking, sprinting, and changes-in-direction) in conditioning of volleyball players. However, the effects of skill-based conditioning are rarely investigated in experimental settings. Specifically, in a previously discussed 8-week study done on junior volleyball players, the authors reported no significant changes in vertical jump ( $45.7 \pm 2.3$  and  $45.7 \pm 2.4$  cm), spike jump ( $50.0 \pm 2.5$  and  $51.2 \pm 2.9$  cm), and overhead medicine ball throw ( $6.7 \pm 0.3$  and  $6.8 \pm 0.3$  m, for pre- and post-test respectively) (Gabbett et al., 2006). However, our skill-based conditioning program lasted considerably longer (12-weeks vs. 8-weeks), which probably explains the positive effects observed in jumping and throwing capacities of female volleyball players included in our study.

Irrespective of the positive effects of skill-based training on jumping and throwing variables, the plyometric-training is evidently more effective conditioning method than skill-based conditioning. Several physiological factors explain these findings. First, plyometric exercises result in: (i) stimulation and activation not of an increased number of motor unit, and (ii) in higher neural firing frequency, which both lead to higher generation of force (McLaughlin, 2001; Pienaar and Coetzee, 2013). While all conditioning capacities studied herein are directly dependent on rate of force generation, the improvements in sprinting, jumping and throwing capacities are logical consequence of such adaptation. Next, previous studies showed increased the maximal Achilles tendon elongation, which resulted in an increased amount of stored elastic energy as a result of plyometric training (Kubo et al., 2007). This adaptation could also have directly contributed to better jumping performance, as evidenced in our study. Moreover, it has been suggested that plyometric training increases the sensitivity of the muscle spindle system and improves joint proprioception (Swanik et al., 2002; 2016). Although this adaptation may not seem directly related to jumping and throwing capacities in our study (i.e. we have evidenced single- and not repeated-performances), it could positively contribute to sprinting performance, which was also evidenced as a differential effect between the plyometric- and skill-based conditioning programs in our study.

One can argue that most of previously specified adaptations to plyometric training could occur as a result of skill-based conditioning or simply by the fact that volleyball movement templates that are consisting part of skill based conditioning involve similar muscular actions. However, it is beyond a doubt that plyometric exercise has higher intensity and therefore challenges mentioned

capacities to a greater extent than skill-based training. Additionally, the overall training-volume and training-intensity are more controllable in plyometric- (i.e., number of sets, periods of rest, depth of the jump, etc.), than in skill-based settings. While adjustment of training loads is important parameter of training efficacy, it probably resulted in superior training-induced changes for plyometric-group (Makaruk et al., 2011; Ozbar, 2015; Stojanovic et al., 2017)

Although not being the primary aim of this study, the correlations between the changes that occurred as a result of plyometric- and skill-based-training are important findings of this research. The correlations between variables of pre-to-post differences in jumping were significant only in plyometric-group (i.e. significant correlation between changes which occurred in sprinting-, and changes which occurred in jumping-capacities). This leads us to conclude that the plyometric training-induced changes in sprint and jumping performance were caused by a general underlying mechanism. Therefore, and considering the proposed adaptations for plyometric training, (i) increased maximal Achilles tendon elongation (and increased amount of stored elastic energy) together with (ii) better joint proprioception because of the increased sensitivity of the muscle spindle are probably the most important mechanisms for the improvement of jumping and sprinting capacities of players involved in plyometric training (Kubo et al., 2007; Swanik et al., 2002; Swanik et al., 2016). Meanwhile, based on low correlations between  $MBT_{diff}$  with other variables of differences, improvement in MBT is probably related to some other adaptation, such as an increased number of activated motor units, higher neural firing frequency, or simply by cognitive – motor learning effects (McLaughlin, 2001; Pienaar and Coetzee, 2013).

### Limitations and strengths of the study

In this study we observed female senior athletes, and therefore generalization of results is limited to similar samples of athletes. Next, we did not collect data on physiological and psychological responses to each of the applied training programs, which would almost certainly allowed insight into overall training volume and the personal motivations to train of the players included in the study. Finally, this study lacked information on the eventual influence of studied training modalities on players' technical skills (i.e., accuracy, technique assessment), which are probably the most important determinants of success in volleyball. Previous studies which investigated effects of plyometric- and skill-based conditioning in volleyball observed systematically smaller number of participants (Stojanovic et al., 2017). Therefore, relatively large sample, together with high-competitive level of studied players are probably most important strengths of this study.

### Conclusions

Although results obtained should be partially attributed to the fact that training programs were applied at the beginning of the season, and therefore pre- to post- differences

for both groups are relatively large in magnitude, following conclusions can be made.

The observed 12-week plyometric training performed twice a week induced stronger positive changes in the studied conditioning capacities than did the corresponding skill-based conditioning program. The higher intensity together with possibility of more accurate adjustment of training load in plyometric training are probably the most important determinant of such differential influence. Therefore, we may suggest application of the similar plyometric-training program in order to improve sprinting-, jumping- and throwing-performances in advanced level senior (+18 years of age) female volleyball players.

It is likely that the skill-based conditioning program did not result in changes of higher magnitude because of the players' familiarity with volleyball-related skills. Namely, in this study we included experienced senior players (+18 years of age), which could have resulted in a low impact of this skill-based conditioning and consequently did not result in adequate training stress. Therefore, in future studies, the influence of plyometric- and skill-based conditioning should be evaluated in younger and less experienced volleyball players.

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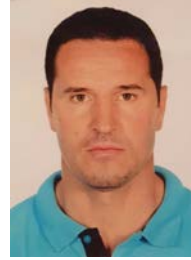
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### Key points

- Plyometric- and skill-based-conditioning resulted in improvements in jumping and throwing capacities, but plyometric training additionally induced positive changes in anthropometrics and sprint-capacity
- The changes induced by plyometric training were larger in magnitude than those achieved by skill-based conditioning.
- The higher intensity together with possibility of more accurate adjustment of training load in plyometric training are probably the most important determinant of such differential influence.
- It is likely that the skill-based conditioning program did not result in changes of higher magnitude because of the players' familiarity with volleyball-related skills.

### AUTHOR BIOGRAPHY



#### **Bahri GJINOVCI**

##### **Employment**

University of Prishtina, Faculty of Physical Education and Sports, Prishtina, Kosovo

##### **Degree**

Doctoral student

##### **Research interests**

Athletics, Strength and Conditioning, Volleyball

**E-mail:** bahri.gjinovci@uni-pr.edu



#### **Kemal IDRIZOVIC**

##### **Employment**

Professor. University of Montenegro, Faculty for Sport and Physical Education, Podgorica, Montenegro

##### **Degree**

PhD

##### **Research interests**

Athletics, Strength and Conditioning

**E-mail:** kemo@t-com.me



#### **Ognjen ULJEVIC**

##### **Employment**

Assistant Professor. Faculty of Kinesiology, University of Split, Croatia.

##### **Degree**

PhD

##### **Research interests**

Strength and conditioning, water polo, sailing, nutrition and doping in sport

**E-mail:** ognjen.uljevic@kifst.hr



#### **Damir SEKULIC**

##### **Employment**

Professor. Faculty of Kinesiology, University of Split, Croatia.

##### **Degree**

PhD

##### **Research interests**

Test construction and validation, Strength and Conditioning Substance use and misuse in sport and exercise

**E-mail:** damir.sekulic@kifst.hr

#### ✉ Professor Damir Sekulic

University of Split Faculty of Kinesiology, Teslina 6, 21000, Split, Croatia



Црна Гора  
УНИВЕРЗИТЕТ ЦРНЕ ГОРЕ  
ФАКУЛТЕТ ЗА СПОРТ И ФИЗИЧКО ВАСПИТАЊЕ

Примљено: 13.06.2018			
Орг. јед.	Број	Прилог	Вриједност
	1218		

### PISMENA SAGLASNOST

Saglasan sam da se doktorska disertacija „EFEKTI PLIOMETRIJSKOG TRENAŽNOG PROGRAMA NA MORFOLOŠKE KARAKTERISTIKE, BAZIČNO-MOTORIČKE SPOSOBNOSTI I SITUACIONO-MOTORIČKE SPOSOBNOSTI ODBOJKAŠICA“, kandidata mr Bahrija Gjinovcija, proslijedi u dalju proceduru, odnosno da se imenuje Komisija za pregled i ocjenu doktorske disertacije, budući da sadrži sve elemente propisane za dalju proceduru.

Takođe, naglasio bih da kandidat u publikovanim radovima koje je objavio u časopisima indeksiranim u SCIE indeksnoj bazi koristio rezultate iz doktorske disertacije na adekvatan način, odnosno u navedenom radu su prezentovani strukturalni djelovi doktorske disertacije kako nalažu pravila doktorskih studija.

Publikovani radovi u Science Citation Index Expanded (SCIE):

Gjinovci, B, Idrizovic, K., Uljevic, O., Sekulic, D. (2017). Plyometric Training Improves Sprinting, Jumping and Throwing Capacities of High Level Female Volleyball Players Better Than Skill-Based Conditioning. *The Journal of Sports Science and Medicine*, 16(4): 527-535.

<https://www.jssm.org/hf.php?id=jssm-16-527.xml>

Idrizovic, K., Gjinovci, B., Sekulic, D., Uljevic, O., Vicente João P., Spasić, M., Sattler, T. (2018). The Effects of 3-Month Skill-Based and Plyometric Conditioning on Fitness Parameters in Junior Female Volleyball Players. *Pediatric Exercise Science*, <https://doi.org/10.1123/pes.2017-0178>.

<https://journals.humankinetics.com/doi/abs/10.1123/pes.2017-0178>

S poštovanjem,

Nikšić, 13. 06. 2018. godine

prof. dr Kemal Idrizović



## BIOGRAFIJA

Bahri Gjinovci rođen je 01.06.1979. godine u Skenderaju (Srbica), Kosovo.

Osnovnu školu završio je u Makermalu, a Gimnaziju "Ramiz Sadiku" u Skenderaju.

Diplomirao je na Fakultetu za fizičku kulturu u Prištini, 2004. godine.

Magistarski rad na temu: *Planiranje, programiranje i proces treniranja (obuke) u odbojci*", odbranio je na istom fakultetu 2007. godine.

Od 1999. godine je aktivni igrač u odbojci, jedan je od ključnih igrača Super lige Kosova, te nekoliko godina zaredom (2003-2006.) bio među 10 najboljih igrača na Kosovu. Dobitnik je najviših priznanja koje dodjeljuje Odbojkaška federacija Kosova.

Aktivni je igrač u Beach Volley i dobio čitav niz prvih nagrada na nacionalnim i međunarodnim takmičenjima u Albaniji, Makedoniji i Kosovu.

Odbojkaški je trener od 2002. u OK "Prištinski univerzitet" koji je 2009/10. godine osvojio KUP i prvenstvo Kosova, a od strane Odbojkaške federacije Kosova proglašen je za trenera 2010. godine. Do 2017. godine bio je trener Odbojkaške juniorske (U19) reprezentacije Kosova. Trener je i u školi odbojke "Prishtina Volley - M". Stekao kvalifikaciju sudije u odbojci.

Trenutno je selektor seniorske reprezentacije Kosova u odbojci.

### Radni angažmani :

-Predstavnik Odbojkaške federacije Kosova (2003 - 2008.)

-Politički savjetnik u Ministarstvu unutrašnjih poslova (2008 - 2010.)

-Asistent na predmetu Odbojka na Evropskom masteru "Uvod u program obuke trenera" 2012/13. godine

-Asistent na predmetu Odbojka na Fakultetu za fizičko vaspitanje i sport, Univerzitet "Hasan Prishtina" u Prištini (2007. do danas).

Govori engleski, albanski i crnogorski jezik.

## Stručnih i znanstvenih radova:

1. **Bahri Gjinovci**<sup>1</sup>, Kemal Idrizovic<sup>2</sup>, Ognjen Uljevic<sup>3</sup>, Damir Sekulic<sup>3</sup>  
Plyometric Training Improves Sprinting, Jumping and Throwing Capacities of High Level Female Volleyball Players Better Than Skill-Based Conditioning  
©Journal of Sports Science and Medicine (2017) 16, 527-535  
<https://www.jssm.org/researchjssm-16-527.xml.xml#>
2. Kemal Idrizovic , \*<sup>1</sup> **Bahri Gjinovci** , \*<sup>2</sup> Damir Sekulic , \*<sup>3</sup> Ognjen Uljevic , \*<sup>3</sup> Paulo Vicente João , \*<sup>4</sup> Miodrag Spasic , \*<sup>3</sup> and Tine Sattler \*<sup>5</sup>  
The Effects of 3-Month Skill-Based and Plyometric Conditioning on Fitness Parameters in Junior Female Volleyball Players **Pages:** 1-11 <https://doi.org/10.1123/pes.2017-0178>  
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3. **Gjinovci, B.**, Nikqi, V.,  
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5. **Gjinovci, B.**, Malsor Gjonbalaj, Besnik Morina, Florian Miftari  
“Structure of isolated precision factors of the male student on volleyball”.  
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6. Gjonbalaj, M., Gllareva, I. **Gjinovci, B.** Miftari, F.  
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Education and Sport”.  
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8. Gllareva, I. Halilaj, **B. Gjinovci, B.** Morina, B.  
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9. Miftari, F. Rushiti, H. **Gjinovci, B.**

“Diagnosing of basic and specific motoric capabilities at the youth of the basketball school”

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10. Gjonbalaj, M. **Gjinovci, B.**

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11. Tahiraj, E.Konicanin, A. Shabani, A. Shatri, F. **Gjinovci, B.** Gjonbalaj, M.

“Uticaj rekreacije na zdravlje coveka”

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Број: 08-229  
Датум, 29.01.2015 г.

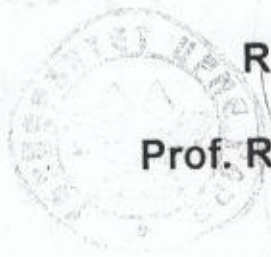
Ref: Црна Гора  
UNIVERSITET CRNE GORE  
Date: ФАКУЛТЕТ ЗА СПОРТ И ФИЗИЧКО ВАСПИТАЊЕ  
02.02.2015.

Орг. јед.	Број	Прилог	Вриједност
	95		

Na osnovu člana 72 stav 2 Zakona o visokom obrazovanju (Službeni list Crne Gore br. 44/14) i člana 18 stav 1 tačka 3 Statuta Univerziteta Crne Gore, Senat Univerziteta Crne Gore, na sjednici održanoj 29. januara 2015. godine, donio je

## ODLUKU O IZBORU U ZVANJE

Dr **DUŠKO BJELICA** bira se u akademsko zvanje **redovni profesor Univerziteta Crne Gore** za predmete: Teorijske osnove fizičke kulture, na osnovnom akademskom studijskom programu Fizička kultura i nematičnim fakultetima, Teorijske osnove tjelesnog i zdravstvenog obrazovanja, Fudbal - tehnika, metodika, Fudbal - taktika, na osnovnom akademskom studijskom programu Fizička kultura, Teorija fizičkog vaspitanja i osnove školskog sporta, Teorije sportskog treninga, na postdiplomskom specijalističkom akademskom studijskom programu Fizička kultura na **Fakultetu za sport i fizičko vaspitanje** i Teorija igre, na postdiplomskom primijenjenom specijalističkom studijskom programu Predškolsko vaspitanje na Filozofskom fakultetu.



REKTOR

Prof. Radmila Vojvodić

## BIOGRAFIJA

Prof. dr Duško Bjelica, predsjednik Upravnog odbora Univerzitetu Crne Gore, rođen je 7. oktobra 1963. godine u Podgorici, gdje je završio osnovnu i srednju ekonomsku školu - smjer fizičko vaspitanje.

Prof. dr Duško Bjelica je od 12. jula 2012.godine predsjednik Upravnog odbora Univerziteta Crne Gore.

Prof. Bjelica je predsjednik Savjeta za sport Vlade Crne Gore.

Nastavnički fakultet, smjer fizičko vaspitanje, završio je na Univerzitetu „Veljko Vlahović“, nakon čega je diplomu profesora fizičke kulture i višeg fudbalskog trenera stekao na Fakultetu fizičke kulture Univerziteta u Novom Sadu. Magistrirao je na Fakultetu fizičke kulture Univerziteta „Sv. Kiril i Metodije“ u Skoplju, dok je zvanje doktora nauka iz oblasti fizičke kulture stekao na Fakultetu sporta i fizičkog vaspitanja državnog Univerziteta u Beogradu 2003. godine.

Od 2005. godine radi na Univerzitetu Crne Gore, na Filozofskom fakultetu, gdje je i ranije predavao kao saradnik, a bio je i rukovodilac studijskih programa fizička kultura, sportski treneri i sportski novinari. Odlukom Senata iz 2005. godine izabran je u zvanje docenta, a odlukom istog univerzitetskog tijela iz 2010. godine u zvanje vanrednog profesora. U zvanje redovnog profesora izabran je u januaru 2015.godine. Kao univerzitetski profesor predavanja je držao na fakultetima za sport i fizičko vaspitanje univerziteta u Beogradu, Novom Sadu, Mostaru, Tuzli i Sarajevu.

Prof. Bjelica je bio aktivni fudbaler i fudbalski trener.

Profesor Bjelica je bio član Matične komisije za osnivanje Fakulteta za sport i fizičko vaspitanje UCG i predsjednik Komisije za pisanje elaborata za osnivanje istog. Nalazi se na listi međunarodnih eksperata za akreditacije ustanova visokog obrazovanja i osnivanja studijskih programa.

Bio je u dva mandata dekan Fakulteta za sport i fizičko vaspitanje Univerziteta Crne Gore, član je i Senata Univerziteta Crne Gore. Član Odbora za doktorske studije i član Nacionalnog savjeta za sport Crne Gore. Bio je član Predsjedništva i član Skupštine Crnogorskog olimpijskog komiteta, kao član Savjeta za visoko obrazovanje Vlade Crne Gore. Predsjednik je sportske asocijacije Montenegrosport iz Podgorice, a bio je i rukovodilac Škole fudbala Montenegrosport iz Podgorice.

Glavni je urednik međunarodnog časopisa Montenegrin Journal of Sports Science and Medicine koji se nalazi u 53 indeksnih međunarodnih baza. Glavni je urednik časopisa Sport Mont koji se nalazi u 12 međunarodnih indeksnih baza. Jedan je od osnivača Otvorene međunarodne zabavne fudbalske škole u Crnoj Gori sa sjedištem u Danskoj (Kopenhagen).

Dobitnik je nagrade sportskog komiteta Huan Antonio Smaran u Barseloni 2007.godine, proglašavan je za najboljeg sportskog radnika u Podgorici, za najboljeg pedagoga fizičke kulture u Nikšiću, a od fakulteta za sport i fizičko vaspitanje iz Sarajeva, Novog Sada i Mostara dobitnik je nagrada za naučni doprinos od međunarodnog značaja.

Učesnik je mnogih međunarodnih naučnih kongresa i konferencija na kojima je imao više zapaženih i plenarnih izlaganja koja su javno publikovana. Predsjednik je Crnogorske sportske akademije iz Podgorice, stručne i naučne sportske organizacije koja broji preko 1200 članova.

Prof.dr Bjelica je do sada, kao autor i koautor, objavio preko 300 radova u međunarodnim časopisima i na konferencijama, kao i 59 knjiga- naučnih i stručnih monografija i udžbenika.



## Record 1 of 24

**Title:** Worldwide trends in body-mass index, underweight, overweight, and obesity from 1975 to 2016: a pooled analysis of 2416 population-based measurement studies in 128.9 million children, adolescents, and adults

**Author(s):** Ezzati, M (Ezzati, Majid); Bentham, J (Bentham, James); Di Cesare, M (Di Cesare, Mariachiara); Bilano, V (Bilano, Ver); Bixby, H (Bixby, Honor); Zhou, B (Zhou, Bin); Stevens, GA (Stevens, Gretchen A.); Riley, LM (Riley, Leanne M.); Taddei, C (Taddei, Cristina); Hajifathalian, K (Hajifathalian, Kaveh); Lu, Y (Lu, Yuan); Savin, S (Savin, Stefan); Cowan, MJ (Cowan, Melanie J.); Paciore, CJ (Paciore, Christopher J.); Chirita-Emandi, A (Chirita-Emandi, Adela); Hayes, AJ (Hayes, Alison J.); Katz, J (Katz, Joanne); Kelishadi, R (Kelishadi, Roya); Kengne, AP (Kengne, Andre Pascal); Khang, YH (Khang, Young-Ho); Laxmaiah, A (Laxmaiah, Avula); Li, YP (Li, Yanping); Ma, J (Ma, Jun); Miranda, JJ (Miranda, J Jaime); Mostafa, A (Mostafa, Aya); Neovius, M (Neovius, Martin); Padez, C (Padez, Cristina); Rampal, L (Rampal, Lekhray); Zhu, A (Zhu, Aubrianna); Bennet, JE (Bennet, James E.); Danaei, G (Danaei, Goodarz); Bhutta, ZA (Bhutta, Zulfiqar A.); Ezzati, M (Ezzati, Majid); Abarca-Gomez, L (Abarca-Gomez, Leandra); Abdeen, ZA (Abdeen, Ziad A.); Hamid, ZA (Hamid, Zargar Abdul); Abu-Rmeileh, NM (Abu-Rmeileh, Niveen M.); Acosta-Cazares, B (Acosta-Cazares, Benjamin); Acuin, C (Acuin, Cecilia); Adams, RJ (Adams, Robert J.); Aekplakorn, W (Aekplakorn, Wichai); Afsana, K (Afsana, Kaosar); Aguilar-Salinas, CA (Aguilar-Salinas, Carlos A.); Agyemng, C (Agyemng, Charles); Ahmadvand, A (Ahmadvand, Alireza); Ahrens, W (Ahrens, Wolfgang); Ajlouni, K (Ajlouni, Kamel); Akhtaeva, N (Akhtaeva, Nazgul); Al-Hazzaa, HM (Al-Hazzaa, Hazzaa M.); Al-Othman, AR (Al-Othman, Amani Rashed); Al-Raddadi, R (Al-Raddadi, Rajaa); AlBuhairan, F (AlBuhairan, Fadia); AlDhukai, S (AlDhukai, Shahla); Ali, MM (Ali, Mohamed M.); Ali, O (Ali, Osman); Alkerwi, A (Alkerwi, Ala'a); Alvarez-Pedrerol, M (Alvarez-Pedrerol, Mar); Aly, E (Aly, Eman); Amarapurkar, DN (Amarapurkar, Deepak N.); Amouyel, P (Amouyel, Philippe); Amuzu, A (Amuzu, Antoinette); Andersen, LB (Andersen, Lars Bo); Anderssen, SA (Anderssen, Sigmund A.); Andrade, DS (Andrade, Dolores S.); Anquist, LH (Anquist, Lars H.); Anjana, RM (Anjana, Ranjit Mohan); Aounallah-Skhiri, H (Aounallah-Skhiri, Hajer); Araujo, J (Araujo, Joana); Arianse, I (Arianse, Inger); Aris, T (Aris, Tahir); Arlappa, N (Arlappa, Nimmathota); Arveiler, D (Arveiler, Dominique); Aryal, KK (Aryal, Krishna K.); Aspelund, T (Aspelund, Thor); Assah, FK (Assah, Felix K.); Assuncao, MCF (Assuncao, Maria Cecilia F.); Aung, MS (Aung, May Soe); Avdicova, M (Avdicova, Maria); Azevedo, A (Azevedo, Ana); Azizi, F (Azizi, Fereidoun); Babu, BV (Babu, Bontha V.); Bahajri, S (Bahajri, Suhad); Baker, JL (Baker, Jennifer L.); Balakrishna, N (Balakrishna, Nagalla); Bamoshmoosh, M (Bamoshmoosh, Mohamed); Banach, M (Banach, Maciej); Bandosz, P (Bandosz, Piotr); Banegas, JR (Banegas, Jose R.); Barbaggio, CM (Barbaggio, Carlo M.); Barcelo, A (Barcelo, Alberto); Barkat, A (Barkat, Amina); Barros, AJD (Barros, Aluisio J. D.); Barros, MVG (Barros, Mauro V. G.); Bata, I (Bata, Iqbal); Batieha, AM (Batieha, Anwar M.); Batista, RL (Batista, Rosangela L.); Batyrbek, A (Batyrbek, Assembekov); Baur, LA (Baur, Louise A.); Beaglehole, R (Beaglehole, Robert); Ben Romdhane, H (Ben Romdhane, Habiba); Benedics, J (Benedics, Judith); Benet, M (Benet, Mikhail); Bennet, JE (Bennet, James E.); Bernabe, A (Bernabe, Antonio); Bernotiene, G (Bernotiene, Gailute); Bettiol, H (Bettiol, Heloisa); Bhagyalaxmi, A (Bhagyalaxmi, Aroor); Bharadwaj, S (Bharadwaj, Sumit); Bhargava, SK (Bhargava, Santosh K.); Bhatti, Z (Bhatti, Zaid); Bhutta, ZA (Bhutta, Zulfiqar A.); Bi, HS (Bi, Hongsheng); Bi, YF (Bi, Yufang); Biehl, A (Biehl, Anna); Bikbov, M (Bikbov, Mukharram); Bista, B (Bista, Bihungum); Bjelica, DJ (Bjelica, Dusko J.); Bjerregaard, P (Bjerregaard, Peter); Bjertnes, E (Bjertnes, Espen); Bjness, MB (Bjness, Marius B.); Bjorkelund, C (Bjorkelund, Cecilia); Blokstra, A (Blokstra, Anneke); Bo, S (Bo, Simona); Bobak, M (Bobak, Martin); Boddy, LM (Boddy, Lynne M.); Boehm, BO (Boehm, Bernhard O.); Boeing, H (Boeing, Heiner); Boggia, JG (Boggia, Jose G.); Boissonnet, CP (Boissonnet, Carlos P.); Bonaccio, M (Bonaccio, Marialaura); Bongard, V (Bongard, Vanina); Bovet, P (Bovet, Pascal); Braeckvelt, L (Braeckvelt, Lien); Braeckman, L (Braeckman, Lutgart); Bragt, MCE (Bragt, Marjolijn C. E.); Brajkovich, I (Brajkovich, Imperia); Branca, F (Branca, Francesco); Breckenkamp, J (Breckenkamp, Juergen); Breda, J (Breda, Joao); Brenner, H (Brenner, Hermann); Brewster, LM (Brewster, Lizzy M.); Brian, GR (Brian, Garry R.); Brinduse, L (Brinduse, Lacramioara); Bruno, G (Bruno, Graziella); Bueno-de-Mesquita, HB (Bueno-de-Mesquita, H. B.); Bugge, A (Bugge, Anna); Buoncristiano, M (Buoncristiano, Marta); Burazeri, G (Burazeri, Genc); Burns, C (Burns, Con); de Leon, AC (Cabrera de Leon, Antonio); Cacciottolo, J (Cacciottolo, Joseph); Cai, H (Cai, Hui); Cama, T (Cama, Tilema); Cameron, C (Cameron, Christine); Camola, J (Camola, Jose); Can, G (Can, Gunay); Candido, APCC (Candido, Ana P. C. C.); Capanzana, M (Capanzana, Mario); Capuano, V (Capuano, Vincenzo); Cardoso, VC (Cardoso, Viviane C.); Carlsson, AC (Carlsson, Axel C.); Carvalho, MJ (Carvalho, Maria J.); Casanueva, FF (Casanueva, Felipe F.); Casas, JP (Casas, Juan Pablo); Caserta, CA (Caserta, Carmelo A.); Chamukuttan, S (Chamukuttan, Snehalatha); Chan, AW (Chan, Angelique W.); Chan, Q (Chan, Queenie); Chaturvedi, HK (Chaturvedi, Himanshu K.); Chaturvedi, N (Chaturvedi, Nishi); Chen, CJ (Chen, Chien-Jen); Chen, FF (Chen, Fangfang); Chen, HS (Chen, Huashuai); Chen, SH (Chen, Shuohua); Chen, ZM (Chen, Zhengming); Cheng, CY (Cheng, Ching-Yu); Chetrit, A (Chetrit, Angela); Chikova-Iscener, E (Chikova-Iscener, Ekaterina); Chiolerio, A (Chiolerio, Arnaud); Chiou, ST (Chiou, Shu-Ti); Chirlaque, MD (Chirlaque, Maria-Dolores); Cho, B (Cho, Belong); Cho, Y (Cho, Yumi); Christensen, K (Christensen, Kaare); Christofaro, DG (Christofaro, Diego G.); Chudek, J (Chudek, Jerzy); Cifkova, R (Cifkova, Renata); Cinteza, E (Cinteza, Eliza); Claessens, F (Claessens, Frank); Clays, E (Clays, Els); Concin, H (Concin, Hans); Confortin, SC (Confortin, Susana C.); Cooper, C (Cooper, Cyrus); Cooper, R (Cooper, Rachel); Coppinger, TC (Coppinger, Tara C.); Costanzo, S (Costanzo, Simona); Cotel, D (Cotel, Dominique); Cowell, C (Cowell, Chris); Craig, CL (Craig, Cora L.); Crujeiras, AB (Crujeiras, Ana B.); Cucu, A (Cucu, Alexandra); D'Arrigo, G (D'Arrigo, Graziella); d'Orsi, E (d'Orsi, Eleonora); Dallongeville, J (Dallongeville, Jean); Damasceno, A (Damasceno, Albertino); Damsgaard, CT (Damsgaard, Camilla T.); Danae, G (Danae, Goodarz); Dankner, R (Dankner, Rachel); Dantoft, TM (Dantoft, Thomas M.); Dastgiri, S (Dastgiri, Saeed); Dauchet, L (Dauchet, Luc); Davletov, K (Davletov, Kairat); De Backer, G (De Backer, Guy); De Bacquer, D (De Bacquer, Dirk); De Curtis, A (De Curtis, Amalia); de Gaetano, G (de Gaetano, Giovanni); De Henauw, S (De Henauw, Stefaan); de Oliveira, PD (de Oliveira, Paula Duarte); De Ridder, K (De Ridder, Karin); De Smedt, D (De Smedt, Delphine); Deeba, M (Deeba, Mohan); Deev, AD (Deev, Alexander D.); Dehghan, A (Dehghan, Abbas); Delisle, H (Delisle, Helene); Delpuech, F (Delpuech, Francis); Deschamps, V (Deschamps, Valerie); Dhana, K (Dhana, Klodian); Di Castelnuovo, AF (Di Castelnuovo, Augusto F.); Dias-da-Costa, JS (Dias-da-Costa, Juvenal Soares); Diaz, A (Diaz, Alejandro); Dika, Z (Dika, Zivka); Djalalinia, S (Djalalinia, Shirin); Do, HTP (Do, Ha T. P.); Dobson, AJ (Dobson, Annette J.); Donati, MB (Donati, Maria Benedetta); Donfrancesco, C (Donfrancesco, Chiara); Donoso, SP (Donoso, Silvana P.); Doring, A (Doering, Angela); Dorobantu, M (Dorobantu, Maria); Dorosty, AR (Dorosty, Ahmad Reza); Doua, K (Doua, Kouamelan); Drygas, W (Drygas, Wojciech); Duan, JL (Duan, Jia Li); Duante, C (Duante, Charmaine); Duleva, V (Duleva, Vesselka); Dulskiene, V (Dulskiene, Virginija); Dzerve, V (Dzerve, Vilnis); Dzionkowska-Zaborszczyk, E (Dzionkowska-Zaborszczyk, Elzbieta); Egbagbe, EE (Egbagbe, Eruke E.); Eggertsen, R (Eggertsen, Robert); Eiben, G (Eiben, Gabriele); Ekelund, U (Ekelund, Ulf); El Ati, J (El Ati, Jalila); Elliott, P (Elliott, Paul); Engle-Stone, R (Engle-Stone, Reina); Erasmus, RT (Erasmus, Rajiv T.); Erem, C (Erem, Cihangir); Eriksen, L (Eriksen, Louise); Eriksson, JG (Eriksson, Johan G.); Escobedo, J (Escobedo, Jorge); Evans, A (Evans, Alun); Faeh, D (Faeh, David); Fall, CH (Fall, Caroline H.); Sant'Angelo, VF (Sant'Angelo, Victoria Farrugia); Farzadfar, F (Farzadfar, Farshad); Felix-Redondo, FJ (Felix-Redondo, Francisco J.); Ferguson, TS (Ferguson, Trevor S.); Fernandes, RA (Fernandes, Romulo A.); Fernandez-Berges, D (Fernandez-Berges, Daniel); Ferrante, D (Ferrante, Daniel); Ferrari, M (Ferrari, Marika); Ferreccio, C (Ferreccio, Caterina); Ferrieres, J (Ferrieres, Jean); Finn, JD (Finn, Joseph D.); Fischer, K (Fischer, Krista); Flores, EM (Monterubio Flores, Eric); Foger, B (Fogger, Bernhard); Foo, LH (Foo, Leng Huat); Forslund, AS (Forslund, Ann-Sofie); Forsner, M (Forsner, Maria); Fouad, HM (Fouad, Heba M.); Francis, DK (Francis, Damian K.); Franco, MD (Franco, Maria do Carmo); Franco, OH (Franco, Oscar H.); Frontera, G (Frontera, Guillermo); Fuchs, FD (Fuchs, Flavio D.); Fuch, SC (Fuch, Sandra C.); Fujita, Y (Fujita, Yuki); Furusawa, T (Furusawa, Takuro); Gaciong, Z (Gaciong, Zbigniew); Gafencu, M (Gafencu, Mihai); Galeone, D (Galeone, Daniela); Galvano, F (Galvano, Fabio); Garcia-de-la-Hera, M (Garcia-de-la-Hera, Manoli); Garetta, D (Garetta, Dickman); Garnett, SP (Garnett, Sarah P.); Gaspoz, JM (Gaspoz, Jean-Michel); Gasull, M (Gasull, Magda); Gates, L (Gates, Louise); Geiger, H (Geiger, Harald); Geleijnse, JM (Geleijnse, Johanna M.); Ghasemian, A (Ghasemian, Annoosheh); Giampaoli, S (Giampaoli, Simona); Gianfagna, F (Gianfagna, Francesco); Gill, TK (Gill, Tiffany K.); Giovannelli, J (Giovannelli, Jonathan); Giwerman, A (Giwerman, Aleksander); Godos, J (Godos, Justyna); Gogen, S (Gogen, Sibel); Goldsmith, RA (Goldsmith, Rebecca A.); Goltzman, D (Goltzman, David); Goncalves, H (Goncalves, Helen); Gonzalez-Leon, M (Gonzalez-Leon, Margot); Gonzalez-Rivas, JP (Gonzalez-Rivas, Juan P.); Gonzalez-Gross, M (Gonzalez-Gross, Marcela); Gottrand, F (Gottrand, Frederic); Graca, AP (Graca, Antonio Pedro); Graff-Iversen, S (Graff-Iversen, Sidsel); Grafnetter, D (Grafnetter, Dusan); Grajda, A (Grajda, Aneta); Grammatikopoulou, MG (Grammatikopoulou, Maria G.); Gregor, RD (Gregor, Ronald D.); Grodzicki, T (Grodzicki, Tomasz); Grontved, A (Grontved, Anders); Grosso, G (Grosso, Giuseppe); Gruden, G (Gruden, Gabriella); Grujic, V (Grujic, Vera); Gu, DF (Gu, Dongfeng); Gualdi-Russo, E (Gualdi-Russo, Emanuela); Guallar-Castillon, P (Guallar-Castillon, Pilar); Guan, OP (Guan, Ong Peng); Gudmundsson, EF (Gudmundsson, Elias F.); Gudnason, V (Gudnason, Vilmundur); Guerrero, R (Guerrero, Ramiro); Guessous, I (Guessous, Idris); Guimaraes, AL (Guimaraes, Andre L.); Gulliford, MC (Gulliford, Martin C.); Gunnlaugsdottir, J (Gunnlaugsdottir, Johanna); Gunter, M (Gunter, Marc); Guo, XH (Guo, Xiuhua); Guo, Y (Guo, Yin); Gupta, PC (Gupta, Prakash C.); Gupta, R (Gupta, Rajeev); Gureje, O (Gureje, Oye); Gurzkowska, B (Gurzkowska, Beata); Gutierrez, L (Gutierrez, Laura); Gutzwiller, F (Gutzwiller, Felix); Hadaegh, F (Hadaegh, Farzad);

Hadjigeorgiou, CA (Hadjigeorgiou, Charalambos A.); Si-Ramlee, K (Si-Ramlee, Khairil); Halkjaer, J (Halkjaer, Jytte); Hambleton, IR (Hambleton, Ian R.); Hardy, R (Hardy, Rebecca); Kumar, RH (Kumar, Rachakulla Hari); Hassapidou, M (Hassapidou, Maria); Hata, J (Hata, Jun); Hayes, AJ (Hayes, Alison J.); He, J (He, Jiang); Heidinger-Felso, R (Heidinger-Felso, Regina); Heinen, M (Heinen, Mirjam); Hendriks, ME (Hendriks, Marleen Elisabeth); Henriques, A (Henriques, Ana); Cadena, LH (Cadena, Leticia Hernandez); Herralá, S (Herralá, Sauli); Herrera, VM (Herrera, Victor M.); Herter-Aeberli, I (Herter-Aeberli, Isabelle); Heshmat, R (Heshmat, Ramin); Hihtaniemi, IT (Hihtaniemi, Ilpo Tapani); Ho, SY (Ho, Sai Yin); Ho, SC (Ho, Suzanne C.); Hobbs, M (Hobbs, Michael); Hofman, A (Hofman, Albert); Hopman, WM (Hopman, Wilma M.); Horimoto, ARVR (Horimoto, Andrea R. V. R.); Hormiga, CM (Hormiga, Claudia M.); Horta, BL (Horta, Bernardo L.); Houti, L (Houti, Leila); Howitt, C (Howitt, Christina); Htay, TT (Htay, Thein Thein); Htet, AS (Htet, Aung Soe); Htike, MMT (Htike, Maung Maung Than); Hu, YH (Hu, Yonghua); Huerta, JM (Huerta, Jose Maria); Petrescu, CH (Petrescu, Constanta Huidumac); Huisman, M (Huisman, Martijn); Hussein, A (Hussein, Abdullatif); Huu, CN (Chinh Nguyen Huu); Huybrechts, I (Huybrechts, Inge); Hwalla, N (Hwalla, Nahla); Hyska, J (Hyska, Jolanda); Iacoviello, L (Iacoviello, Licia); Iannone, AG (Iannone, Anna G.); Ibarluzea, JM (Ibarluzea, Jesus M.); Ibrahim, MM (Ibrahim, Mohsen M.); Ikeda, N (Ikeda, Nanyu); Ikram, MA (Ikram, M. Arfan); Irazola, VE (Irazola, Vilma E.); Islam, M (Islam, Muhammad); Ismail, AA (Ismail, Aziz al-Safi); Ivkovic, V (Ivkovic, Vanja); Iwasaki, M (Iwasaki, Masanori); Jackson, RT (Jackson, Rod T.); Jacobs, JM (Jacobs, Jeremy M.); Jaddou, H (Jaddou, Hashem); Jafar, T (Jafar, Tazeen); Jamil, KM (Jamil, Kazi M.); Jamrozik, K (Jamrozik, Konrad); Janszky, I (Janszky, Imre); Jarani, J (Jarani, Juel); Jasienska, G (Jasienska, Grazyna); Jelakovic, A (Jelakovic, Ana); Jelakovic, B (Jelakovic, Bojan); Jennings, G (Jennings, Garry); Jeong, SL (Jeong, Seung-Lyeal); Jiang, CQ (Jiang, Chao Qiang); Jimenez-Acosta, SM (Magaly Jimenez-Acosta, Santa); Joffres, M (Joffres, Michel); Johansson, M (Johansson, Mattias); Jonas, JB (Jonas, Jost B.); Torben, J (Jorgensen, Torben); Joshi, P (Joshi, Pradeep); Jovic, DP (Jovic, Dragana P.); Jozwiak, J (Jozwiak, Jacek); Juolevi, A (Juolevi, Anne); Jurak, G (Jurak, Gregor); Juresa, V (Juresa, Vesna); Kaaks, R (Kaaks, Rudolf); Kafatos, A (Kafatos, Anthony); Kajantie, EO (Kajantie, Eero O.); Kalter-Leibovici, O (Kalter-Leibovici, Ofra); Kamaruddin, NA (Kamaruddin, Nor Azmi); Kapantais, E (Kapantais, Efthymios); Karki, KB (Karki, Khem B.); Kasaean, A (Kasaean, Amir); Katz, J (Katz, Joanne); Kauhanen, J (Kauhanen, Jussi); Kaur, P (Kaur, Prabhdeep); Kavousi, M (Kavousi, Maryam); Kazakbaeva, G (Kazakbaeva, Gylli); Keil, U (Keil, Ulrich); Boker, LK (Boker, Lital Keinan); Keinanen-Kiukaanniemi, S (Keinanen-Kiukaanniemi, Sirkka); Kelishadi, R (Kelishadi, Roya); Kelleher, C (Kelleher, Cecily); Kemper, HCG (Kemper, Han C. G.); Kengne, AP (Kengne, Andre P.); Kerimkulova, A (Kerimkulova, Alina); Kersting, M (Kersting, Mathilde); Key, T (Key, Timothy); Khader, OS (Khader, Ousef Saleh); Khalili, D (Khalili, Davood); Khang, YH (Khang, Young-Ho); Khateeb, M (Khateeb, Mohammad); Khaw, KT (Khaw, Kay-Teo); Khous, IMSL (Khouf, Ilse M. S. L.); Kiechl-Kohlendorfer, U (Kiechl-Kohlendorfer, Ursula); Kiech, S (Kiech, Stefan); Killewo, J (Killewo, Japhet); Kim, J (Kim, Jeongseon); Kim, YY (Kim, Yeon-Yong); Klimont, J (Klimont, Jeannette); Klumbiene, J (Klumbiene, Jurate); Knoflach, M (Knoflach, Michael); Koiraala, B (Koiraala, Bhawesh); Kolle, E (Kolle, Elin); Kolsteren, P (Kolsteren, Patrick); Korrovi, P (Korrovi, Paul); Kos, J (Kos, Jelena); Koskinen, S (Koskinen, Seppo); Kouda, K (Kouda, Katsuyasu); Kovacs, VA (Kovacs, Viktoria A.); Kowlessur, S (Kowlessur, Sudhir); Koziel, S (Koziel, Slawomir); Kratzer, W (Kratzer, Wolfgang); Kriemler, S (Kriemler, Susi); Kristensen, PL (Kristensen, Peter Lund); Krokstad, S (Krokstad, Steinar); Kromhout, D (Kromhout, Daan); Kruger, HS (Kruger, Herculina S.); Kubinova, R (Kubinova, Ruzena); Kuciene, R (Kuciene, Renata); Kuh, D (Kuh, Diana); Kujala, UM (Kujala, Urho M.); Kulaga, Z (Kulaga, Zbigniew); Kumar, RK (Kumar, R. Krishna); Kunesova, M (Kunesova, Marie); Kurjata, P (Kurjata, Pawel); Kusuma, YS (Kusuma, Yadlapalli S.); Kuulasmaa, K (Kuulasmaa, Kari); Kyobutungi, C (Kyobutungi, Catherine); La, QN (Quang Ngoc La); Laamiri, FZ (Laamiri, Fatima Zahra); Laatikainen, T (Laatikainen, Tina); Lachat, C (Lachat, Carl); Laid, Y (Laid, Youcef); Lam, TH (Lam, Tai Hing); Landrove, O (Landrove, Orlando); Lanska, V (Lanska, Vera); Lappas, G (Lappas, Georg); Larijani, B (Larijani, Bagher); Laugsand, LE (Laugsand, Lars E.); Lauria, L (Lauria, Laura); Laxmaiah, A (Laxmaiah, Avula); Bao, KLN (Khanh Le Nguyen Bao); Le, TD (Tuyen D Le); Lebanan, MAO (Lebanan, May Antonette O.); Leclercq, C (Leclercq, Catherine); Lee, J (Lee, Jeannette); Lee, J (Lee, Jeonghee); Lehtimäki, T (Lehtimäki, Terho); Leon-Munoz, LM (Leon-Munoz, Luz M.); Levitt, NS (Levitt, Naomi S.); Li, YP (Li, Yanping); Lilly, CL (Lilly, Christa L.); Lim, WY (Lim, Wei-Yen); Lima-Costa, MF (Fernanda Lima-Costa, M.); Lin, HH (Lin, Hsien-Ho); Lin, X (Lin, Xu); Lind, L (Lind, Lars); Linneberg, A (Linneberg, Allan); Lissner, L (Lissner, Lauren); Litwin, M (Litwin, Mieczyslaw); Liu, J (Liu, Jing); Loit, HM (Loit, Helle-Mai); Lopes, L (Lopes, Luis); Lorbeer, R (Lorbeer, Roberto); Lotufo, PA (Lotufo, Paulo A.); Lozano, JE (Eugenio Lozano, Jose); Luksiene, D (Luksiene, Dalia); Lundqvist, A (Lundqvist, Annamari); Lunet, N (Lunet, Nuno); Lytsy, P (Lytsy, Per); Ma, GS (Ma, Guansheng); Ma, J (Ma, Jun); Machado-Coelho, GLL (Machado-Coelho, George L. L.); Machado-Rodrigues, AM (Machado-Rodrigues, Aristides M.); Machi, S (Machi, Suka); Maggi, S (Maggi, Stefania); Magliano, DJ (Magliano, Dianna J.); Magriplis, E (Magriplis, Emanuele); Mahaletchumy, A (Mahaletchumy, Alagappan); Maire, B (Maire, Bernard); Majer, M (Majer, Marjeta); Makdisse, M (Makdisse, Marcia); Malekzadeh, R (Malekzadeh, Reza); Malhotra, R (Malhotra, Rahul); Rao, KM (Rao, Kodavanti Mallikharjuna); Malyutina, S (Malyutina, Sofia); Manios, Y (Manios, Yannis); Mann, JI (Mann, Jim I.); Manzato, E (Manzato, Enzo); Margozzini, P (Margozzini, Paula); Markaki, A (Markaki, Anastasia); Markey, O (Markey, Oonagh); Marques, LP (Marques, Larissa P.); Marques-Vidal, P (Marques-Vidal, Pedro); Marrugat, J (Marrugat, Jaume); Martin-Prevel, Y (Martin-Prevel, Yves); Martin, R (Martin, Rosemarie); Martorell, R (Martorell, Reynaldo); Martos, E (Martos, Eva); Marventano, S (Marventano, Stefano); Masoodi, SR (Masoodi, Shariq R.); Mathiesen, EB (Mathiesen, Ellisiv B.); Matijasevich, A (Matijasevich, Alicia); Matsha, TE (Matsha, Tandi E.); Mazur, A (Mazur, Artur); Mbanya, JCN (Mbanya, Jean Claude N.); McFarlane, SR (McFarlane, Shelly R.); McGarvey, ST (McGarvey, Stephen T.); McKee, M (McKee, Martin); McLac, S (McLac, Stela); McLean, RM (McLean, Rachael M.); McLean, SB (McLean, Scott B.); McNulty, BA (McNulty, Breige A.); Yusof, SM (Yusof, Safiah Md); Mediene-Benchechor, S (Mediene-Benchechor, Sounnia); Medzioniene, J (Medzioniene, Jurate); Meirhaeghe, A (Meirhaeghe, Aline); Meisfjord, J (Meisfjord, Jorgen); Meisinger, C (Meisinger, Christa); Menezes, AMB (Menezes, Ana Maria B.); Menon, GR (Menon, Geetha R.); Mensink, GBM (Mensink, Gert B. M.); Meshram, II (Meshram, Indrapal I.); Metspalu, A (Metspalu, Andres); Meyer, HE (Meyer, Haakon E.); Mi, J (Mi, Jie); Michaelsen, KF (Michaelsen, Kim F.); Michels, N (Michels, Nathalie); Mikkil, K (Mikkil, Kairiti); Miller, JC (Miller, Jody C.); Minderico, CS (Minderico, Claudia S.); Miquel, JF (Miquel, Juan Francisco); Miranda, JJ (Miranda, J. Jaime); Mirkopoulou, D (Mirkopoulou, Daphne); Mirrakhimov, E (Mirrakhimov, Erkin); Misigoj-Durakovic, M (Misigoj-Durakovic, Marjeta); Mistretta, A (Mistretta, Antonio); Mocanu, V (Mocanu, Veronica); Modesti, PA (Modesti, Pietro A.); Mohamed, MK (Mohamed, Mostafa K.); Mohamud, K (Mohamud, Kazem); Mohammadifard, N (Mohammadifard, Noshin); Mohan, V (Mohan, Viswanathan); Mohanna, S (Mohanna, Salim); Yusoff, MFM (Yusoff, Muhammad Fadhli Mohd); Molbo, D (Molbo, Druide); Mollehave, LT (Mollehave, Line T.); Moller, NC (Moller, Niels C.); Molnar, D (Molnar, Denes); Momenan, A (Momenan, Amirabbas); Mondo, CK (Mondo, Charles K.); Monterrubio, EA (Monterrubio, Eric A.); Monyeki, KDK (Monyeki, Kotsedi Daniel K.); Moon, JS (Moon, Jin Soo); Moreira, LB (Moreira, Leila B.); Morejo, A (Morejo, Alain); Moreno, LA (Moreno, Luis A.); Morgan, K (Morgan, Karen); Mortensen, EL (Mortensen, Erik Lykke); Moschonis, G (Moschonis, George); Mossakowska, M (Mossakowska, Malgorzata); Mostafa, A (Mostafa, Aya); Mota, J (Mota, Jorge); Mota-Pinto, A (Mota-Pinto, Anabela); Motlag, ME (Motlag, Mossakowd Esmael); Motta, J (Motta, Jorge); Mu, TT (Mu, The Thet); Muc, M (Muc, Magdalena); Muienes, ML (Muienes, Maria Lorenza); Muller-Nurasyid, M (Mueller-Nurasyid, Martina); Murphy, N (Murphy, Neil); Mursu, J (Mursu, Jaakko); Murtagh, EM (Murtagh, Elaine M.); Musil, V (Musil, Vera); Nabipour, I (Nabipour, Iraj); Nagel, G (Nagel, Gabriele); Naidu, BM (Naidu, Balkish M.); Nakamura, H (Nakamura, Harunobu); Namesna, J (Namesna, Jana); Nang, EEK (Nang, Ei Ei K.); Nangia, VB (Nangia, Vinay B.); Nankap, M (Nankap, Martin); Narake, S (Narake, Sameer); Nardone, P (Nardone, Paola); Navarrete-Munoz, EM (Navarrete-Munoz, Eva Maria); Neal, WA (Neal, William A.); Nenko, I (Nenko, Ilona); Neovius, M (Neovius, Martin); Nervi, F (Nervi, Flavio); Nguyen, CT (Nguyen, Chung T.); Nguyen, ND (Nguyen, Nguyen D.); Nguye, QN (Quang Ngoc Nguye); Nieto-Martinez, RE (Nieto-Martinez, Ramfis E.); Ning, G (Ning, Guang); Ninomiya, T (Ninomiya, Toshiharu); Nishtar, S (Nishtar, Sania); Noale, M (Noale, Marianna); Noboa, OA (Noboa, Oscar A.); Norat, T (Norat, Teresa); Norie, S (Norie, Sawada); Noto, D (Noto, Davide); Al Nsour, M (Al Nsour, Mohannad); O'Reilly, D (O'Reilly, Dermot); Obreja, G (Obreja, Galina); Oda, E (Oda, Eiji); Oehlert, G (Oehlert, Glenn); Oh, K (Oh, Kyungwon); Ohara, K (Ohara, Kumiko); Olafsson, O (Olafsson, Orn); Olinto, MTA (Anselmo Olinto, Maria Teresa); Oliveira, IO (Oliveira, Isabel O.); Oltarzewski, M (Oltarzewski, Maciej); Omar, MA (Omar, Mohd Azahadi); Onat, A (Onat, Altan); Ong, SK (Ong, Sok King); Ono, LM (Ono, Lariane M.); Orduñez, P (Orduñez, Pedro); Ornelas, R (Ornelas, Rui); Ortiz, AP (Ortiz, Ana P.); Osler, M (Osler, Merete); Osmond, C (Osmond, Clive); Ostojic, SM (Ostojic, Sergej M.); Ostovar, A (Ostovar, Afshin); Otero, JA (Otero, Johanna A.); Overvad, K (Overvad, Kim); Owusu-Dabo, E (Owusu-Dabo, Ellis); Paccard, FM (Paccard, Fred Michel); Padez, C (Padez, Cristina); Pahomova, E (Pahomova, Elena); Pajak, A (Pajak, Andrzej); Palli, D (Palli, Domenico); Palloni, A (Palloni, Alberto); Palmieri, L (Palmieri, Luigi); Pan, WH (Pan, Wen-Harn); Panda-Jonas, S (Panda-Jonas, Songhomitra); Pandey, A (Pandey, Arvind); Panza, F (Panza, Francesco); Papandreou, D (Papandreou, Dimitrios); Park, SW (Park, Soon-Woo); Parnell, WR (Parnell, Winsome R.); Parsaeian, M (Parsaeian, Mahboubeh); Pascanu, IM (Pascanu, Ionela M.); Patel, ND (Patel, Nikhil D.); Pecin, I (Pecin, Ivan); Pednekar, MS (Pednekar, Mangesh S.); Peer, N (Peer, Nasheeta); Peeters, PH (Peeters, Petra H.); Peixoto, SV (Peixoto, Sergio Viana); Peltonen, M (Peltonen, Markku); Pereira, AC (Pereira, Alexandre C.); Perez-Farinós, N (Perez-Farinós, Napoleon); Perez, CM (Perez, Cynthia M.); Peters, A (Peters, Annette); Petkeviciene, J (Petkeviciene, Janina); Petrauskiene, A (Petrauskiene, Ausra); Peykari, N (Peykari, Niloufar); Pham, ST (Son Thai Pham); Pierannunzio, D (Pierannunzio, Daniela); Pigeo, I (Pigeo, Iris); Pikhart, I (Pikhart, Hynek); Pilav, A (Pilav, Aida); Pilotto, L (Pilotto, Lorenza); Pistelli, F (Pistelli, Francesco); Pitakaka, F (Pitakaka, Freda); Piwonska, A (Piwonska, Aleksandra); Plans-Rubio, P (Plans-Rubio, Pedro); Poh, BK (Poh, Bee Koon); Pohlmann, H (Pohlmann, Hermann); Pop, RM (Pop, Raluca M.); Popovic, SR (Popovic, Stevo R.); Porta, M (Porta, Miquel); Portegies, MLP (Portegies, Marileen L. P.); Posch, G (Posch,



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Colaas, PsyColaas	K-6607-2013	
Van Herck, Koen	G-5223-2013	0000-0003-0717-2406
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Visvikis-Siest, Sophie	H-2324-2014	0000-0001-8104-8425
Staessen, Jan	A-1065-2011	0000-0002-3026-1637
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Woo, Jean	K-2625-2014	0000-0001-7593-3081
Popovic, Stevo	S-7125-2016	0000-0002-6633-3575
Bovet, Pascal	F-4477-2011	0000-0002-0242-4259
Virtanen, Jyrki	G-5149-2013	0000-0002-0648-999X
Horta, Bernardo	A-7604-2008	0000-0001-9843-412X
Santos, Diana	H-9086-2013	0000-0003-0429-3093
Mota-Pinto, Anabela		0000-0002-0820-9568

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**Record 2 of 24****Title:** BODY HEIGHT AND ITS ESTIMATION UTILIZING ARM SPAM MEASUREMENTS IN MALE ADOLESCENTS FROM NORTHERN REGION IN MONTENEGRO**Author(s):** Milasinovic, R (Milasinovic, Rajko); Gardasevic, J (Gardasevic, Jovan); Bjelica, D (Bjelica, Dusko)**Source:** ACTA KINESIOLOGICA **Volume:** 11 **Pages:** 75-80 **Supplement:** 2 **Published:** DEC 2017**Accession Number:** WOS:000419089300010**Author Identifiers:**

Author	ResearcherID Number	ORCID Number
Bjelica, Dusko	S-7633-2016	

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**Record 3 of 24****Title:** Stature and its Estimation Utilizing Arm Span Measurements in Kosovan Adults: National Survey**Author(s):** Arifi, F (Arifi, Fitim); Bjelica, D (Bjelica, Dusko); Sermahaj, S (Sermahaj, Sami); Gardasevic, J (Gardasevic, Jovan); Kezunovic, M (Kezunovic, Miroslav); Popovic, S (Popovic, Stevo)**Source:** INTERNATIONAL JOURNAL OF MORPHOLOGY **Volume:** 35 **Issue:** 3 **Pages:** 1161-1167 **Published:** SEP 2017**Accession Number:** WOS:000413228700055**Author Identifiers:**

Author	ResearcherID Number	ORCID Number
Bjelica, Dusko	S-7633-2016	
Popovic, Stevo	S-7125-2016	0000-0002-6633-3575

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**Record 4 of 24****Title:** Dear Readers**Author(s):** Bjelica, D (Bjelica, Dusko); Popovic, S (Popovic, Stevo)**Source:** MONTENEGRIN JOURNAL OF SPORTS SCIENCE AND MEDICINE **Volume:** 6 **Issue:** 2 **Pages:** 3-3 **Published:** SEP 2017**Accession Number:** WOS:000406914100001**Author Identifiers:**

Author	ResearcherID Number	ORCID Number
Bjelica, Dusko	S-7633-2016	

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**Record 5 of 24****Title:** Standing Height and its Estimation Utilizing Foot Length Measurements in Kosovan Adults: National Survey**Author(s):** Popovic, S (Popovic, Stevo); Arifi, F (Arifi, Fitim); Bjelica, D (Bjelica, Dusko)**Source:** INTERNATIONAL JOURNAL OF APPLIED EXERCISE PHYSIOLOGY **Volume:** 6 **Issue:** 2 **Pages:** 1-7 **Published:** AUG 2017**Accession Number:** WOS:000412495000001**Author Identifiers:**

Author	ResearcherID Number	ORCID Number
Bjelica, Dusko	S-7633-2016	
Popovic, Stevo	S-7125-2016	0000-0002-6633-3575

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**Record 6 of 24****Title:** DEPENDENCE OF FEMALE BALL IN HANDBALL REPULSION ON THE PRESSURE WITHIN THIS SPORT**Author(s):** Bjelica, D (Bjelica, Dusko); Popovic, S (Popovic, Stevo); Tanase, GD (Tanase, Gabriela Doina); Gardasevic, J (Gardasevic, Jovan)**Source:** ACTA KINESIOLOGICA **Volume:** 11 **Pages:** 67-72 **Supplement:** 1 **Published:** JUN 28 2017**Accession Number:** WOS:000406857700012

**Author Identifiers:**

Author	ResearcherID Number	ORCID Number
Popovic, Stevo	S-7125-2016	0000-0002-6633-3575
Bjelica, Dusko	S-7633-2016	

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**Record 7 of 24****Title:** RELATIONS BETWEEN ANTHROPOMETRIC CHARACTERISTICS AND MOTOR TEST - ILLINOIS AGILITY RUN TEST**Author(s):** Gjonbalaj, M (Gjonbalaj, Malsor); Bjelica, D (Bjelica, Dusko); Georgiev, G (Georgiev, Georgi)**Source:** ACTA KINESIOLOGICA **Volume:** 11 **Issue:** 1 **Pages:** 34-36 **Published:** MAR 28 2017**Accession Number:** WOS:000405698300005**Author Identifiers:**

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Bjelica, Dusko	S-7633-2016	

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**Record 8 of 24****Title:** Stature and Its Estimation Utilizing Arm Span Measurements in Male Adolescents from Federation of Bosnia and Herzegovina Entity in Bosnia and Herzegovina**Author(s):** Gardasevic, J (Gardasevic, Jovan); Rasidagic, F (Rasidagic, Faris); Krivokapic, D (Krivokapic, Dragan); Corluca, M (Corluca, Marin); Bjelica, D (Bjelica, Dusko)**Source:** MONTENEGRIN JOURNAL OF SPORTS SCIENCE AND MEDICINE **Volume:** 6 **Issue:** 1 **Pages:** 37-44 **Published:** MAR 2017**Accession Number:** WOS:000394757900004**Author Identifiers:**

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Bjelica, Dusko	S-7633-2016	

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**Record 9 of 24****Title:** An Examination of the Ethnicity-Specific Prevalence of and Factors Associated with Substance Use and Misuse: Cross-Sectional Analysis of Croatian and Bosniak Adolescents in Bosnia and Herzegovina**Author(s):** Bjelica, D (Bjelica, Dusko); Idrizovic, K (Idrizovic, Kemal); Popovic, S (Popovic, Stevo); Sisic, N (Sisic, Nedim); Sekulic, D (Sekulic, Damir); Ostojic, L (Ostojic, Ljerka); Spasic, M (Spasic, Miodrag); Zenic, N (Zenic, Natasa)**Source:** INTERNATIONAL JOURNAL OF ENVIRONMENTAL RESEARCH AND PUBLIC HEALTH **Volume:** 13 **Issue:** 10 **Article Number:** 968 **DOI:** 10.3390/ijerph13100968 **Published:** OCT 2016**Accession Number:** WOS:000389570100035**Author Identifiers:**

Author	ResearcherID Number	ORCID Number
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Sekulic, Damir	D-4886-2017	0000-0001-8022-7886
Spasic, Miodrag	D-5651-2017	
Bjelica, Dusko	S-7633-2016	
Zenic, Natasa	D-7622-2017	
Popovic, Stevo	S-7125-2016	0000-0002-6633-3575

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**Record 10 of 24****Title:** Untitled**Author(s):** Bjelica, D (Bjelica, Dusko)**Source:** MONTENEGRIN JOURNAL OF SPORTS SCIENCE AND MEDICINE **Volume:** 5 **Issue:** 1 **Pages:** 3-3 **Published:** MAR 2016**Accession Number:** WOS:000376937500001**Author Identifiers:**

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**Record 11 of 24****Title:** Untitled**Author(s):** Bjelica, D (Bjelica, Dusko)**Source:** MONTENEGRIN JOURNAL OF SPORTS SCIENCE AND MEDICINE **Volume:** 4 **Issue:** 2 **Pages:** 3-3 **Published:** SEP 2015**Accession Number:** WOS:000362093500001**Author Identifiers:**

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**Record 12 of 24****Title:** Untitled**Author(s):** Bjelica, D (Bjelica, Dusko)**Source:** MONTENEGRIN JOURNAL OF SPORTS SCIENCE AND MEDICINE **Volume:** 4 **Issue:** 1 **Pages:** 3-3 **Published:** MAR 2015**Accession Number:** WOS:000362092800001**ISSN:** 1800-8755**eISSN:** 1800-8763**Record 13 of 24****Title:** Body Height and Its Estimation Utilizing Arm Span Measurements in Bosnian and Herzegovinian Adults**Author(s):** Popovic, S (Popovic, Stevo); Bjelica, D (Bjelica, Dusko); Tanase, GD (Tanase, Gabriela Doina); Milasinovic, R (Milasinovic, Rajko)**Source:** MONTENEGRIN JOURNAL OF SPORTS SCIENCE AND MEDICINE **Volume:** 4 **Issue:** 1 **Pages:** 29-36 **Published:** MAR 2015**Accession Number:** WOS:000362092800006**Author Identifiers:**

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Bjelica, Dusko	S-7633-2016	
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**ISSN:** 1800-8755**eISSN:** 1800-8763**Record 14 of 24****Title:** Anthropometrical Characteristics of Subjects in Predicting Technique Achievements of Basic Turn in Alpine Skiing**Author(s):** Hadzic, R (Hadzic, Rasid); Bjelica, D (Bjelica, Dusko); Georgiev, G (Georgiev, Georgi); Vujovic, D (Vujovic, Dobrislav); Popovic, S (Popovic, Stevo)**Source:** INTERNATIONAL JOURNAL OF MORPHOLOGY **Volume:** 32 **Issue:** 1 **Pages:** 232-240 **DOI:** 10.4067/S0717-95022014000100039 **Published:** MAR 2014**Accession Number:** WOS:000336654600039**Author Identifiers:**

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Popovic, Stevo	S-7125-2016	0000-0002-6633-3575
Bjelica, Dusko	S-7633-2016	

**ISSN:** 0717-9502**eISSN:** 0717-9367**Record 15 of 24****Title:** Comparative Study of Anthropometric Measurement and Body Composition between Elite Soccer and Volleyball Players**Author(s):** Popovic, S (Popovic, Stevo); Bjelica, D (Bjelica, Dusko); Jaksic, D (Jaksic, Damjan); Hadzic, R (Hadzic, Rasid)**Source:** INTERNATIONAL JOURNAL OF MORPHOLOGY **Volume:** 32 **Issue:** 1 **Pages:** 267-274 **DOI:** 10.4067/S0717-95022014000100044 **Published:** MAR 2014**Accession Number:** WOS:000336654600044**Author Identifiers:**

Author	ResearcherID Number	ORCID Number
Bjelica, Dusko	S-7633-2016	
Popovic, Stevo	S-7125-2016	0000-0002-6633-3575

**ISSN:** 0717-9502**eISSN:** 0717-9367**Record 16 of 24****Title:** HOW DOES ADVERTISING THROUGH SPORT WORK? EVIDENCE FROM TURKEY**Author(s):** Bjelica, D (Bjelica, Dusko); Popovic, S (Popovic, Stevo); Jaksic, D (Jaksic, Damjan); Hadzic, R (Hadzic, Rasid); Akpinar, S (Akpinar, Selcuk)**Edited by:** Milanovic D; Sporis G**Source:** 7TH INTERNATIONAL SCIENTIFIC CONFERENCE ON KINESIOLOGY: FUNDAMENTAL AND APPLIED KINESIOLOGY - STEPS FORWARD **Pages:** 477-477 **Published:** 2014**Accession Number:** WOS:000384519100144**Conference Title:** 7th International Scientific Conference on Kinesiology: Fundamental and Applied Kinesiology - Steps Forward**Conference Date:** MAY 22-25, 2014**Conference Location:** Croatian Acad Sci & Arts, Opatija, CROATIA**Conference Sponsors:** Univ Zagreb, Fac Kinesiolog, Ienovo, Coca Cola, LARUS SPORT, SportPharm, Ivica Olic, Mirko Cro Cop Filipovic**Conference Host:** Croatian Acad Sci & Arts**Author Identifiers:**

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Popovic, Stevo	S-7125-2016	0000-0002-6633-3575
Bjelica, Dusko	S-7633-2016	

**ISBN:** 978-953-317-027-5**Record 17 of 24****Title:** Comparative Study of Anthropometric Measurement and Body Composition between Elite Soccer and Basketball Players**Author(s):** Popovic, S (Popovic, Stevo); Akpinar, S (Akpinar, Selcuk); Jaksic, D (Jaksic, Damjan); Matic, R (Matic, Radenko); Bjelica, D (Bjelica, Dusko)**Source:** INTERNATIONAL JOURNAL OF MORPHOLOGY **Volume:** 31 **Issue:** 2 **Pages:** 461-467 **Published:** JUN 2013**Accession Number:** WOS:000327763000016**Author Identifiers:**

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Bjelica, Dusko	S-7633-2016	

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**Record 18 of 24****Title:** Body Height and Its Estimation Utilizing Arm Span Measurements in Serbian Adults**Author(s):** Popovic, S (Popovic, Stevo); Bjelica, D (Bjelica, Dusko); Molnar, S (Molnar, Slavko); Jaksic, D (Jaksic, Damjan); Akpinar, S (Akpinar, Selcuk)**Source:** INTERNATIONAL JOURNAL OF MORPHOLOGY **Volume:** 31 **Issue:** 1 **Pages:** 271-279 **DOI:** 10.4067/S0717-95022013000100043 **Published:** MAR 2013**Accession Number:** WOS:000321868400043**Author Identifiers:**

Author	ResearcherID Number	ORCID Number
Popovic, Stevo	S-7125-2016	0000-0002-6633-3575
Bjelica, Dusko	S-7633-2016	

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**Record 19 of 24****Title:** Comparative study of surgical treatment of acromioclavicular luxation**Author(s):** Kezunovic, M (Kezunovic, Miroslav); Bjelica, D (Bjelica, Dusko); Popovic, S (Popovic, Stevo)**Source:** VOJNOSANITETSKI PREGLED **Volume:** 70 **Issue:** 3 **Pages:** 292-297 **DOI:** 10.2298/VSP1303292K **Published:** MAR 2013**Accession Number:** WOS:000316156400008**PubMed ID:** 23607241**Author Identifiers:**

Author	ResearcherID Number	ORCID Number
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Bjelica, Dusko	S-7633-2016	

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**Record 20 of 24****Title:** Influence of motor abilities on quality of performing technical elements in alpine skiing**Author(s):** Hadzic, R (Hadzic, Rasid); Bjelica, D (Bjelica, Dusko); Vujovic, D (Vujovic, Dobrslav); Popovic, S (Popovic, Stevo)**Source:** TECHNICS TECHNOLOGIES EDUCATION MANAGEMENT-TTEM **Volume:** 7 **Issue:** 4 **Pages:** 1641-1645 **Published:** 2012**Accession Number:** WOS:000315080700026**Author Identifiers:**

Author	ResearcherID Number	ORCID Number
Popovic, Stevo	S-7125-2016	0000-0002-6633-3575
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**Record 21 of 24****Title:** Physical fitness adaptations to 9-week precompetitive training period in professional soccer team**Author(s):** Milosevic, Z (Milosevic, Zoran); Bjelica, D (Bjelica, Dusko); Rakic, D (Rakic, Dusica); Madic, D (Madic, Dejan); Obradovic, B (Obradovic, Borislav); Obradovic, J (Obradovic, Jelena); Mihajlovic, I (Mihajlovic, Ilona); Smajic, M (Smajic, Miroslav)**Source:** HEALTHMED **Volume:** 6 **Issue:** 11 **Pages:** 3834-3840 **Published:** 2012**Accession Number:** WOS:000313115600044**Author Identifiers:**

Author	ResearcherID Number	ORCID Number
Bjelica, Dusko	S-7633-2016	

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**Record 22 of 24****Title:** Body height and its estimation utilising arm span measurements in Montenegrin adults**Author(s):** Bjelica, D (Bjelica, Dusko); Popovic, S (Popovic, Stevo); Kezunovic, M (Kezunovic, Miroslav); Petkovic, J (Petkovic, Jovica); Jurak, G (Jurak, Gregor); Grasgruber, P (Grasgruber, Pavel)**Source:** ANTHROPOLOGICAL NOTEBOOKS **Volume:** 18 **Issue:** 2 **Pages:** 69-83 **Published:** 2012**Accession Number:** WOS:000313297300006**Author Identifiers:**

Author	ResearcherID Number	ORCID Number
Bjelica, Dusko	S-7633-2016	
Popovic, Stevo	S-7125-2016	0000-0002-6633-3575
Jurak, Gregor		0000-0003-4269-0970

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**Record 23 of 24****Title:** COMPARISON OF INSTEP KICKING BY THE PREFERRED LEG AMONG VARIOUS STATES AND INTENSITIES IN YOUNG FOOTBALL PLAYERS**Author(s):** Bjelica, D (Bjelica, Dusko); Georgiev, G (Georgiev, Georgi); Popovic, S (Popovic, Stevo)**Edited by:** Milanovic D; Sporis G

**Source:** 6TH INTERNATIONAL SCIENTIFIC CONFERENCE ON KINESIOLOGY: INTEGRATIVE POWER OF KINESIOLOGY **Pages:** 141-145 **Published:** 2011

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**Conference Title:** 6th International Scientific Conference on Kinesiology: Integrative Power on Kinesiology

**Conference Date:** SEP 08-11, 2011

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**Author Identifiers:**

Author	ResearcherID Number	ORCID Number
Bjelica, Dusko	S-7633-2016	
Popovic, Stevo	S-7125-2016	0000-0002-6633-3575
Khudolii, Oleg	A-7665-2016	0000-0002-5605-9939

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**Author Identifiers:**

Author	ResearcherID Number	ORCID Number
Khudolii, Oleg	A-7665-2016	0000-0002-5605-9939
Bjelica, Dusko	S-7633-2016	
Popovic, Stevo	S-7125-2016	0000-0002-6633-3575

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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>		

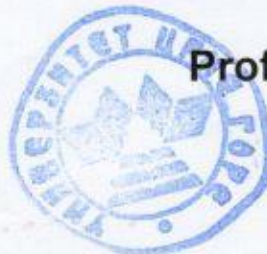
Na osnovu člana 72 stav 2 Zakóna o visokom obrazovanju (Službeni list Crne Gore br. 44/14) i člana 32 stav 1 tačka 9 Statuta Univerziteta Crne Gore, Senat Univerziteta Crne Gore, na sjednici održanoj 28. maja 2015. godine, donio je

**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.

**Radovi u međunarodnim časopisima koji se ne nalaze u bazi podataka a imaju redovnu međunarodnu distribuciju i rezime na stranom jeziku**

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### **Međunarodni kongresi, simpozijumi i seminari**

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

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

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**SVEUČILIŠTE U MOSTARU**  
**SENAT**

Ur. broj: 01-327/15  
Mostar, 19. veljače 2015.

Sveučilište u Mostaru  
Fakultet prirodoslovno-matematičkih i odgojnih znanosti

Primljeno: 9. 3. 2015.			
Org. jed.	Broj	Prijava	Vrijednost
04/I	076/B	-	-

Na temelju članka 55. stavak 1. alineja 9. Statuta Sveučilišta u Mostaru, Senat Sveučilišta u Mostaru na 12. sjednici, održanoj 19. veljače 2015. godine, donio je sljedeću

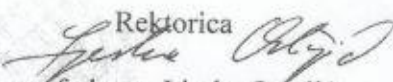
**ODLUKU**  
o izboru **dr. sc. Marina Čorluke** u znanstveno-nastavno zvanje izvanredni profesor

**I.**

Dr. sc. Marin Čorluka bira se u znanstveno-nastavno zvanje izvanredni profesor na područje društvenih znanosti, Polje kineziologija, grana Kineziologija sporta i Sistematska kineziologija na Fakultetu prirodoslovno -matematičkih i odgojnih znanosti Sveučilišta u Mostaru.

**II.**

Odluka stupa na snagu danom donošenja.

Rektorica  
  
prof. dr. sc. Ljerka Ostojić

Dostaviti:

- osobi iz toč.1. ove Odluke,
- Tajništvu fakulteta,
- dosjeu,
- pismohrani.

Prof.dr.sc. Marin Ćorluka

Kralja Tomislava 2

Grude

E:mail: [marin.corluka.64@gmail.com](mailto:marin.corluka.64@gmail.com)

## ŽIVOTOPIS

Marin Ćorluka rođen je 23.08.1964. g. u Imotskom, a trenutno s obitelji živi u Grudama.oženjen,otac troje djece.

### **Obrazovanje, akademsko napredovanje i akademske aktivnosti**

Osnovnu školu i gimnaziju završio je u Grudama. Nakon završetka srednjoškolskog obrazovanja odlazi u Sarajevo, gdje se 1984.g. upisuje na Fakultet za fizičku kulturu. Na istoimenom fakultetu diplomirao je 23.05. 1989.god. i stekao zvanje - profesora za fizičku kulturu. Nakon završetka studija kao profesor tjelesne i zdravstvene kulture niz godina radio je u osnovnim školama i srednjoškolskim centrima u Posušju i Ljubuškom.

Poslijediplomski studij upisuje na Fakultetu sporta i tjelesnog odgoja u Sarajevu, a u lipnju 2005.g. magistrira i stječe zvanje- magistra znanosti iz oblasti sporta i tjelesnog odgoja. Tema magistarskog rada glasila je: Utjecaj bazično-motoričkih sposobnosti na uspjeh nogometaša uzrasta od 12 do 14 godina.

Od 1.11.2005.g.zaposlen je na Fakultetu prirodoslovno-matematičkih i odgojnih znanosti, a u lipnju 2006.g. izabran je u suradničko zvanje asistenta u području Sportskih igara ( Košarka i Nogomet ) na Studiju fizičke kulture- Fakultet prirodoslovno-matematičkih i odgojnih znanosti Sveučilišta u Mostaru.

Doktorsku disertaciju pod mentorstvom prof.dr.sc. Slavka Trninića na temu „ Pragmatična valjanost inicijalnog motoričkog statusa u procjeni stvarne kvalitete nogometaša uzrasta od 14 do 16 godina“ obranio je 13. 07. 2008.god. na Fakultetu prirodoslovno-matematičkih i odgojnih znanosti Sveučilišta u Mostaru.

Aktivno učestvuje u radu i organizaciji znanstvenih konferencija, znanstvene radove izlagao je na međunarodnim znanstvenim konferencijama, a istraživač je u znanstvenom projektu voditelja prof.dr.sc.Slavka Trninića koji je odobren od strane MZOSRH.

Napisao je i objavio osamnaest znanstvenih i stručnih radova, jednu knjigu, a sudjelovao na više znanstvena kongresa, te bio recezent za dvije knjige.

Od 2015.g. u zvanju je izvanrednog profesora.

Kao predavač, stalni je suradnik Centra za edukaciju trenera organiziranom pri Nogometnom savezu BiH.

### **Sportsko iskustvo**

Svoje prve sportske korake kao dječak napravio je u NK Bekija – Grude, a u svojoj dugogodišnjoj sportskoj karijeri nastupao je i za nekoliko drugih nogometnih klubova: Ljubuški, Stolac, Mladost, Croatia, Imotski.

Pored velikog nogometa, istovremeno je aktivni igrač malog nogometa nastupajući za poznate malonogometne momčadi: Julia & Sons te Picadilly iz Sarajeva, a zatim MNK Seljak iz Livna i MNK Promet Orkan iz Zagreba.

Kao igrač velikog i malog nogometa u navedenim klubovima, ostvario je niz individualnih i klubskih zapaženih rezultata od kojih vrijedi istaknuti pojedine:

- najbolji sportaš Općine Grude za 1985. i 1991. god.,
- najbolji sportaš Općine Livno za 1991.god.,
- 1987.- prvak Hercegovine (MNK Seljak-Livno),
- 1988- prvak BiH ( MNK Picadilly- Sarajevo),
- 1989. - prvak BiH ( MNK Seljak- Livno),
- 1989.- vice prvak bivše Jugoslavije u malom nogometu ( MNK Seljak – Livno),
- 1990.- Prvak bivše Jugoslavije ( MNK Seljak –Livno);
- 1991.- III mjesto na Europskom malonogometnom prvenstvu (MNK Seljak-Livno) u Madridu.
- Pobjednik Županijskog kupa s NK Ljubuški i NK Stolac;
- Polufinalist prvenstva i pobjednik Kupa Herceg Bosne s NK Ljubuški

Pored navedenih rezultata, pobjednik je mnogobrojnih malonogometnih turnira u zemlji i inozemstvu na kojima je često proglašavan najboljim igračem ili strijelcem turnira.

Uz nogometne aktivnosti nastupao je i na nekoliko atletskih natjecanja te bio pobjednik na kros utrkama, a osvojio je i III. mjesto na 1500 m na Sveučilišnom atletskom mitingu „Kup Rektora“ u Sarajevu 1985.g.

Nakon igračke karijere posvećuje se trenerskom pozivu, te niz godina trenira nogometne klubove: Grude, Ljubuški i Drinovci. S navedenim klubovima također postiže nekoliko zapaženih rezultata od kojih treba izdvojiti osvajanje prvenstva druge lige i dolazak do polufinala Kupa Herceg Bosne s NK Grude, a 2004.g. s NK Drinovci – ulazak u polufinale Kupa Bosne i Hercegovine.

Kao sportski djelatnik obavljao je funkcije:

- 2000 /01 g.- sportski direktor NK Brotnjo, tadašnjeg prvaka BiH,
- 2007.g.- izbornik Malonogometne reprezentacije BiH,
- trenutno je predsjednik Znanstvenog sportskog društva Libertas- Mostar
- predsjednik Komiteta za Futsal BiH



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