

*Article Classification:*  
*Research article*

# IMPACT OF LONGITUDINAL DIMENSIONALITY ON EXPLOSIVE STRENGTH OF YOUNG BASKETBALL PLAYERS

Slavka Durlević<sup>1</sup>, Milica Filipović<sup>2</sup>, Marija Durlević<sup>1</sup>, Ina Marković Obrenov<sup>1</sup>, Igor Ilić<sup>2</sup>

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

<sup>2</sup>Faculty of Sport and Physical Education, University of Priština in Kosovska Mitrovica, Serbia

## OPEN ACCESS

*Submitted:* 24 April 2025

*Accepted:* 31 July 2025

### ORCID

Slavka Durlević

<https://orcid.org/0009-0001-4829-5384>

Milica Filipović

<https://orcid.org/0000-0001-8839-8110>

Igor Ilić

<https://orcid.org/0000-0003-0076-2331>

### Cite this article as:

Durlević, S., Filipović, M., Durlević, M., Obrenov, I., Ilić, I. (2025).

Impact of longitudinal dimensionality on explosive strength of young basketball players.

*Journal of Applied Sports Sciences*, 9(2), pp. 27 - 37.

DOI: 10.37393/JASS.2025.09.02.2



This work is licensed under a Attribution-NonCommercial-ShareAlike 4.0 International (CC BY-NC-SA 4.0)

## ABSTRACT

*Basketball is a highly popular and complex sport classified as a monostructural activity. Various anthropometric parameters determine elite performance achievement in basketball. Morphological characteristics and motor abilities have been established as the most significant predictors of basketball success. Consequently, this study aimed to determine the influence of longitudinal dimensionality on explosive strength in young basketball players. Accordingly, this study aimed to determine the impact of longitudinal dimensionality on the explosive strength of young basketball players. The sample comprised 15 cadet-level basketball players (age:  $15.8 \pm 0.6$  years; body weight:  $77.86 \pm 8.37$  kg; body mass index:  $23.99 \pm 1.01$  kg/m<sup>2</sup>). The set of measurement instruments included four variables for assessing explosive strength: Standing Long Jump (LJ), 20-Meter Sprint (RUN20m), Medicine Ball Throw from Supine Position (TMBL), and Medicine Ball Throw from Seated Position (TMBS); and five variables for measuring longitudinal dimensionality: Body Height (BH), Forearm Length (FL), Upper Arm Length (UAL), Lower Leg Length (LLL), and Upper Leg Length (ULL). The impact of longitudinal dimensionality on explosive strength in young basketball players was assessed using linear regression. Statistical analyses were conducted using the IBM SPSS Statistics software (Version 20). Linear regression analysis confirmed a statistically significant impact of longitudinal dimensionality on the explosive strength of young basketball players.*

**Keywords:** longitudinal dimensionality, explosive strength, basketball players, impact

## INTRODUCTION

Among modern team sports, basketball is one of the most popular and attractive sports today (Altavilla & Raiola, 2014; Raiola, 2015; Saha, 2015; Salihu et al., 2010; Stanković et al., 2022). It represents a complex sporting game that belongs to monostructural activities with unpredictable dynamics of cyclic and acyclic activity types (Alp, 2020; Aruković, 2013). Success in basketball depends on various anthropological dimensions (Ramos et al., 2020; Raiola & D'Isanto, 2016). Consistent with most other team sports, basketball also

requires a comprehensive range of anthropological dimensions (Ilić, 2015; Kryeziu & Aslani, 2016; Topalli et al., 2020). Morphological characteristics encompass a specific set of basic anthropometric latent dimensions (Pasa et al., 2019; Simić et al., 2022). These characteristics are among the key factors responsible for basketball performance and must be considered in the selection process, as they are genetically predetermined (Pop et al., 2017; Trunić & Mladenović, 2014). Among these characteristics, longitudinal dimensionality exhibits the greatest genetic conditioning (Rodić & Buišić,

2012). Longitudinal dimensions, as the best indicators of human organism growth, result from complex ontogenetic development processes and the interaction of biotic and abiotic factors within a specific environment (Durlević et al., 2024; Saha, 2015). Furthermore, motor abilities represent another predictor of basketball performance (Vuković et al., 2021). One of the most significant motor abilities in basketball is explosive strength (Hernández et al., 2018; Latorre Roman et al., 2018). Explosive strength is characterized as the capability to develop maximum force in the briefest temporal interval (Zatsiorsky & Kraemer, 2009). In basketball, explosive strength manifests through complex movement dynamics characterized by directional shifts, kinematic variations, and velocity modulations (Aksović et al., 2021; Aksović et al., 2020; Santos & Janeira, 2008). Regarding basketball performance, there is a strong correlation between morphological characteristics and motor abilities (Ramos et al., 2021; Salihu et al., 2010). The positive influence of longitudinal dimensionality on basketball players' explosive strength has been confirmed in numerous studies (Elshani et al., 2021; Kryeziu & Asllani, 2016; Kryeziu et al., 2018; Rašidagić & Fazlagić, 2010).

Accordingly, this study aimed to determine the impact of longitudinal dimensionality on the explosive strength of basketball players.

## METHODOLOGY

### *Sample of Participants*

The sample consisted of 15 male basketball players competing in the U17 Cadet League (RKS F4). Participants were cadets (age  $15.8 \pm 0.6$  years, height  $180 \pm 2.82$  cm, weight  $77.86 \pm 8.37$  kg, body mass index (BMI)  $23.99 \pm 1.01$  kg/m<sup>2</sup>) engaged in regular training processes. At the time of testing, the players were not taking any medication and had no injuries. This study was approved in advance

by both the players' parents and the basketball club. All research procedures, risks, and benefits were thoroughly explained to the coaches, participants, and their parents. Each parent voluntarily provided written informed consent before participation. The study was conducted in accordance with the ethical standards outlined in the Declaration of Helsinki (World Medical Association, 2013) and with the approval of the Ethics Committee of the Faculty of Sport and Physical Education, University of Priština - Kosovska Mitrovica (03-312).

### *Measurement Instruments*

To measure the longitudinal dimensionality of the basketball players, the following variables were used: Body Height (BH), Forearm Length (FL), Upper Arm Length (UAL), Lower Leg Length (LLL), and Upper Leg Length (ULL). The explosive strength of the players was assessed using the following test battery: Standing Long Jump (LJ), 20-Meter Sprint (RUN20m), 1 kg Medicine Ball Throw from Supine Position (TMBL), and 1 kg Medicine Ball Throw from Seated Position (TMBS).

### *Organization and Measurement Procedure*

The longitudinal dimensionality of the players was measured using a Martin anthropometer marked in centimeters and millimeters. Measurements of longitudinal dimensionality were taken before the morning training session, in a sports hall, under optimal temperature conditions (20-22°C). Participants were barefoot and wore only sports shorts during the measurements. Measurement results were recorded while the instrument was placed on the parameter being measured, and the individual recording the data repeated the results aloud for verification before entering them into the participants' records. After measuring longitudinal dimensionality, the players' explosive strength was tested. Before the ex-

plosive strength tests, participants completed a 10-minute standard warm-up consisting of stretching, running, and specific exercises related to the tests. Participants wore sports gear during testing. Each explosive strength test station was staffed with trained personnel, comprising four measurers and four recorders. Each station was assigned one measurer and one recorder, who remained at their assigned positions throughout the testing. Each participant had three attempts for each test, with the best score recorded for analysis. Sufficient rest time was provided between attempts, and participants followed the same sequence from test to test, with adequate rest time between tests.

**Data Processing**

To adequately determine the structure of the observed areas of explosive strength and longitudinal dimensionality in the tested bas-

ketball players, the principal component analysis method was applied. The impact of longitudinal dimensionality on players' explosive strength was assessed using linear regression. All statistical analyses were performed using the IBM SPSS Statistics software (Version 25).

**RESULTS**

The results of the descriptive statistical analysis for the observed areas of longitudinal dimensionality and explosive strength in basketball players are presented in Table 1. The descriptive analysis of longitudinal dimensionality and explosive strength, including parameters such as the arithmetic mean, standard deviation, and measures of dispersion (Skewness, Kurtosis), reveals expected values for this sample group, given their chronological age. The Shapiro-Wilk normality test indicated no statistically significant deviation from normal distribution.

**Table 1.** Descriptive Analysis of Longitudinal Dimensionality and Explosive Strength Results

Variables	N	Min	Max	Mean	SD	S-W
BH	15	175	185	180	2.828	.983
FL	15	33.75	37	35.13	.949	.807
UAL	15	37.05	39.55	38.31	.721	.988
LLL	15	49.75	52.25	51.1	.760	.808
ULL	15	46.05	48.50	47.26	.701	.941
LJ	15	186.5	196.5	191.5	2.828	.983
RUN20m	15	5.43	6.8	6.22	.335	.419
TMBL	15	17.50	18.50	18.01	.292	.940
TMBS	15	11.90	12.90	12.45	.304	.469

**Legend:** BH – Body Height, FL – Forearm Length, UAL – Upper Arm Length, LLL – Lower Leg Length, ULL – Upper Leg Length, LJ – Standing Long Jump, RUN20m – 20-Meter Sprint, TMBL – 1 kg Medicine Ball Throw from Supine Position, TMBS – 1 kg Medicine Ball Throw from Seated Position, N – Number of participants, MIN – Minimum, MAX – Maximum, Mean - Arithmetic mean, SD – Standard deviation, S-W – Shapiro Wilk.

After applying statistical analysis and normality tests, an exploratory principal component analysis was conducted to isolate the number of specific factors that describe the space.

Table 2 presents the results of the factor analysis for the longitudinal dimensionality of basketball players. The KMO measure of sampling adequacy shows a satisfactory level of .834, supporting the application of the princi-

pal component method to the selected variable set. Additionally, Table 2 indicates that one component is a significant variable explaining

88.55% of the total variance. The significant factor is associated with body height (BH), with an extracted factor loading of .982.

**Table 2.** *Factor Analysis of Longitudinal Dimensionality*

Variables	Factor	
	1	h <sup>2</sup>
BH	.982	.964
FL	.811	.658
UAL	.954	.911
LLL	.972	.946
ULL	.974	.949
KMO	.834	
Eigenvalue	4.428	
% of Variance	88.555	
Cumulative %	88.555	

**Legend:** BH – Body Height, FL – Forearm Length, UAL – Upper Arm Length, LLL – Lower Leg Length, ULL – Upper Leg Length, KMO - Kaiser-Meyer-Olkin.

Table 3 presents the results of the factor analysis for the explosive strength space of basketball players. The KMO measure of sampling adequacy is .844, which is also at a satisfactory level, justifying the use of the principal component method on the chosen variable set.

In Table 3, one component emerges as a significant variable explaining 95.74% of the total variance. This significant factor corresponds to the standing long jump (LJ) with a factor loading of .985.

**Table 3.** *Factor Analysis of Explosive Strength*

Variables	Factor	
	1	h <sup>2</sup>
LJ	.985	.970
RUN20m	.975	.951
TMBL	.984	.969
TMBS	.970	.940
KMO	.844	
Eigenvalue	3.830	
% of Variance	95.743	
Cumulative %	95.743	

**Legend:** LJ – Standing Long Jump, RUN20m – 20-Meter Sprint, TMBL – 1 kg Medicine Ball Throw from Supine Position, TMBS – 1 kg Medicine Ball Throw from Seated Position, KMO - Kaiser-Meyer-Olkin.

We used a factor analysis to extract latent dimensions, and we calculated factor scores using regression methods. After these procedures, linear regression was applied to assess

the potential statistical significance of longitudinal dimensionality (LD) on explosive strength (ES) in basketball players.

The results in Table 4 show a high cor-

relation between explosive strength and longitudinal dimensionality ( $R = .994$ ), which is statistically significant ( $p < .001$ ). The results

also confirm that 99.4% of the variability in explosive strength can be explained by the level of longitudinal dimensionality.

**Table 4.** *Linear Regression Analysis*

Variables	Explosive strength						
	B	SE	$\beta$	t	p	95% CI	
						LL	UL
Longitudinal dimensionality	.994	.030	.994	33.447	<.001	0.930	1.058

## DISCUSSION

Anthropometric parameters have been identified as key factors in sports success (Fragoso et al., 2014; Stanković et al., 2009; Szabo et al., 2020). Consequently, this study aimed to examine the influence of longitudinal dimensionality on explosive power in cadet basketball players. Factor analysis revealed that both longitudinal dimensionality and explosive power in basketball players are characterized by a single latent factor. Factor analysis revealed that both longitudinal dimensionality and explosive power in basketball players are characterized by a single latent factor. Longitudinal dimensionality was represented by body height (BH), while explosive strength was defined by the standing long jump (LJ) test. Linear regression analysis confirmed a strong, statistically significant effect of longitudinal dimensionality on explosive strength in basketball players.

Previous research by Blantas et al. (2022), Guimarães et al. (2019), Guimarães et al. (2023), and Johnston et al. (2018) emphasizes the importance of morphological characteristics for basketball success. Nagar et al. (2012) point out that morphological characteristics are positively correlated with improved gaming performance. These characteristics also correlate with playing positions and technical skill proficiency (Jeličić et al., 2002b; Karalejić et al., 2011; Kinnunen et al., 2001; Pelemiš

et al., 2021). Studies by Gušić et al. (2017), Mašanović et al. (2018), and Mašanović (2019) found that elite basketball and volleyball players exhibit longitudinal dimensionality. In contrast, handball and soccer players exhibit greater volume and body fat. Minor differences in longitudinal dimensionality were observed between basketball and volleyball players. Similar results were reported by Đurković et al. (2023), who found that longitudinal dimensionality is a predictor of success in both basketball and volleyball. Golec et al. (2015) established a difference in body height between basketball and volleyball players. Basketball players were taller than volleyball players. Such results are not surprising given that body height is one of the most significant parameters of success in basketball and a primary criterion in selection (Pelemiš et al., 2021; Mašanović, 2019). Stanković et al. (2009) and Mašanović (2019) found a pronounced difference in body height between professional handball and basketball players. Handball players were considerably shorter than basketball players. Comparing the height of young basketball players in this study to that of wrestlers, handball players, and skiers of the same age, young basketball players were found to be significantly taller (Cieśliński et al., 2021; Durlević et al., 2023; Durlević et al., 2024). Studies comparing the heights of young basketball players with those of their non-athletic peers found

that basketball players were taller (Malina et al., 2004; Đorđević et al., 2016). Gryko et al. (2018) and Štrumbelj & Erčulj (2014) reported that professional basketball players, across all positions, are taller and have greater arm span than younger basketball players. These results are unsurprising, as younger players are still in their growth and development phases. In this study, the longitudinal dimensionality of young basketball players was defined by body height (BH), consistent with prior findings that body height is a primary parameter for longitudinal dimensionality in young basketball players (Coelho e Silva et al., 2008; Ramos et al., 2020; Torres-Unda et al., 2016). Body height constitutes the most critical variable for talent identification and selection processes of young basketball players, primarily due to the game's inherent characteristics, the height of the hoop, and the constant need to tower over the opponent (Guimarães et al., 2019; Ramos et al., 2021; Ramos et al., 2020; Torres-Unda et al., 2013).

Factor analysis identified the explosive strength dimension in young basketball players using the standing long jump (LJ) test. Based on previous research, it was expected that the explosive power domain would be defined by the long jump test (LJ), given that this test assesses the explosive power of the entire body musculature (Ciacci & Bartolomei, 2018; Chang et al., 2015). Aksović & Berić (2017) conducted a study that revealed significant differences in explosive power between male and female basketball players. They also observed that explosive power equally influences basketball performance, regardless of gender. Therefore, explosive strength is considered a crucial predictor of success in basketball (Aksović et al., 2020). Consequently, basketball players must continuously develop, maintain, and improve their explosive strength to achieve optimal performance throughout the

game (Aksović et al., 2021; Mancha-Triguero et al., 2019). Lower-body explosive strength is essential for executing quick starts, changes in direction, and jumps during gameplay (Castagna et al., 2009). Many key actions in training and competition are primarily based on jumping (Apostolidis et al., 2004; Gómez-Carmona et al., 2021). Given that a single basketball game consists of over 40 jumps per player, jumping ability emerges as the most prevalent action, which primarily depends on explosive power (Ostojić et al., 2006; Pelemiš et al., 2021; Shalom et al., 2023; Stanković et al., 2022; Ziv & Lidor, 2010).

In basketball, morphological characteristics are directly related to motor skills (Altavilla et al., 2018). Research by Aslan et al. (2011) and Davis et al. (2003) identified a positive correlation between longitudinal dimensionality and explosive strength in athletes. This study's results confirm a high, statistically significant impact of longitudinal dimensionality on the explosive strength of young basketball players. Ostojić et al. (2006) found similar results, establishing a positive correlation between height and explosive strength in elite basketball players. Also, the positive influence of longitudinal dimensionality on the explosive power of junior basketball players was obtained in the research by Krieziu & Asllani (2016) and Krieziul et al. (2018). In senior basketball players, longitudinal dimensionality also positively influences explosive strength (Rašidagić & Fazlagić, 2010; Salihu et al., 2010). Based on these results, it can be concluded that longitudinal dimensionality positively influences the explosive strength of basketball players, regardless of their chronological age.

Despite these findings, it is essential to note this study's limitations. The first limitation is the small sample size ( $n = 15$ ). Furthermore, while the results provide insight into future elite basketball players, their applicability re-

mains limited by gender, age group, and player position.

## CONCLUSION

Morphological characteristics and motor abilities have been identified as key factors influencing success in basketball. The identification and understanding of longitudinal dimensionality, as a genetically determined component of morphological characteristics, have emerged as important aspects in analyzing its potential impact on the explosive strength of young basketball players. This study aimed to identify the structure of the longitudinal dimensionality and explosive strength in basketball players and to determine the potential influence of the longitudinal dimensionality on explosive strength in young players. A high, statistically significant impact of longitudinal dimensionality on the explosive strength of young basketball players was proven.

Given the limitations of this study, future research could focus on increasing the number of participants, including female basketball players, examining participants across various ages and competition levels, and exploring differences by playing position.

## REFERENCES

- Aksović, N., & Berić, D. (2017). Differences in explosive power between basketball players of different age. *Fizička kultura*, 71(1), 36–42. <https://doi.org/10.5937/fizkul1701036A>
- Aksović, N., Bjelica, B., Milanović, F., Milanovic, L., & Jovanović, N. (2021). Development of explosive power in basketball players. *Turkish Journal of Kinesiology*, 7(1), 44–52. <https://doi.org/10.31459/turkjin.861920>
- Aksović, N., Kocić, M., Berić, D., & Bujanj, S. (2020). Explosive power in basketball players. *Facta Universitatis, Series: Physical Education and Sport*, (1), 119–134. <https://doi.org/10.22190/FUPES200119011A>
- Alp, M. (2020). The Effects of Plyometric Trainings on Agility Performances in Male Basketball Players. *International Journal of Applied Exercise Physiology*, 9(3), 154–161. <http://dx.doi.org/10.26655/IJAEP.2020.3.23>
- Altavilla, G., & Raiola, G. (2014). Global vision to understand the game situations in modern basketball. *Journal of Physical Education and Sport*, 14, 493–496.
- Altavilla, G., D’Isanto, T., & Di Tore, P. A. (2018). Anthropometrics characteristics and jumping ability in basketball. *Journal of Human Sport and Exercise*, 13(2), 385–392. <https://doi.org/10.14198/jhse.2018.13.Proc2.22>
- Apostolidis, N., Nassis, G. P., Bolatoglou, T., & Geladas, N. D. (2004). Physiological and technical characteristics of elite young basketball players. *Journal of Sports Medicine and Physical Fitness*, 44(2), 157–163.
- Aruković, Z. (2013). Kanoničke relacije morfoloških odlika, motoričkih sposobnosti i situacioni testova kod košarkaša. *Sport Mont*, 11(37,38,39), 580–583.
- Aslan, C. S., Koc, H., Aslan, M., & Ozer, U. (2011). The effect of height on the anaerobic power of sub-elite athletes. *World Applied Science Journal*, 12(2), 208–211.
- Blantas, I., Androutsopoulos, P., Papadopoulos, K., Lapsanis, K., Eleftheriadis, G., & Alexopoulos, P. (2022). Anthropometric profile of elite U16 basketball players. *International Journal of Basketball Studies*, 1(2), 52–63. <https://doi.org/10.31949/ijobs.v1i2.3878>
- Castagna, C., Chaouachi, A., Rampinini, E., Chamari, K., & Impellizzeri, F. (2009). Aerobic and explosive power performance of elite Italian regional-level basketball players. *The Journal of Strength & Conditioning Research*, 23(7), 1982–1987. <https://doi.org/10.1519/JSC.0b013e3181b7f941>
- Chang, E., Norcross, M. F., Johnson, S. T., Kitagawa, T., & Hoffman, M. (2015). Relationships between explosive and maximal tri-

- ple extensor muscle performance and vertical jump height. *The Journal of Strength & Conditioning Research*, 29(2), 545–551.  
<https://doi.org/10.1519/JSC.0000000000000652>
- Ciacci, S., & Bartolomei, S. (2018). The effects of two different explosive strength training programs on vertical jump performance in basketball. *Journal of Sports Medicine and Physical Fitness*, 10(58), 1375–1382.  
<https://doi.org/10.23736/s0022-4707.17.07316-9>
- Cieśliński, I., Gierczuk, D., & Sadowski, J. (2021). Identification of success factors in elite wrestlers - An exploratory study. *PLoS one*, 16(3), e0247565.  
<https://doi.org/10.1371/journal.pone.0247565>
- Coelho e Silva, M. J., Figueiredo, A. J., Moreira Carvalho, H., & Malina, R. M. (2008). Functional capacities and sport-specific skills of 14-to 15-year-old male basketball players: Size and maturity effects. *European Journal of Sport Science*, 8(5), 277–285.
- Davis, D. S., Briscoe, D. A., Markowski, C. T., Saville, S. E., & Taylor, C. J. (2003). Physical characteristics that predict vertical jump performance in recreational male athletes. *Physical therapy in Sport*, 4(4), 167–174.
- Durlević, S., Mijajlović, M., & Durlević, M. (2023). Differences in some morphological characteristics and repetitive strength in relation to age in handball players. *Exercise and Quality of Life*, 15(2), 41–46.  
<https://doi.org/10.31382/eqol.231205>
- Durlević, S., Mijajlović, M., Durlević, M., & Ilić, I. (2024). Longitudinal dimensionality affects repetitive strength in skiers. *Journal of Anthropology of Sport and Physical Education*, 8(1), 19–22.  
<https://doi.org/10.26773/jaspe.240103>
- Đorđević, A., Jakovljević, S., Pajić, Z., & Nikolić, A. (2016). Speed-strength abilities and morphological characteristics of basketball players aged 10 and 11. *Fizička kultura*, 70(1), 46–54.  
<https://doi.org/10.5937/fizkul1601046D>
- Đurković, T., Pašuld, M., & Kresoja, D. (2023). Somatotypes of Top Croatian Male Volleyball Players. *Sport Mont*, 21(2), 71–77.  
<https://doi.org/10.26773/smj.230711>
- Elshani, Q., Salihu, H., & Kelmendi, D. (2021). Relationships presented with importance in some morphological variables and variables of basic and specific motor skills in young basketball players. *Sport Science*, 1(15), 62–65.
- Fragoso, I., Massuca, L. M., & Ferreira, J. (2014). Effect of birth month on physical fitness of soccer players (under-15) according to biological maturity. *International journal of sports medicine*, 36,16-21.  
<https://doi.org/10.1055/s-0034-1384548>
- Golec, V., Vučetić, V., & Đurković, T. (2015). Razlike u eksplozivnoj snazi tipa skočnosti između košarkaša i odbojkaša. In 13. godišnja međunarodna konferencija: "Kondicijska priprema sportaša 2015" (pp. 90–94).
- Gómez-Carmona, C. D., Feu, S., Pino-Ortega, J., & Ibáñez, S. J. (2021). Assessment of the multi-location external workload profile in the most common movements in basketball. *Sensors*, 21(10), 3441.  
<https://doi.org/10.3390/s21103441>
- Gryko K, Kopiczko A, Mikołajec K, Stasny P, & Musalek M. (2018). Anthropometric Variables and Somatotype of Young and Professional Male Basketball Players. *Sports*, 6(1), 9. <https://doi.org/10.3390/sports6010009>
- Guimarães, E., Baxter-Jones, A. D., Williams, A. M., Tavares, F., Janeira, M. A., & Maia, J. (2023). The effects of body size and training environment on the physical performance of adolescent basketball players: the INEX study. *Annals of Human Biology*, 50(1), 26–34.  
<https://doi.org/10.1080/03014460.2023.2169759>
- Guimarães, E., Baxter-Jones, A., Maia, J., Fonseca, P., Santos, A., Santos, E., ... & Janeira, M. A. (2019). The roles of growth, mat-

- uration, physical fitness, and technical skills on selection for a Portuguese under-14 years basketball team. *Sports*, 7(3), 61.  
<https://doi.org/10.3390/sports7030061>
- Gušić, M., Popović, S., Molnar, S., Mašanović, B., & Radaković, M. (2017). Sport-specific morphology profile: Differences in anthropometric characteristics among elite soccer and handball players. *Sport Mont*, 15(1), 3–6.
- Hernández, S., Ramírez-Campillo, R., Álvarez, C., Sánchez-Sánchez, J., Morán, J., Pereira, L. A., & Loturco, I. (2018). Effects of plyometric training on neuromuscular performance in youth basketball players: a pilot study on the influence of drill randomization. *Journal of sports science & medicine*, 17(3), 372.
- Ilić, I. (2015). Structures and differences of the cognitive abilities of top handball, volleyball, basketball and soccer players. *Facta Universitatis, Series: Physical Education and Sport*, 13(3), 403–410.
- Jeličić, M., Sekulić, D. & Marinović, M. (2002). Anthropometric characteristics of high level European junior basketball players. *Collegium Antropologicum*, 26, 69–76.
- Johnston, K., Wattie, N., Schorer, J., & Baker, J. (2018). Talent identification in sport: a systematic review. *Sports medicine*, 48, 97–109.
- Karalejić, M., Jakovljevic, S. & Macura, M. (2011). Anthropometric characteristics and technical skills of 12- and 14-year-old basketball players. *Journal of Sports Medicine and Physical Fitness*, 51(1), 103–110.
- Kinnunen, D.A., Colon, G., Espinoza, D., Overby, L.Y. & Lewis, D.K. (2001). Anthropometric correlates of basketball free-throw shootings by young girls. *Perceptual and Motor Skills*, 93(1), 105–108.
- Kryeziu, A., & Asllani, I. (2016). The structure of morphological characteristics and basic motor skills of the typical game of basketball junior. *European Journal of Health & Science in Sports*, 3(2), 7–10.
- Kryeziu, A., Begu, B., & Asllani, I. (2018). Structure of morphological characteristics of young basketball players. *Sport Sci.*, 11(1), 61–3.
- Latorre Román, P. A., Villar Macías, F. J., & García Pinillos, F. (2018). Effects of a contrast training programme on jumping, sprinting and agility performance of prepubertal basketball players. *Journal of Sports Sciences*, 36(7), 802–808.  
<https://doi.org/10.1080/02640414.2017.1340662>
- Malina, R. M., Bouchard, C., & Bar-Or, O. (2004). *Growth, maturation, and physical activity*. Human kinetics.
- Mancha-Triguero, D., García-Rubio, J., Calleja-González, J., & Ibáñez, S. J. (2019). Physical fitness in basketball players: A systematic review. *The Journal of Sports Medicine and Physical Fitness*, 59(9), 1513-1525.  
<https://doi.org/10.23736/S0022-4707.19.09180-1>
- Mašanović, B. (2019). Comparative Study of Morphological Characteristics and Body Composition between Different Team Players from Serbian Junior National League: Soccer, Handball, Basketball and Volleyball. *International Journal of Morphology*, 37(2), 612–619.
- Mašanović, B., Vukcevic, A., & Spaic, S. (2018). Sport-specific morphology profile: Differences in anthropometric characteristics between elite soccer and basketball players. *Journal of Anthropology of Sport and Physical Education*, 2(4), 43–47.
- Nagar, L., Meena, D. S., & Singh, B. (2012). Correlation of Selected Anthropometric and Physical Fitness Variables to Basketball Performance. *International Scientific Journal of Sport Sciences*, 1(2), 91–95.
- Ostojić, S. M., Mazić, S., & Dikić, N. (2006). Profiling in basketball: Physical and physiological characteristics of elite players. *The Journal of Strength & Conditioning Re-*

search, 20(4), 740-744.

Pasa, Y. C., Vukasevic, V., & Mašanović, B. (2019). Differences in anthropometric characteristics among junior basketball and volleyball players. *Journal of Anthropology of Sport and Physical Education*, 3(1), 35–39.

<https://doi.org/10.26773/jaspe.190107>

Pelemiš, V., Prskalo, I., Mandić, D., Momčilović, Z., & Momčilović, V. (2021). The relationship between morphological characteristics and the manifestation of explosive power of lower limbs in basketball players. *Acta Kinesiologica*, 15(2), 57–65.

Pop, C., Feflea, I., & Roșca, E. (2017). A theoretical and practical-methodical approach to primary selection in basketball. *Educație fizică și sport*, 45, 45-51.

Raiola, G. (2015). Basketball feint and non-verbal communication: empirical framework. *Journal of Human Sport and Exercise*, (10), S360–S38.

<http://dx.doi.org/10.14198/jhse.2015.10.Proc1.26>

Raiola, G., & D'isanto, T. (2016). Descriptive shot analysis in basketball. *Journal of Human Sport and Exercise*, 11(1), S259–S266.

Ramos, S. A., Massuça, L. M., Volossovitch, A., Ferreira, A. P., & Fragoso, I. (2021). Morphological and fitness attributes of young male Portuguese basketball players: Normative values according to chronological age and years from peak height velocity. *Frontiers in Sports and Active Living*, 3, 629453.

Ramos, S., Volossovitch, A., Ferreira, A. P., Barrigas, C., Fragoso, I., & Massuça, L. (2020). Differences in maturity, morphological, and fitness attributes between the better-and lower-ranked male and female U-14 Portuguese elite regional basketball teams. *The Journal of Strength & Conditioning Research*, 34(3), 878–887.

<https://doi.org/10.1519/JSC.0000000000002691>

Rašidagić, F., & Fazlagić, S. (2010). Relationship Between Morphological Characteris-

tics and Motorical Abilities by the Performance of Situational Motoric Elements of Basketball, Volleyball, and Handball in the Lessons of Sport and Physical Education. *Homo sporticus*, 12(1), 61.

Rodić, N., & Buišić, S. (2012). Latent structure of motor abilities of 10½-year-old girls. *Norma*, 17(1), 81–94.

Saha, S. (2015). Morphological characteristics and explosive power of athlete and non-athlete. *Arch Exerc Health Dis*, 5(1-2), 354–358.

Salihu, H., Ahmeti, V., Shaquiri, K., & Rexhepi, A. (2010). Morphological and motor dimensions of young basketball players. *Sport Science*, 3(1), 354–358.

Santos, E. J., & Janeira, M. A. (2008). Effects of complex training on explosive strength in adolescent male basketball players. *The Journal of Strength & Conditioning Research*, 22(3), 903–909.

Shalom, A., Gottlieb, R., Alcaraz, P. E., & Calleja-Gonzalez, J. (2023). A Unique Specific Jumping Test for Measuring Explosive Power in Basketball Players: Validity and Reliability. *Applied Sciences*, 13(13), 7567.

<https://doi.org/10.3390/app13137567>

Simić, M., Ilić, I., Durlević, S., Zadražnik, M., & Rakonjac, M. (2022). Structure and Influence of Morphological Abilities on Explosive Strength. In V. Stanković, L. Lilić, T. Stojanović, B. Cicović, & I. Ilić (Eds), *9th International Scientific Conference "Anthropological and Theoantrophological Aspects of Physical Activities"* (pp. 223–230). University of Priština - Kosovska Mitrovica, The Faculty of Sport and Physical Education.

Stanković, M., Lazić, A., Milenković, D., Nurkić, F., & Kocic, M. (2022). Motoric Abilities of Basketball Players According to Different Ranks of Competition and Playing Positions. *Sport Mont*, 20(2), 11–16.

<https://doi.org/10.26773/smj.220602>

- Stanković, V., Malacko, J., & Doder, D. (2009). The differences in morphological characteristics among top handball, basketball and football players. *Acta Kinesiologica*, 3(2), 90–94.
- Szabo, D. A., Neagu, N., Gliga, A. C., & Sopa, I. S. (2020). Analyzing and comparing anthropometric indices as contributory factors of influence in sports performance. *Educație fizică și sport*, 2.
- Štrumbelj, E., & Erčulj, F. (2014). Analysis of Experts' Quantitative Assessment of Adolescent Basketball Players and the Role of Anthropometric and Physiological Attributes. *Journal of Human Kinetics*, 42(1), 267–276.
- Topalli, G., Kica, H., Lika, R., & Koleci, A. (2020). Regression analysis results of morphological characteristics assesment and specific motor variables in initial measurement of 16 and 17 years old basketball players who play in the same level of competition. *Sport and health*, 7(13-14), 33–38.
- Torres-Unda, J., Zarrazquin, I., Gil, J., Ruiz, F., Irazusta, A., Kortajarena, M., ... & Irazusta, J. (2013). Anthropometric, physiological and maturational characteristics in selected elite and non-elite male adolescent basketball players. *Journal of Sports Sciences*, 31(2), 196–203.
- Torres-Unda, J., Zarrazquin, I., Gravina, L., Zubero, J., Seco, J., Gil, S. M., ... & Irazusta, J. (2016). Basketball performance is related to maturity and relative age in elite adolescent players. *The Journal of Strength & Conditioning Research*, 30(5), 1325–1332. <https://doi.org/10.1519/JSC.0000000000001224>
- Trunić, N., & Mladenović, M. (2014). Značaj selekcije u košarci. *Sport-Nauka i Praksa*, 4(2), 65–81.
- Vuković, S., Anđelić, M., & Čeremidžić, D. (2021). Povezanost motoričkih sposobnosti sa situaciono motoričkim sposobnostima mladih košarkaša. In *Deseta međunarodna konferencija "Sportfiske nauke i zdravlje" ZBORNIK RADOVA* (p. 44).
- World Medical Association (2013). World Medical Association Declaration of Helsinki: ethical principles for medical research involving human subjects. *JAMA*, 310(20), 2191–2194.
- Zatsiorsky, V. M., & Kraemer, W. J. (2009). *Nauka i praksa u treningu snage*. Beograd: Subcom.
- Ziv, G., & Lidor, R. (2010). Vertical jump in female and male basketball players - A review of observational and experimental studies. *Journal of science and medicine in sport*, 13(3), 332-339.

**Corresponding author:****Slavka Durlević**

Faculty of Sport and Physical Education

University of Novi Sad

Lovćenska 16, 21000

Novi Sad, Serbia

E-mail: durlevicslavka3@gmail.com