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Relationship Between Morphological Characteristics and Motor Abilities in Children

Povezanost morfoloških karakteristika i motoričkih sposobnosti kod dece

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Abstract: *Understanding the relationship between motor abilities and anthropometric characteristics in children of younger school age is of considerable importance for the physical education teaching process. Contemporary physical education programmes do not always adequately address the individual needs and abilities of every child. Therefore, the planning and implementation of physical activities should be based on age-specific characteristics, with careful consideration of exercise intensity and workload. The sample consisted of 122 pupils (66 boys and 56 girls), aged 7 years (±0.5 years), from the Elementary School "Janko Veselinović" in Šabac, Serbia. Standardised anthropometric instruments adapted for assessing the morphological characteristics of younger school-aged children were used. Motor abilities were evaluated using the test battery developed by Bala, Stojanović, and Stojanović (2007). The results indicated that children with optimal body height and body weight achieved better performance in motor ability tests. Conversely, excessive body weight negatively affected the execution of tasks requiring coordination, flexibility, strength, and speed. The findings suggest a significant relationship between morphological characteristics and motor abilities in younger school-aged children. It can be concluded that body composition and physical fitness directly influence the development of children's motor abilities.*

Keywords: *morphological characteristics, anthropometry, motor abilities, regression analysis, primary education*

Sažetak: *Razumevanje povezanosti motoričkih sposobnosti i antropometrijskih karakteristika dece mlađeg školskog uzrasta je od velike važnosti za nastavni proces fizičkog vaspitanja. Današnji programi fizičkog vaspitanja ne uspevaju uvek da odgovore na individualne potrebe i mogućnosti svakog deteta, stoga planiranje aktivnosti treba zasnovati na uzrasnim karakteristikama, sa pažljivim doziranjem intenziteta i opterećenja. Uzorak ispitanika obuhvatao je 122 učenika (66 dečaka i 56 devojčica) uzasta 7 godina (± 0,5) godina, iz Osnovne škole „Janko Veselinović" u Šapcu. Za realizaciju istraživanja korišćeni su standardizovani antropometrijski instrumenti prilagođeni za procenu morfoloških karakteristika dece mlađeg školskog uzrasta, dok se za procenu motoričkih sposobnosti primenjivala baterija testova Bala, Stojanović, & Stojanović, 2007. Analizom podataka ustanovljeno je da deca sa optimalnom telesnom težinom i telesnom visinom, pokazuju bolje rezultate u testovima motoričkih sposobnosti. S druge strane, prisustvo viška telesne težine negativno se odražava na izvođenje zadataka koji zahtevaju koordinaciju, gipkost, snagu i brzinu. Na osnovu sprovedenog istraživanja o povezanosti motoričkih sposobnosti i morfoloških karakteristika kod dece mlađeg školskog uzrasta, može se zaključiti da postoji neraskidiva veza. Dobijeni rezultati nas navode na zaključak da telesna građa i fizička spremnost dece imaju direktan uticaj na razvoj njihovih motoričkih sposobnosti.*

Ključne reči: *relacije, antropometrija, motorika, regresija, razredna nastava*

Introduction

Younger school age represents a period of rapid growth and development during which it is essential to take advantage of opportunities for fostering physical growth and acquiring new motor skills (Aivazidis et al., 2019). At this stage, children readily acquire experiences and skills, while missed developmental opportunities may result in long-term consequences (Altınkok, 2017). During

Uvod

Mlađi školski uzrast je period brzog razvoja, kada je ključno iskoristiti priliku za podsticanje rasta i usvajanje novih motoričkih znanja (Aivazidis, Venetsanou, Aggeloussis, Gourgoulis, & Kambas, 2019). U ovom uzrastu deca lako usvajaju iskustva i veštine, a propuštanje tih mogućnosti može ostaviti trajne posledice (Altınkok, 2017). Tokom ovog perioda, pažnja se usmerava

this period, particular attention is directed towards physical development and the enhancement of motor abilities. Understanding the relationship between motor abilities and morphological characteristics is therefore of crucial importance for guiding children through an appropriate pedagogical approach (Gallahue & Donnelly, 2007). Throughout the history of physical education research, the associations, correlations, and relationships between motor abilities and morphological characteristics have frequently been investigated. Findings from these studies provide valuable insights that contribute to improving the quality of physical education instruction, as well as the organisation and planning of teaching activities.

Motor abilities represent the level of development of the organism's motor structures and form the basis for the execution of a wide range of motor responses that can be objectively measured and described (Findak, 1999). They constitute the foundation of all physical activities (Dapp, Gashaj, & Roebers, 2021). Motor abilities are influenced by genetic factors, the environment in which a child grows up, family socioeconomic status, nutrition, and the quality of physical education instruction (Malina, 2010), as well as previous experiences and social interactions (Venetsanou & Kambas, 2017). According to Obradović (2019), motor abilities consist of several fundamental components, including strength, endurance, speed, coordination, flexibility, and balance. Each of these components plays a significant role in both daily activities and sports participation (Stodden, Langendorfer, & Roberton, 2009).

The term morphological characteristics is often used interchangeably with anthropometric characteristics (Hlaselo, 2020). Anthropometry refers to the measurement of the human body as a whole or of its individual segments, providing an objective assessment of an individual's physical development (Utkualp & Ercan, 2015). Anthropometric characteristics, such as body height, body weight, body mass index, chest circumference, and body fat percentage, represent physical dimensions that provide insight into a child's overall growth and developmental status (Silventoinen et al., 2023). Morphological characteristics encompass basic anthropometric dimensions of a latent nature (Bala, 1981), regardless of whether their development is influenced by external factors, such as physical activity, or occurs independently of them (Kurelić et al., 1975). Nevertheless, genetic factors exert a substantial influence, particularly on the skeletal system, where the heritability coefficient is estimated to be approximately 98%. Consequently, external factors such as nutrition and physical activity primarily affect adipose tissue and body weight, whereas their influence on other morphological

na fizički razvoj i unapređenje motoričkih sposobnosti, pri čemu je razumevanje povezanosti motoričkih sposobnosti i morfoloških karakteristika od ključne važnosti za pravilno usmeravanje dece kroz pedagoški pristup (Gallahue, & Donnelly, 2007). Povezanosti, korelacije i relacije, motoričkih sposobnosti i morfoloških karakteristika su kroz istoriju fizičkog vaspitanja bile veoma često predmet istraživanja. Poznati rezultati i dostignuća tih povezanosti nam omogućavaju realno sagledavanje i usmeravanje, kako sa takvim saznanjima doprineti kvalitetu nastave fizičkog vaspitanja, dobroj organizaciji i planiranju.

Motoričke sposobnosti predstavljaju nivo razvijenosti motoričkih struktura organizma i čine osnovu za realizaciju širokog spektra motoričkih reakcija, koje se mogu precizno kvantifikovati i opisati (Findak, 1999). One predstavljaju temelj za izvođenje svake fizičke aktivnosti (Dapp, Gashaj, & Roebers, 2021). Na motorčke sposobnosti utiču genetski faktori, okruženje u kojem dete raste, socioekonomski status porodice, ishrana i kvalitet realizacije nastave fizičkog vaspitanja (Malina, 2010), kao i prethodna iskustva i interakcije sa drugim osobama (Venetsanou, & Kambas, 2017). Prema definiciji Obradović (2019), motoričke sposobnosti čine nekoliko osnovnih komponenti, kao što su snaga, izdržljivost, brzina, koordinacija, fleksibilnost i ravnoteža. Svaka od ovih komponenti ima značajnu ulogu kako u svakodnevnim aktivnostima, tako i u sportskim angažmanima (Stodden, Langendorfer, & Roberton, 2009).

Pojam morfološke karakteristike često se koristi kao ekvivalent za antropometrijske karakteristike (Hlaselo, 2020). Antropometrija je metod merenja čovekovog tela u celini ili njegovih pojedinačnih delova, na osnovu kojih se može dobiti objektivna slika fizičke razvijenosti osobe (Utkualp, & Ercan, 2015). Antropometrijske karakteristike, kao što su telesna visina, telesna težina, indeks telesne mase, obim grudnog koša i procenat telesne masti, predstavljaju fizičke dimenzije koje pružaju uvid u opšte stanje rasta i razvoja deteta (Silventoinen, Maia, Li, Sund, Gouveia, Antunes, ... & Freitas, 2023). Morfološke karakteristike obuhvataju osnovne antropometrijske dimenzije koje su latentne prirode (Bala, 1981), bez obzira na to da li njihov razvoj zavisi od spoljašnjih faktora, poput fizičke aktivnosti, ili nastaje nezavisno od njih (Kurelić, Momirović, Stojanović, Šturm, Radojević, & Viskić-Štalec, 1975). Ipak, genetski faktori imaju značajan uticaj, naročito na skeletni sistem, gde je koeficijent urođenosti čak oko 98%, te stoga spoljašnji faktori, poput ishrane i fizičke aktivnosti, najviše utiču na masno tkivo i telesnu težinu, dok je njihov uticaj na ostale

dimensions is considerably smaller or nearly negligible (Malacko & Radosav, 1985).

Investigating the relationship between motor abilities and anthropometric characteristics in younger school-aged children is essential for understanding the fundamental principles of physical development (Kondrič, Mišigoj-Duraković, & Metikoš, 2017). Djordjević, Pantelić, Kostić, and Uzunović (2015) reported a significant correlation between body height and body weight on one hand and performance in motor tests on the other. Similar findings have been reported by international researchers. For example, Malina, Eisenmann, Cumming, Ribeiro, and Aroso (2004) suggested that morphological characteristics may act as limiting factors for motor performance, particularly in activities requiring high levels of explosive strength or endurance.

Understanding the relationship between motor abilities and anthropometric characteristics has numerous practical implications, especially in the field of physical education (Renshaw, Chow, Davids, & Hammond, 2010). Contemporary physical education programmes do not always adequately meet the individual needs and capabilities of every child (Eather, Morgan, & Lubans, 2013). Therefore, the planning of physical activities should be based on age-specific characteristics and accompanied by careful regulation of exercise intensity and workload (Hennessy et al., 2010). Proper planning and programming of physical activities are of particular importance, as they ensure healthy development and reduce the risk of adverse health outcomes (Afthentopoulou, Kaioglou, & Venetsanou, 2017). Furthermore, such an approach may contribute to the long-term preservation and promotion of health throughout the lifespan (Twisk, 2001). A high-quality physical education programme requires thorough planning and implementation of activities, with an appropriate training load being a key factor in achieving positive outcomes (Altınkök, 2015).

The aim of this study was to determine the relationship between motor abilities and morphological characteristics in children aged 7 to 8 years. Specifically, the study sought to identify the extent to which body dimensions, particularly body height and body weight, influence performance in key motor abilities, with special emphasis on improving assessment procedures and teaching practices within the school environment.

Materials and Methods

Participants

The study was conducted on a sample of 122 younger school-aged children, including 66 boys and 56 girls, aged 7–8 years. All participants were pupils of the

faktore znatno manji ili gotovo zanemarljiv (Malacko, & Radosav, 1985).

Istraživanje povezanosti između motoričkih sposobnosti i antropometrijskih karakteristika kod dece mlađeg školskog uzrasta ključno je za razumevanje osnovnih zakonitosti fizičkog razvoja (Kondrič, Mišigoj-Duraković, & Metikoš, 2017). Djordjevic, Pantelić, Kostić, & Uzunović, (2015) ističu da postoji značajna korelacija između telesne visine i težine s jedne strane, i rezultata u motoričkim testovima s druge strane. Slični nalazi potvrđeni su i u istraživanjima stranih autora, poput (Malina, Eisenmann, Cumming, Ribeiro, & Aroso, 2004) koji ukazuju da morfološke karakteristike mogu biti limitirajući faktor za motoričke sposobnosti, posebno u aktivnostima koje zahtevaju visoki nivo eksplozivne snage ili izdržljivosti.

Razumevanje povezanosti između motoričkih sposobnosti i antropometrijskih karakteristika ima višestruke praktične implikacije, posebno u nastavi fizičkog vaspitanja (Renshaw, Chow, Davids, & Hammond, 2010). Današnji programi fizičkog vaspitanja ne uspevaju uvek da odgovore na individualne potrebe i mogućnosti svakog deteta (Eather, Morgan, & Lubans, 2013), te stoga planiranje aktivnosti treba zasnovati na uzrasnim karakteristikama, sa pažljivim doziranjem intenziteta i opterećenja (Hennessy, Hughes, Goldberg, Hyatt, & Economos, 2010). Planiranje i programiranje aktivnosti, treba biti u skladu sa uzrasnim karakteristikama i od posebnog je značaja, jer se time osigurava pravilan razvoj i smanjuje rizik od negativnih posledica po zdravlje (Afthentopoulou, Kaioglou, & Venetsanou, 2017), a istovremeno time se može dugoročno doprineti očuvanju i unapređenjuzdravlja tokom celog života (Twisk, 2001). Kvalitetan program fizičkog vaspitanja podrazumeva detaljno osmišljavanje i realizaciju aktivnosti, pri čemu je pravilna doza opterećenja ključna za ostvarivanje pozitivnih rezultata (Altınkök, 2015).

Cilj ovog istraživanja je utvrđivanje povezanosti između motoričkih sposobnosti i morfoloških karakteristika kod dece uzrasta od 7 do 8 godina. Ovo uključuje identifikovanje načina na koji telesne dimenzije (visina i težina) utiču na rezultate u ključnim motoričkim sposobnostimasa posebnim naglaskom na mogućnosti unapređenja metoda za procenu i podučavanje u školskom okruženju.

Materijal i metod

Učesnici

Istraživanje je sprovedeno na uzorku od 122 učenika mlađeg školskog uzrasta, od kojih je 66 dečaka i

Elementary School "Janko Veselinović" in Šabac, Serbia. The balanced representation of both sexes within the sample enabled more reliable analyses and comparisons between boys and girls, as well as a better understanding of individual differences in motor abilities and morphological characteristics during this developmental period.

Particular attention was paid to participants' health status during the sampling procedure. Only children who regularly attended physical education classes and who had no chronic diseases, physical injuries, or functional limitations that could affect motor performance were included in the study. Participants' health status was verified through school medical records.

Anthropometric Assessment

Standardised anthropometric instruments adapted for the assessment of morphological characteristics in younger school-aged children were used. All measurements were conducted according to established anthropometric standards and recommendations.

Body height was measured using a portable stadiometer (SECA 213, Germany), with an accuracy of 0.1 cm. Participants stood barefoot in an upright position with their heels together and arms relaxed alongside the body. The head was positioned according to the Frankfurt plane, ensuring that the lower margin of the orbit and the upper margin of the external auditory meatus were aligned horizontally. The movable headpiece was lowered to the highest point of the head, and body height was recorded in centimetres.

Body weight was measured using a digital scale (Tanita BC-730, Japan), with an accuracy of 0.1 kg. Measurements were performed in the morning before any physical activity in order to minimise daily fluctuations in body weight. Participants were barefoot and dressed in light sportswear. Each child stood in the centre of the scale with body weight evenly distributed on both feet. The value was recorded only after the reading had stabilised.

All anthropometric measurements were performed under controlled conditions. Participants were familiarised with the measurement procedures beforehand to reduce any potential discomfort or anxiety. Privacy and confidentiality were ensured throughout the assessment process.

56 devojčica, starosti 7 i 8 godina. Ispitanici su učenici Osnovne škole „Janko Veselinović" u Šapcu. Polna i uzrasna ravnoteža u uzorku omogućava relevantnije analize i poređenja među polovima, kao i uvid u individualne razlike u motoričkim sposobnostima i morfološkim karakteristikama u ovom razvojnom periodu.

Prilikom odabira uzorka, posebna pažnja je posvećena zdravstvenom statusu učenika. U istraživanju su učestvovali ispitanici koji su redovno pohađali nastavu fizičkog vaspitanja, zdravi i koji nemaju hronične bolesti, fizičke povrede ili ograničenja koja bi mogla uticati na njihove motoričke sposobnosti. Zdravstveno stanje ispitanika provereno je na osnovu uvida u školske zdravstvene evidencije.

Antropometrijska procjena

Za realizaciju istraživanja korišćeni su standardizovani antropometrijski instrumenti prilagođeni za procenu morfoloških karakteristika dece mlađeg školskog uzrasta. Svi antropometriski instrumenti su odabrani u skladu sa normama i preporukama za antropometrijska ispitivanja.

Za merenje visine tela ispitanika korišćen je prenosivi visinomer SECA 213, poznat po svojoj preciznosti i lakoći upotrebe. Ovaj visinomer omogućava merenje sa preciznošću od 10 mm, dok njegova konstrukcija podržava merenje visine do 200 cm, što ga čini univerzalnim instrumentom za različite uzraste. Za merenje težine tela ispitanika korišćena je savremena digitalna vaga, model Tanita BC-730, koja pruža visoku tačnost i pouzdanost. Vaga meri težinu sa preciznošću od 100 g, a njen kapacitet dostiže do 150 kg, što je čini pogodnom za rad sa decom svih uzrasta.

Morfološke karakteristike ispitanika, konkretno telesna visina i telesna težina, merene su u kontrolisanim uslovima u svrhu prikupljanja osnovnih podataka o telesnoj građi ispitanika. Ispitanici su prethodno upoznati sa postupcima merenja, a poseban akcenat stavljen je na smirivanje eventualne nelagode ili uzbuđenja. Svako merenje zabeleženo je pojedinačno, uz obezbeđenje diskrecije i poštovanje privatnosti deteta.

Telesna visina ispitanika merena je prenosivim visinomerom. Ispitanici su bili bosi i stajali su uspravno, sa petama spojenim i rukama uz telo. Glava je postavljena tako da donji rub očne duplje i gornji rub ušne školjke budu u horizontalnoj ravni (Frankfurtova linija). Pokretna letvica visinomera spuštana je do najviše tačke glave, uz blagi pritisak kako bi se eliminisao efekat frizure. Rezultat merenja evidentiran je u centimetrima, sa preciznošću od 0,1 cm.

Telesna težina ispitanika merena je digitalnom vagom. Merenje je obavljeno ujutru pre fizičkih aktivnosti, kako bi se eliminisale dnevne varijacije u težini.Ispitanici su bili bosi i nosili laganu sportsku odeću.Svaki ispitanik je stajao

Assessment of Motor Abilities

Motor abilities were assessed using the test battery developed by Bala, Stojanović, and Stojanović (2007), which is widely applied in the evaluation of motor performance among younger school-aged children.

The following tests were administered:

1. Backward Polygon Test – assessment of body coordination and movement pattern reorganisation.
2. Three-Ball Slalom Test – assessment of whole-body coordination.
3. Hand Tapping Test – assessment of movement frequency.
4. Seated Straddle Forward Bend Test – assessment of flexibility.
5. Standing Long Jump Test – assessment of lower-limb explosive strength.
6. 20-Metre Sprint from a Standing Start – assessment of running speed.
7. 60-Second Sit-Up Test – assessment of repetitive trunk strength.
8. Bent-Arm Hang Test – assessment of static strength of the upper limbs and shoulder girdle.

Research Procedure

Prior to data collection, parents or legal guardians received detailed information regarding the purpose, procedures, and duration of the study and provided written informed consent for their children's participation.

The research was conducted in September 2025 during regular school activities. Testing sessions were organised during morning hours when participants were expected to be physically and mentally prepared for performance assessments. The study was carried out in the school gymnasium under standardised environmental conditions. The facility was spacious, adequately ventilated, and maintained at an average temperature of approximately 21°C.

Participants were introduced to the purpose and procedures of the study using age-appropriate language. Testing was conducted individually to ensure maximum attention to each participant. Anthropometric measurements were completed prior to motor testing in order to eliminate the potential influence of fatigue on body measurements.

Before motor testing, all participants completed a standardised 10-minute warm-up consisting of dynamic exercises designed to reduce the risk of injury and prepare the musculoskeletal system for physical activity. Throughout the entire testing process, special attention was given to participant safety and well-being. Children were allowed to take breaks whenever necessary and were informed of their right to withdraw from the study at any time without consequences.

na sredini vage, sa jednakim osloncem na obe noge, dok se očitavanje vrednosti vršilo tek nakon stabilizacije rezultata na ekranu.Rezultat merenja zabeležen je u kilogramima, sa preciznošću od 0,1 kg.

Procjena motoričkih sposobnosti

Za procenu motoričkih sposobnosti kod dece mlađeg školskog uzrasta primenjivala se sledeća baterija testova (Bala, Stojanović, & Stojanović, 2007):

1. Test Poligon natraške - koordinacija tela i reorganizacija stereotipa kretanja.
2. Test Slalom sa tri lopte - koordinacija celog tela.
3. Test Taping rukom - frekvencija pokreta.
4. Test Pretklon raznožno u sedu - gipkost
5. Test Skok udalj iz mesta - ekspolzivna snaga nogu.
6. Test Trčanje 20 m iz visokog starta - procjena brzine trčanja.
7. Test Podizanja trupa za 60 sekundi - repetitivna snaga trupa.
8. Test Izdržaj u zgibu - Statička snaga ruku i ramenog pojasa.

Istraživanje

Pre početka istraživanja, roditelji/staratelji dece su bili detaljno informisani o ciljevima, planu i trajanju istraživanja i dali pismenu saglasnost za učešće svoje dece. Nakon dobijanja saglasnosti, sprovedena su antropometrijska merenja i procena motoričkih sposobnosti.

Istraživanje je sprovedeno početkom septembra 2025. godine, u skladu sa redovnim školskim aktivnostima, kako bi ispitanici bili uobičajeno fizički i mentalno pripremljeni za testiranje. Aktivnosti su se odvijale u jutarnjim časovima, kada su učenici najspremniji za fizičke izazove, čime je minimiziran uticaj umora ili drugih nepovoljnih faktora. Istraživanje je realizovano u fiskulturnoj sali Osnovne škole "Janko Veselinović". Sala je bila prostrana, provetrena i održavana na optimalnoj temperaturi od oko 21 °C, kako bi se ispitanicima obezbedili što prijatniji uslovi za testiranje. spitanici su detaljno upoznati sa ciljem i procedurama istraživanja kroz njima prilagođen jezik, kako bi se obezbedilo njihovo razumevanje i saradnja. Testiranja su sprovedena individualno što je omogućilo fokusiranu pažnju na svakog učesnika. Sekvenca merenja bila je strukturisana na način da se prvo obave antropometrijska merenja, a zatim motorički testovi, kako bi se izbegao uticaj fizičkog zamora na rezultate. Sve aktivnosti bile su prethodno pripremljene zagrevanjem od 10 minuta, koje je uključivalo dinamičke vežbe za smanjenje rizika od povreda. Tokom celokupnog procesa poseban akcenat je stavljen na dobrobit

Statistical Analysis

Data processing involved several stages. Descriptive statistical parameters were calculated for all variables. The normality of data distribution was examined prior to inferential analyses. Multiple regression analysis was subsequently performed to determine the extent to which morphological characteristics (body height and body weight) predicted performance in motor ability tests.

Results

The analysis of the results obtained for boys, presented in Table 1, indicates satisfactory discriminative power of the measured variables, reflected in the consistent relationship between the standard deviation and the arithmetic mean. An exception was observed for the variables assessing static strength of the upper limbs and shoulder girdle (*Bent-Arm Hang Test*) and trunk strength (*60-Second Sit-Up Test*), which did not demonstrate the expected level of discriminative power. Specifically, for these variables, the distribution of results did not meet the criterion according to which three standard deviations can be accommodated within the range of the arithmetic mean.

Table 1. *Descriptive Statistics of Motor Abilities and Anthropometric Characteristics in Boys and Girls*

Variables / Varijable	*Sex* / Pol	*M* / AS	*SD*	*KS coefficeent*	*Asymp. Sig.*
Body Height (cm) / Telesna visina (cm)	*Boys* / Dečaci	125.54	3.24	1.04	0.22
	Girls / Devojčice	126.48	4.25	0.88	0.41
Body Weight (kg) / Telesna težina (kg)	*Boys* / Dečaci	24.83	4.50	1.23	0.09
	Girls / Devojčice	25.16	5.47	0.90	0.38
Backward polygon (s) / Poligon natraške (s)	*Boys* / Dečaci	33.22	6.19	0.97	0.29
	Girls / Devojčice	36.12	6.49	0.70	0.70
Three Ball Slalom (s) / Slalom sa tri lopte (s)	*Boys* / Dečaci	86.94	8.18	0.68	0.73
	Girls / Devojčice	91.48	10.85	0.79	0.55
Hand Tapping (n) / Taping rukom (n)	*Boys* / Dečaci	18.37	4.08	0.87	0.42
	Girls / Devojčice	19.69	3.23	0.71	0.52
Seated Straddle Forward Bend (cm) / Sed u pretklonu raznožno (cm)	*Boys* / Dečaci	64.28	11.93	0.79	0.55
	Girls / Devojčice	76.94	10.54	0.99	0.27
Standing Long Jump (cm) / Skok u dalj iz mesta (cm)	*Boys* / Dečaci	99	16.62	0.87	0.42
	Girls / Devojčice	101.05	14.90	0.78	0.56
20m Sprint (s) / Trčanje 20m (s)	*Boys* / Dečaci	8.27	0.83	0.61	0.84
	Girls / Devojčice	8.27	1.01	1.01	0.25
Bent Arm Hang (s) / Izdržaj u zgibu (s)	*Boys* / Dečaci	8.62	2.99	0.87	0.42
	Girls / Devojčice	6.56	1.24	0.95	0.31
60 Second Sit Up Test (n) / Podizanje trupa (n)	*Boys* / Dečaci	8.82	3.26	1.14	0.14
	Girls / Devojčice	14.94	3.48	0.96	0.30

Note. M = arithmetic mean; SD = standard deviation; KS = Kolmogorov–Smirnov coefficient; p = significance level of the Kolmogorov–Smirnov test.

In girls, the results indicate a high level of discriminative power across all analysed variables. This is evi-

učesnika, sa obezbeđenim pravom na pauzu i mogućnošću odustajanja u bilo kom trenutku bez posledica.

Statistička analiza

Metode obrade podataka obuhvatale su višeetapni proces, koji je uključivao: Izračunavanje osnovnih deskriptivnih pokazatelja; Testiranje normalnosti distribucije; Sprovođenje regresione analize radi ispitivanja uticaja morfoloških karakteristika na motoričke sposobnosti.

Rezultati

Analizom rezultata kod dečaka prikazanih u Tabeli 1. može se zaključiti da podaci poseduju zadovoljavajuću diskriminativnost, što se ogleda u konzistentnim vrednostima standardne devijacije u odnosu na aritmetičku sredinu. Izuzetak predstavljaju varijable koje se odnose na statičke snage ruku i ramenog pojasa, *Izdržaj uzgibu* i procenu snage trupa, *Podizanje trupa*, gde je uočeno da pomenute varijable ne zadovoljavaju očekivanu diskriminativnost. Naime, kod njih nije moguće tri vrednosti standardne devijacije svrstati u jedinu vrednost aritmetičke sredine.

Tabela 1. *Deskriptivni pokazatelji motoričkih sposobnosti i antropometrijskih karakteristika kod dečaka i devojčica*

Legenda: AS – aritmetička sredina vrednosti; SD – standardna devijacija; Kolmogorov-Smirnov Z (vrednost KS koeficijenta, predstavlja test statistiku koja meri veličinu odstupanja distribucije od normalne) – Asymp. Sig. (2-tailed) (vrednost značajnosti dvosmernog testiranja za Z, ova vrednost pokazuje nivo značajnosti testa).

denced by the consistent relationship between the standard deviation and the arithmetic mean, with the standard deviation not exceeding one-third of the arithmetic mean for any of the measured variables.

Analysis of the distribution asymmetry coefficients in boys revealed that most variables exhibited a relatively symmetrical distribution of results, with a few exceptions. Specifically, the variables Body Weight and 60-Second Sit-Up Test demonstrated a noticeable positive skewness, indicating a tendency towards lower scores with a smaller number of higher values.

Similarly, the results obtained for girls showed that the majority of variables were characterised by a symmetrical distribution of scores, suggesting an adequate representation of the measured characteristics within the sample.

Based on the presented descriptive statistical indicators, it can be concluded that the selected set of variables meets the assumptions required for further statistical analyses and may therefore be used in subsequent inferential procedures without methodological limitations.

Kod devojčica se može zaključiti da podaci poseduju visoku diskriminativnost, što se ogleda u konzistentnim vrednostima standardne devijacije u odnosu na aritmetičku sredinu. Konkretno, kod svih analiziranih varijabli standardna devijacija ne premašuje trećinu aritmetičke sredine.

Analizom koeficijenta asimetrije distribucije kod dečaka je uočeno da većina varijabli pokazuje simetričnu raspodelu rezultata, uz nekoliko izuzetaka. Dakle, varijable *Telesna težina* i *Podizanje trupa* pokazale su značajnu pozitivnu asimetriju. Kod devojčica je uočeno da većina varijabli pokazuje simetričnu raspodelu rezultata.

Na osnovu iznetih rezultata za osnovne dekriptivne pokazatelje zaključuje se da se izabrani set varijabli može nesmetano koristiti u daljim statističkim analizama.

Table 2. *Regression Analysis of the Backward Polygon Test in Boys and Girls*

Tabela 2. *Regresiona analiza poligona natraške za dečake i devojčice*

	***Boys and Girls* / Dečaci i devojčice**			
***Variables* / Varijable**				
	r	***p***	***Beta***	***pbeta***
Body Height / Telesna visina	0.175	0.120	-0.165	0.120
Body Weight / Telesna težina	0.639	0.000	0.717	0.000
R	0.656;			
R^2	0.430			
Adjusted R^2 / Prilagođen R^2	0.413			
P	0,000			

Note. r = Pearson correlation coefficient; p = significance level of Pearson's correlation coefficient; Beta = standardized regression coefficient; pBeta = significance level of the regression coefficient; R = multiple correlation coefficient; R^2 = coefficient of determination; Adjusted R^2 = coefficient of determination adjusted for sample size; p = significance level of the multiple correlation coefficient.

Legenda: r – Pirsonov koeficijent korelacije; p – nivo statističke značajnosti za r; Beta –regresioni koeficijent; pbeta – nivo značajnosti regresionog koeficijenta; R – koeficijent multiple korelacije; R^2–koeficijent determinacije; Prilagođen R^2– koeficijent determinacije koji je prilagođen za male uzorke; P –značajnost koeficijenta multiple korelacije.

The results of the regression analysis presented in Table 2 show the relationship between the predictor variables (Body Height and Body Weight) and the criterion variable (Backward Polygon Test).

Analysis of Pearson's correlation coefficients revealed that Body Weight was strongly and positively associated with performance in the Backward Polygon Test ($r = 0.639$, $p < .001$), whereas Body Height showed a weak and statistically non-significant correlation ($r = 0.175$, $p = .120$). These findings suggest that body weight is more closely related to

U tabeli 2. prikazani su rezultati regresione analize, gde je analizirana povezanost između prediktorskih varijabli (*Telesna visina* i *Telesna težina*) i kriterijumske varijable (*Poligon natraške*). Analizom Pirsonovog koeficijenta korelacije (r) primećuje se da *Telesna težina* ima jaku, pozitivnu, statistički značajnu povezanost sa uspešnošću testa *Poligon natraške*($r = 0.639$, $p < 0.001$), dok *Telesna visina* ima slabu, pozitivnu, statistički neznačajnu povezanost ($r = 0.175$, $p = 0.120$). Ovakav rezultatukazuje da ispitanici sa optimalnom telesnom te-

performance in tasks requiring coordination and movement reorganisation than body height.

The regression coefficients further confirmed these relationships. Body Weight demonstrated a statistically significant positive predictive effect on the test result (Beta = 0.717, p < .001), while Body Height showed a negative but statistically non-significant effect (Beta = –0.165, p = .120). Consequently, body height cannot be considered a reliable predictor of performance in the Backward Polygon Test.

The overall relationship between the predictor variables and the criterion variable, expressed by the multiple correlation coefficient (R = 0.656), indicates a relatively strong association. Furthermore, the coefficient of determination (R^2 = 0.430) showed that Body Height and Body Weight together explained 43.0% of the variance in Backward Polygon Test performance. The adjusted coefficient of determination (Adjusted R^2 = 0.413) additionally confirmed the stability and adequacy of the regression model.

Based on these findings, it can be concluded that body weight plays a significant role in performance on the Backward Polygon Test, whereas body height does not represent a significant predictor in the examined sample of younger school-aged children.

Table 3. *Regression Analysis of the Three-Ball Slalom Test in Boys and Girls*

Tabela 3. *Regresiona analiza slaloma sa tri lopte za dečake i devojčice*

	***Boys and Girls* / Dečaci i devojčice**			
***Variables* / Varijable**				
	r	***p***	***Beta***	***pbeta***
Body Height / Telesna visina	0.048	0.011	-0.284	0.011
Body Weight / Telesna težina	0.566	0.000	0.701	0.000
R	0.619			
R^2	0.383			
Adjusted R^2 / Prilagođen R^2	0.365			
P	0,000			

Note. r = Pearson correlation coefficient; p = significance level of Pearson's correlation coefficient; Beta = standardized regression coefficient; pBeta = significance level of the regression coefficient; R = multiple correlation coefficient; R^2 = coefficient of determination; Adjusted R^2 = coefficient of determination adjusted for sample size; p = significance level of the multiple correlation coefficient.

The results of the regression analysis presented in Table 3 show the relationship between the predictor variables (Body Height and Body Weight) and the criterion variable (Three-Ball Slalom Test).

Analysis of Pearson's correlation coefficients indicates that Body Weight was strongly and positively associated with performance in the Three-Ball Slalom Test (r = 0.566, p < .001), whereas Body Height showed a very weak positive association with the criterion variable (r = 0.048, p = .011). These findings suggest that body weight

žinom ostvaruju bolje rezultate na testu. Daljom analizom regresionog koeficijenata (Beta) potvrđuje se da *Telesna težina* pozitivno utiče na rezultat u testu (Beta = 0.717, pbeta < 0.001), dok *Telesna visina*pokazuje negativan, statistički neznačajan uticaj (Beta = -0.165, pbeta = 0.120), štopotvrđuje da visina ispitanika ne može biti pouzdan prediktor uspešnosti na ovom testu. Ukupna povezanost prediktora (*Telesna visina* i *Telesna težina*) sa rezultatom na testu izražena kroz koeficijent multiple korelacije (R = 0.656) ukazuje na jaku povezanost prediktorskih varijabli sa kriterijumskom varijablom. Koeficijent determinacije (R^2 = 0.430) pokazuje da *Telesna visina* i *Telesna težina* zajedno objašnjavaju 43 % varijacija u rezultatima testa *Poligon natraške*, dok prilagođeni koeficijent determinacije (prilagođeni R^2 = 0.413) potvrđuje da je modelpouzdan.

Na osnovurezultata može se zaključiti daoptimalna-*Telesna težina* igra ključnu ulogu u izvođenju testa *Poligon natraške*, dok *Telesna visina* nije značajan faktor.

U tabeli 3. prikazani su rezultati regresione analize, gde je analizirana povezanost između prediktorskih varijabli (*Telesna visina* i *Telesna težina*) i kriterijumske varijable (*Slalom sa tri lopte*). Analizom Pirsonovog koeficijenta korelacije (r) primećuje se da *Telesna težina* ima jaku, pozitivnu, statistički značajnu povezanost sa uspešnošću testa *Slalom sa tri lopte* (r = 0.566, p < 0.001), dok *Telesna visina* ima slabu, pozitivnu, statistički neznačajnu povezanost(r = 0.048, p = 0.011). Ovakav rezultat ukazuje daispitanici sa optimalnom telesnom

is more closely related to performance in coordination-based motor tasks than body height.

The regression coefficients further confirmed these relationships. Body Weight was identified as a statistically significant positive predictor of performance in the Three-Ball Slalom Test (Beta = 0.701, p < .001), while Body Height demonstrated a statistically significant negative predictive effect (Beta = –0.284, p = .011). This indicates that higher body height is associated with slightly poorer performance in this motor task compared to lower stature, although its contribution is relatively small.

The overall model showed a relatively strong relationship between predictor and criterion variables, as indicated by the multiple correlation coefficient (R = 0.619). The coefficient of determination (R^2 = 0.383) revealed that Body Height and Body Weight together explained 38.3% of the variance in Three-Ball Slalom Test performance. The adjusted coefficient of determination (Adjusted R^2 = 0.365) further confirmed the stability and adequacy of the regression model.

Based on these results, it can be concluded that body weight plays a dominant role in explaining performance in the Three-Ball Slalom Test, while body height represents a less influential factor in the examined sample of younger school-aged children.

težinom ostvaruju bolje rezultate na testu. Daljom analizom regresionog koeficijenata (Beta) potvrđuje se da *Telesna težina*pozitivno utiče na rezultat u testu (Beta = 0.701, pbeta< 0.001), dok *Telesna visina*pokazuje negativan, statistički neznačajan uticaj (Beta = -0.284, pbeta = 0.011), što potvrđujeda viši ispitanici nešto slabije prolaze test u poređenju sa nižim ispitanicima. Ukupna povezanost prediktora (*Telesna visina* i *Telesna težina*) sa rezultatom na testu izražena kroz koeficijent multiple korelacije (R = 0.619) ukazuje na jaku povezanost prediktorskih varijabli sa kriterijumskom varijablom. Koeficijent determinacije (R^2 = 0.383) pokazuje da *Telesna visina* i *Telesna težina* zajedno objašnjavaju 38.3% varijacija u rezultatima testa *Slalom sa tri lopte*, dokprilagođeni koeficijent determinacije(prilagođeni R^2 = 0.365) potvrđuje da je model pouzdan.

Na osnovu rezultata može se zaključiti da optimalna *Telesna težina* ima dominantan pozitivan uticaj na izvođenje testa *Slalom sa tri lopte*, dok *Telesna visina*nije značajan faktor.

Table 4. *Regression Analysis of the Hand Tapping Test in Boys and Girls*

Tabela 4. *Regresiona analiza tapinga rukom za dečake i devojčice*

	***Boys and Girls* / Dečaci i devojčice**			
***Variables* / Varijable**				
	r	***p***	***Beta***	***pbeta***
Body Height / Telesna visina	0.201	0.000	0.465	0.000
Body Weight / Telesna težina	-0.336	0.000	-0.557	0.000
R	0.530			
R^2	0.281			
Adjusted R^2 / Prilagođen R^2	0.259			
P	0,000			

Note. r = Pearson correlation coefficient; p = significance level of Pearson's correlation coefficient; Beta = standardized regression coefficient; pBeta = significance level of the regression coefficient; R = multiple correlation coefficient; R^2 = coefficient of determination; Adjusted R^2 = coefficient of determination adjusted for sample size; p = significance level of the multiple correlation coefficient.

The results of the regression analysis presented in Table 4 show the relationship between the predictor variables (Body Height and Body Weight) and performance in the Hand Tapping Test.

Analysis of Pearson's correlation coefficients indicates that Body Height had a moderate, positive, and statistically significant association with performance in the Hand Tapping Test (r = 0.201, p < .001), whereas

U tabeli 4. prikazani su rezultati regresione analize, gde je analizirana povezanost između prediktorskih varijabli (*Telesna visina* i *Telesna težina*) i kriterijumske varijable (*Taping rukom*).

Analizom Pirsonovog koeficijenta korelacije (r) primećuje se da varijabla *Telesna visina*ima umerenu, pozitivnu, statistički značajnu povezanost sa uspešnošću testa *Taping rukom* (r = 0.201, p < 0.001), dok *Telesna težina*

Body Weight showed a moderate, negative, and statistically significant association with the criterion variable (r = -0.336, p < .001). These results suggest that taller and lighter participants tend to achieve better performance in movement frequency tasks.

The regression analysis further confirmed these findings. Body Height was identified as a statistically significant positive predictor of performance in the Hand Tapping Test (Beta = 0.465, p < .001), while Body Weight demonstrated a statistically significant negative predictive effect (Beta = -0.557, p < .001). This indicates that higher body height contributes to better performance, whereas increased body mass negatively affects the ability to perform rapid and repetitive hand movements.

The overall model indicated a moderate relationship between predictor and criterion variables, as shown by the multiple correlation coefficient (R = 0.530). The coefficient of determination (R^2 = 0.281) revealed that Body Height and Body Weight together explained 28.1% of the variance in Hand Tapping Test performance, while the adjusted coefficient of determination (Adjusted R^2 = 0.259) confirmed the stability of the regression model.

Based on these results, it can be concluded that body weight represents a limiting factor for the execution of fast and precise hand movements, whereas body height appears to be associated with slightly better performance in the Hand Tapping Test among younger school-aged children.

Table 5. *Regression Analysis of the Seated Straddle Forward Bend Test in Boys and Girls*

	***Boys and Girls /* Dečaci i devojčice**			
***Variables /* Varijable**				
	r	***p***	***Beta***	***pbeta***
Body Height / Telesna visina	0.319	0.001	0.448	0.001
Body Weight / Telesna težina	-0.060	0.036	-0.272	0.036
R	0.399			
R^2	0.159			
Adjusted R^2 */* Prilagođen R^2	0.134			
P	0,003			

The results of the regression analysis presented in Table 5 show the relationship between the predictor variables (Body Height and Body Weight) and performance in the Seated Straddle Forward Bend Test.

Analysis of Pearson's correlation coefficients indicates that Body Height had a moderate, positive, and statistically significant association with performance in the Seated Straddle Forward Bend Test (r = 0.319, p = .001), whereas Body Weight showed a weak, negative, and sta-

ima umereno, negativnu, statistički značajnu povezanost (r = -0.336, p < 0.001).Ovakav rezultat ukazuje da lakši i viši ispitanici ostvaruju bolje rezultate na testu. Daljom analizom regresionog koeficijenata (Beta) potvrđuje se da *Telesna visina* pozitivno utiče na rezultat u testu (Beta = 0.465, pbeta< 0.001), dok *Telesna težina* pokazuje negativan,statistički značajan uticaj (Beta = -0.557, pbeta< 0.001), što potvrđujeda viši ispitanici imaju prednost u brzini izvođenja testa. Ukupna povezanost prediktora (*Telesna visina* i *Telesna težina*) sa rezultatom na testu izražena kroz koeficijent multiple korelacije (R = 0.530) ukazuje na jaku povezanost prediktorskih varijabli sa kriterijumskom varijablom. Koeficijent determinacije (R^2 = 0.281) pokazuje da *Telesna visina* i *Telesna težina* zajedno objašnjavaju 28.1% varijacija u rezultatima testa-*Taping rukom*, dok prilagođeni koeficijent determinacije (prilagođeni R^2 = 0.259) potvrđuje da je model pouzdan.

Na osnovurezultata može se zaključiti *Telesnatežina* ima otežane uslove za brze i precizne pokrete rukom, dok *Telesna visina* pokazuju nešto bolje rezultate na testu *Taping rukom*.

Tabela 5. *Regresiona analiza pretklona raznožno u seduza dečake i devojčice*

U tabeli 5. prikazani su rezultati regresione analize, gde je analizirana povezanost između prediktorskih varijabli (*Telesna visina* i *Telesna težina*) i kriterijumske varijable (*Pretklon raznožno u sedu*).Analizom Pirsonovog koeficijenta korelacije (r) primećuje se da *Telesna visina*ima umerenu, pozitivnu, statistički značajnu povezanost sa uspešnošću testa*Pretklon raznožno u sedu*(r = 0.319, p = 0.001), dok *Telesna težina*ima slabu, negativnu, statistički neznačajnupovezanost(r = -0.060, p = 0.036).

tistically significant association with the criterion variable (r = -0.060, p = .036). These results suggest that taller participants achieve better results in this flexibility test.

The regression analysis further confirmed these findings. Body Height demonstrated a statistically significant positive effect on test performance (Beta = 0.448, p = .001), while Body Weight showed a negative, statistically non-significant effect (Beta = -0.272, p = .036), indicating that higher body mass may limit flexibility in this test.

The overall relationship between predictors and the criterion variable, expressed through the multiple correlation coefficient (R = 0.399), indicates a relatively weak association. The coefficient of determination ($R^2 = 0.159$) shows that Body Height and Body Weight together explain 15.9% of the variance in Seated Straddle Forward Bend Test performance, while the adjusted coefficient of determination (Adjusted $R^2 = 0.134$) confirms the modest explanatory power of the model.

Based on the results, it can be concluded that body height has an advantage in the Seated Straddle Forward Bend Test, whereas higher body weight may represent a limiting factor for flexibility performance.

Table 6. *Regression Analysis of the Standing Long Jump Test in Boys and Girls*

Tabela 6. *Regresiona analiza skoka udalj iz mesta za dečake i devojčice*

	***Boys and Girls* / Dečaci i devojčice**			
***Variables* / Varijable**				
	r	***p***	***Beta***	***pbeta***
Body Height / Telesna visina	0.327	0.000	0.534	0.000
Body Weight / Telesna težina	-0.183	0.001	-0.437	0.001
R	0.505			
R^2	0.255			
Adjusted R^2 / Prilagođen R^2	0.233			
P	0,000			

The results of the regression analysis presented in Table 6 show the relationship between the predictor variables (Body Height and Body Weight) and performance in the Standing Long Jump Test. Analysis of Pearson's correlation coefficients indicates that Body Height had a moderate, positive, and statistically significant association with performance in the Standing Long Jump Test (r = 0.327, p < .001), whereas Body Weight showed a weak, negative, and statistically significant association with the criterion variable (r = -0.183, p = .001). These findings suggest that taller participants tend to achieve better performance, while higher body weight may negatively affect performance in this test.

The regression analysis further confirmed these relationships. Body Height demonstrated a statistically significant positive effect on test performance (Beta = 0.534, pbeta = 0.001), while Body Weight showed a negative, statistically significant effect (Beta = -0.437, pbeta = 0.001), indicating that higher body mass may limit performance in this test.

The overall relationship between predictors and the criterion variable, expressed through the multiple correlation coefficient (R = 0.505), indicates a moderate association. The coefficient of determination ($R^2 = 0.255$) shows that Body Height and Body Weight together explain 25.5% of the variance in Standing Long Jump Test performance, while the adjusted coefficient of determination (Adjusted $R^2 = 0.233$) confirms the explanatory power of the model.

Based on the results, it can be concluded that body height has an advantage in the Standing Long Jump Test, whereas higher body weight may represent a limiting factor for performance.

U tabeli 6. prikazani su rezultati regresione analize, gde je analizirana povezanost između prediktorskih varijabli (*Telesna visina* i *Telesna težina*) i kriterijumske varijable (*Skok udalj iz mesta*). Analizom Pirsonovog koeficijenta korelacije (r) primećuje se da *Telesna visina* ima umerenu, pozitivnu, statistički značajnu povezanost sa uspešnošću testa *Skok udalj iz mesta* (r = 0.327, p < 0.001), dok *Telesna težina* ima slabu, negativnu, statistički značajnu povezanost (r = -0.183, p = 0.001). Ovakav rezultat ukazuje da viši ispitanici imaju tendenciju da postižu bolje rezultate, dok veća telesna tezina može otežavati test. Daljom analizom regresionog koeficijenata (Beta) potvrđuje se da *Telesna visina* pozitivno utiče na rezultat u testu (Beta = 0.534, pbeta<0.001), dok*Telesna težina* pokazuje negativan, statistički značajan uticaj

Ovakav rezultat ukazuje da viši ispitanici ostvaruju bolje rezultate na testu.Daljom analizomregresionog koeficijenata (Beta) potvrđuje se da*Telesna visina*pozitivno utiče na rezultat u testu (Beta = 0.448, pbeta = 0.001), dok *Telesna težina* pokazuje negativan, statistički neznačajan uticaj (Beta = -0.272, pbeta = 0.036), što potvrđuje da većatežina može ograničiti fleksibilnost u ovom testu. Ukupna povezanost prediktora (*Telesna visina* i *Telesna težina*) sa rezultatom na testu izražena kroz koeficijent multiple korelacije (R = 0.399) ukazuje na jaku povezanostprediktorskih varijabli sa kriterijumskom varijablom. Koeficijent determinacije ($R^2 = 0.159$) pokazuje da *Telesna visina* i *Telesna težina*zajedno objašnjavaju 15.9% varijacija u rezultatimatesta *Pretklon raznožno u sedu*, dok prilagođeni koeficijent determinacije(prilagođeni $R^2 = 0.134$)potvrđuje da je model pouzdan.

Na osnovurezultata može se zaključiti da *Telesna visina* ima prednost utestu *Pretklon raznožno u sedu*, dok veća*Telesna težina*može predstavljati ograničavajući faktor.

cant positive effect on Standing Long Jump performance (Beta = 0.534, p < .001), while Body Weight showed a statistically significant negative effect (Beta = -0.437, p = .001), indicating that morphological characteristics play an important role in success in this motor task.

The overall relationship between predictor and criterion variables, expressed by the multiple correlation coefficient (R = 0.505), indicates a relatively strong association. The coefficient of determination (R^2 = 0.255) shows that Body Height and Body Weight together explain 25.5% of the variance in Standing Long Jump performance, while the adjusted coefficient of determination (Adjusted R^2 = 0.233) confirms the adequacy of the regression model.

Based on these results, it can be concluded that body height has a positive influence on Standing Long Jump performance, while body weight acts as a limiting factor in this test.

Table 7. *Regression Analysis of the 20-Metre Sprint from a Standing Start in Boys and Girls*

Tabela 7. *Regresiona analizatrčanja 20 m iz visokog startaza dečake i devojčice*

	***Boys and Girls* / Dečaci i devojčice**			
***Variables* / Varijable**				
	r	***p***	***Beta***	***pbeta***
Body Height / Telesna visina	-0.018	0.014	-0.298	0.014
Body Weight / Telesna težina	0.450	0.000	0.591	0.000
R	0.521			
R^2	0.271			
Adjusted R^2 / Prilagođen R^2	0.250			
P	0,000			

The results of the regression analysis presented in Table 7 show the relationship between the predictor variables (Body Height and Body Weight) and performance in the 20-Metre Sprint from a Standing Start.

Analysis of Pearson's correlation coefficients indicates that Body Weight had a moderate, positive, and statistically significant association with performance in the 20-Metre Sprint (r = 0.450, p < .001), whereas Body Height showed a very weak, negative association with the criterion variable (r = -0.018, p = .014). These results suggest that lighter participants tend to achieve better sprint performance, while body height has a negligible but negative relationship with sprint outcomes.

The regression analysis further confirmed these findings. Body Weight demonstrated a statistically significant positive effect on sprint performance (Beta = 0.591, p < .001), while Body Height showed a negative and statistically significant effect (Beta = -0.298, p = .014), indicating that lower stature may be associated with slightly better sprint performance in this sample.

(Beta = -0.437, pbeta = 0.001), što potvrđuje da su telesne karakteristike ključne za uspešnost u ovom testu.

Ukupna povezanost prediktora (*Telesna visina* i *Telesna težina*) sa rezultatom na testu izražena kroz koeficijent multiple korelacije (R = 0.505) ukazuje na jaku povezanost prediktorskih varijabli sa kriterijumskom varijablom. Koeficijent determinacije (R^2 = 0.255) pokazuje da *Telesna visina* i *Telesna težina* zajedno objašnjavaju 25.5% varijacija u rezultatima testa *Skok udalj iz mesta*, dok prilagođeni koeficijent determinacije (prilagođeni R^2 = 0.233) potvrđuje da je model pouzdan.

Na osnovu rezultata može se zaključiti da *Telesna visina* imaznačajan pozitivan uticaj u testu *Skok udalj iz mesta*, dok *Telesna težina* deluje ograničavajuće.

U tabeli 7. prikazani su rezultati regresione analize, gde je analizirana povezanost između prediktorskih varijabli (*Telesna visina* i *Telesna težina*) i kriterijumske varijable (*Trčanje 20 m iz visokog starta*). Analizom Pirsonovog koeficijenta korelacije (r) primećuje se da *Telesna težina* ima umerenu, pozitivnu, statistički značajnu povezanost sa uspešnošću testa *Trčanje 20 m iz visokog starta*(r = 0.450, p < 0.001), dok *Telesna visina* ima slabu, negativnu, statistički neznačajnu povezanost (r = -0.018, p = 0.014). Ovakav rezultat ukazuje da niži ispitanici imaju tendenciju da postižu bolje rezultate.

Daljom analizom regresionog koeficijenata (Beta) potvrđuje se da *Telesna težina* pozitivno utiče na rezultat u testu (Beta = 0.591, pbeta < 0.001), dok *Telesna visna* pokazuje negativan, statistički neznačajan uticaj (Beta = -0.298, pbeta = 0.014), što potvrđuje da veća visina ispitanika nešto slabije prolaze test u poređenju sa nižim ispitanicima. Ukupna povezanost prediktora (*Telesna visina* i *Telesna težina*) sa rezultatom na testu izražena kroz koeficijent multiple korelacije (R = 0.521) ukazuje

The overall relationship between predictor and criterion variables, expressed by the multiple correlation coefficient (R = 0.521), indicates a relatively strong association. The coefficient of determination (R^2 = 0.271) shows that Body Height and Body Weight together explain 27.1% of the variance in 20-Metre Sprint performance, while the adjusted coefficient of determination (Adjusted R^2 = 0.250) confirms the adequacy of the regression model.

Based on these results, it can be concluded that body weight has a moderate positive influence on 20-Metre Sprint performance, while body height may act as a limiting factor in this motor test.

Table 8. *Regression Analysis of the Bent-Arm Hang Test in Boys and Girls*

	***Boys and Girls* / Dečaci i devojčice**			
***Variables* / Varijable**				
	r	***p***	***Beta***	***pbeta***
Body Height / Telesna visina	-0.065	0.162	0.175	0.162
Body Weight / Telesna težina	-0.423	0.000	-0.506	0.000
R	0.450			
R^2	0.203			
Adjusted R^2 / Prilagođen R^2	0.179			
P	0,001			

The results of the regression analysis presented in Table 8 show the relationship between the predictor variables (Body Height and Body Weight) and performance in the Bent-Arm Hang Test.

Analysis of Pearson's correlation coefficients indicates that Body Weight had a moderate, negative, and statistically significant association with performance in the Bent-Arm Hang Test (r = -0.423, p < .001), whereas Body Height showed a weak, negative, and statistically non-significant association with the criterion variable (r = -0.065, p = .162). These findings suggest that lighter participants tend to achieve better performance in this test of static strength of the upper limbs and shoulder girdle.

The regression analysis further confirmed these relationships. Body Weight demonstrated a statistically significant negative effect on performance in the Bent-Arm Hang Test (Beta = -0.506, p < .001), indicating that higher body mass is associated with lower performance. Body Height showed a positive but statistically non-significant effect (Beta = 0.175, p = .162), suggesting no meaningful influence on test performance.

The overall relationship between predictor and criterion variables, expressed by the multiple correlation coefficient (R = 0.450), indicates a moderate association. The

na jaku povezanost prediktorskih varijabli sa kriterijumskom varijablom. Koeficijent determinacije (R^2 = 0.271) pokazuje da *Telesna visina* i *Telesna težina* zajedno objašnjavaju 27.1% varijacija u rezultatima testa*Trčanje 20 m iz visokog starta*, dok prilagođeni koeficijent determinacije (prilagođeni R^2 = 0.250) potvrđuje da je model pouzdan.

Na osnovu rezultata može se zaključiti da optimalna*Telesna težina* ima umeren pozitivan uticaj u testu *Trčanje 20 m iz visokog starta*, dok *Telesna visina* može predstavljati ograničavajući faktor.

Tabela 8. *Regresiona analiza izdržaja u zgibu za dečake i devojčice*

U tabeli 8. prikazani su rezultati regresione analize, gde je analizirana povezanost između prediktorskih varijabli (*Telesna visina* i *Telesna težina*) i kriterijumske varijable (*Izdržaj u zgibu*). Analizom Pirsonovog koeficijenta korelacije (r) primećuje se da *Telesna težina* ima umerenu, negativnu, statistički značajnu povezanost sa uspešnošću testa *Izdržaj u zgibu*(r = -0.423, p < 0.001), dok *Telesna visina* ima slabu, negativnu, statistički neznačajnu povezanost (r = -0.065, p = 0.162). Ovakav rezultat ukazuje da niži i laksi ispitanici imaju uspešnost u testu. Daljom analizom regresionog koeficijenata (Beta) potvrđuje se da *Telesna težina* ima negativan, statistički značajan uticaj u testu (Beta = 0.506, pbeta < 0.001), dok *Telesna visna* pokazuje pozitivan, statistički neznačajan uticaj (Beta = 0.175, pbeta = 0.162), što potvrđuje da ispitanici sa većom telesnom težinom imaju slabiju uspešnost u testu. Ukupna povezanost prediktora (*Telesna visina* i *Telesna težina*) sa rezultatom na testu izražena kroz koeficijent multiple korelacije (R = 0.450) ukazuje na jaku povezanost prediktorskih varijabli sa kriterijumskom varijablom. Koeficijent determinacije (R^2 = 0.203) pokazuje da *Telesna visina* i *Telesna težina* zajedno objašnjavaju 20.3% varijacija u rezultatima testa *Izdržaj u zgibu*, dok prilagođeni koeficijent

coefficient of determination ($R^2 = 0.203$) shows that Body Height and Body Weight together explain 20.3% of the variance in Bent-Arm Hang performance, while the adjusted coefficient of determination (Adjusted $R^2 = 0.179$) confirms the modest explanatory power of the model.

Based on these results, it can be concluded that higher body weight represents a limiting factor in the Bent-Arm Hang Test, while body height does not have a significant influence on performance in this motor task.

Table 9. *Regression Analysis of the 60-Second Sit-Up Test in Boys and Girls*

	***Boys and Girls* / Dečaci i devojčice**			
***Variables* / Varijable**				
	r	***p***	***Beta***	***pbeta***
Body Height / Telesna visina	0.137	0.017	0.318	0.017
Body Weight / Telesna težina	-0.232	0.004	-0.382	0.004
R	0.363			
R^2	0.132			
Adjusted R^2 / Prilagođen R^2	0.106			
P	0,009			

The results of the regression analysis presented in Table 9 show the relationship between the predictor variables (Body Height and Body Weight) and performance in the 60-Second Sit-Up Test.

Analysis of Pearson's correlation coefficients indicates that Body Height had a weak, positive, and statistically significant association with performance in the 60-Second Sit-Up Test ($r = 0.137$, $p = .017$), whereas Body Weight showed a weak negative association with the criterion variable ($r = -0.232$, $p = .004$). These findings suggest that participants with higher body weight tend to achieve lower performance in this test.

The regression analysis further confirmed these relationships. Body Height demonstrated a positive but statistically non-significant effect on test performance (Beta = 0.318, p = .017), while Body Weight showed a negative effect with a higher level of statistical significance (Beta = -0.382, p = .004), indicating that increased body mass hinders performance in abdominal endurance tasks.

The overall relationship between predictor and criterion variables, expressed by the multiple correlation coefficient ($R = 0.363$), indicates a moderate association. The coefficient of determination ($R^2 = 0.132$) shows that Body Height and Body Weight together explain 13.2% of the variance in 60-Second Sit-Up Test performance, while the adjusted coefficient of determination (Adjusted $R^2 = 0.106$) confirms the relatively low explanatory power of the model.

Based on these results, it can be concluded that higher body weight represents a limiting factor in the determinacije (prilagođeni $R^2 = 0.179$) potvrđuje da je model pouzdan.

Na osnovu rezultata može se zaključiti da veća *Telesna težina* ima otežane uslove za test *Izdržaj u zgibu*, dok veća *Telesna visina* nema značajan uticaj na performanse u ovom testu.

Tabela 9. *Regresiona analiza podizanja trupa za 60 sekundizadečake i devojčice*

U tabeli 9. prikazani su rezultati regresione analize, gde je analizirana povezanost između prediktorskih varijabli (*Telesna visina* i *Telesna težina*) i kriterijumske varijable (*Podizanje trupa za 60 sekundi*).Analizom Pirsonovog koeficijenta korelacije (r) primećuje se da *Telesna visina* ima slabu, pozitivnu, statistički neznačajnu povezanost sa uspešnošću testa *Podizanje trupa u trajanju od 60 sekundi*($r = 0.137$, $p = 0.017$), dok *Telesna težina* ima slabu, negativnu povezanost, sa nižim stepenom značajnosti ($r = -0.232$, $p = 0.004$).Ovakav rezultat ukazuje da ispitanici sa većom telesnom težinom postižu slabije rezultate.Daljom analizom regresionog koeficijenata (Beta) potvrđuje se da *Telesna visina*pozitivno, statistički neznačajno utiče na rezultat u testu (Beta = 0.318, pbeta = 0.017), dok *Telesna težina* pokazuje negativan uticaj, sa nižim stepenom značajnosti (Beta = -0.382, p = 0.004), što potvrđuje da veća telesna težina otežava izvođenje testa.Ukupna povezanost prediktora (*Telesna visina* i *Telesna težina*) sa rezultatom na testu izražena kroz koeficijent multiple korelacije ($R = 0.363$) ukazuje na umerenu povezanost prediktorskih varijabli sa kriterijumskom varijablom. Koeficijent determinacije ($R^2 = 0.132$) pokazuje da *Telesna visina* i *Telesna težina* zajedno objašnjavaju 13.2% varijacija u rezultatima testa*Podizanje trupa za 60 sekundi*, dok prilagođeni koeficijent determinacije (prilagođeni $R^2 = 0.106$) potvrđuje da je model pouzdan.

Na osnovu rezultata može se zaključiti da*Telesnatežina* ima otežane uslove za izvođenje testa*Podizanje tru-*

60-Second Sit-Up Test, while body height shows a slight positive influence on performance in this motor task.

Discussion

The study examined the relationship between morphological characteristics, including body height and body weight as basic parameters, and motor abilities in children of younger school age, assessed through eight different tests. The obtained results indicate a significant relationship between body height, body weight, and performance in motor ability tests, which is largely consistent with the findings of other studies (Herrmann et al., 2019; Podstawski & Borysławski, 2012).

The sample included children aged 7 years (±0.5 years), a period in which growth has not yet reached its most intensive phase. Therefore, the measurements of body height showed that the children were of relatively average and homogeneous stature. The results further indicated that girls had, on average, higher body weight than boys, which is expected at this age. This is consistent with the findings of Costa et al. (2017), who investigated long-term changes in morphological characteristics among Portuguese children and reported that girls at this age are physically larger. Similar trends were observed in the study by Hudda et al. (2018), where higher prevalence of overweight was recorded among South Asian girls compared to boys. Data from the United States also indicate a continuous increase in childhood overweight, which is concerning, as overweight has increased by more than 10% compared to three decades ago (Ogden et al., 2002).

Regression analysis provided insight into the relationship between predictor variables and criterion variables, i.e., the extent to which morphological characteristics influence motor performance. Based on the obtained results, it can be concluded that participants with an optimal relationship between body height and body weight achieved better results in all categories of motor tests. This is consistent with the findings of Antunes et al. (2015), who emphasize the importance of balanced body composition for optimal motor performance.

At younger school age, most children do not have issues with excessive body weight, which facilitates coordination of whole-body movements. Accordingly, the results confirm a significant relationship between coordination abilities and optimal body weight. Optimal body weight has a significant influence on performance in the Backward Obstacle Course (Poligon natraške) and Slalom with Three Balls, while body height is not a significant factor, which is consistent with the findings

pa za 60 sekundi, dok veća *Telesna visina* donosi blagu prednost u testu.

Diskusija

U istraživanju ispitana je povezanost morfoloških karakteristika, koje uključuju telesnu visinu i telesnu težini kao osnovne parametre i motoričkih sposobnosti kod dece mlađeg školskog uzrasta, koje su merene kroz osam različitih testova. Dobijeni rezultati ukazuju na značajnu povezanost između telesne visine, telesne težine i rezultata na testovima motoričkih sposobnosti, što je uglavom u skladu sa rezultatima drugih istraživanja (Herrmann et al. 2019; Podstawski, & Borysławski 2012).

Uzorak ispitanika obuhvatao je decu uzasta 7 godina (± 0,5) godina, kod kojih proces rasta nije još dostigao najintenzivniju fazu, pa su rezultati merenja visine tela pokazali da su deca prosečne i ujednačene visine. Posmatrajući rezultate istraživanja uočeno je da devojčice imaju u proseku veću telesnu težinu od dečaka, što je očekivano za ovaj uzrast. Ovo je u skladu sa rezultatima istraživanja Costa et al. (2017), koji su ispitivali dugoročne promene morfoloških karakteristika kod portugalske dece i konstatovali da su devojčice u ovom uzrastu fizički krupnije od dečaka. Sličan trend je primećen i u studiji Hudda et al. (2018) gde je kod devojčica iz Južne Azije registrovana veća prekomerna telesne težina u odnosu na dečake. Podaci istraživanja iz Sjedinjenih Američkih Država ukazuju da je prekomerna telesna težina kod dece u stalnom porastu i da je zabrinjavajući podatak jer je prekomerna telesna težina porasla za vise od 10 % u odnosu na period od pre 30 godina (Ogden et al.2002).

Regresiona analiza omogućila je sagledavanje odnosa između prediktorskih varijabli i kriterijumske varijable, odnosnoprocenila je u kojoj meri prediktorske varijable mogu imati značajan uticaj na ispoljavanje kriterijumske varijable. Na osnovu dobijenih rezultata regresione analize može se zaključiti da će ispitanici sa optimalnim odnosom telesne visine i težine ostvariti bolje rezultate u svim kategorijama motoričkih testova. Ovo je u skladu s nalazima Antunes et al. 2015, koji ukazuju na značaj uravnotežene telesne kompozicije za optimalne performanse u motoričkim aktivnostima.

U mlađem školskom uzrastu većina ispitanika nema problem sa prekomernom telesnom težinom, što im olakšava održavanje koordinacije celog tela. Shodno tome, rezultati istraživanja potvrđuju postojanje značajne povezanosti između koordinacije i optimalne telesne težine. Optimalna telesna težina ima značajan uticaj na uspešnost izvođenja testova, *Poligon natraške* i *Slalom sa tri lopte*, dok telesna visina nije značajan faktor što je u skladu sa nalazima Morano et al. 2011, pa nivo koordinacije nije determinisan telesom

of Morano et al. (2011) and Čillík & Willwéber (2018), who reported that coordination is not determined by body height.

It is evident that boys achieved slightly better results in coordination tests, while girls showed significantly better performance in flexibility tests. These findings are fully consistent with Abdelkarim et al. (2017), who reported that girls exhibit greater flexibility throughout childhood. The obtained results show that body height has an advantage in the Seated Forward Split Flexibility Test (Pretklon raznožno u sedu), while excessive body weight may act as a limiting factor. In other words, higher body weight negatively affects flexibility tasks, which is in agreement with Vameghi et al. (2013). Accordingly, taller participants achieved better results in flexibility tests.

Based on regression analysis, it was determined that participants who achieved better results in the 60-Second Sit-Up Test also performed better in the seated flexibility test and had lower body weight. Body weight had a limiting effect on sit-up performance, while greater body height showed a slight advantage, which is supported by Podstawski & Borysławski (2012).

Regarding the Tapping Test, higher body weight was associated with more difficult conditions for movement frequency, while taller participants achieved better results. The findings also indicate no statistically significant gender differences in this test. The test primarily depends on coordination and reaction speed rather than body height or body weight, which is also supported by Stodden et al. (2014).

Body composition has a strong influence on performance in motor tests, especially in strength and speed tasks (Costa et al., 2017; Čillík & Willwéber, 2018). A particularly pronounced negative correlation was observed between higher body weight and performance in the Standing Long Jump. Body height showed a positive influence on performance in this test, while body weight acted as a limiting factor. Participants needed to integrate multiple motor actions to achieve optimal performance. No significant gender differences were observed in explosive strength of the lower limbs, while participants with lower body weight achieved better results, i.e., longer jumps.

The results of the 20-meter sprint test indicated better performance in participants with lower body dimensions, i.e., lower body height and body weight. Boys showed better performance in explosive strength tests, which is consistent with Field & Temple (2017), who reported greater explosiveness and speed in boys at this age.

visinom (Čillík, & Willwéber, 2018). Nema sumnje, da su dečaci u neznatnoj meri ostvarili nešto bolje rezultate u koordinaciji, dok su devojčice znatno bolje rezultate ostvarile u testu za procenu gipkosti. Ovakvi rezultati u potpunosti se poklapaju sa zaključcima Abdelkarimet al. (2017),koji su istakli da devojčice tokom celog perioda detinjstva imaju izraženiju gipkost u odnosu na dečake. Dobijeni rezultati pokazuju da telesna visina ima prednost u testu *Pretklon raznožno u sedu,* dok prekomerna telesna težina može predstavljati ograničavajući faktor, tačnije prekomerna telesna težina negativno utiče na zadatke koji zahtevaju gipkost što se poklapa sa rezultatima istraživanja Vameghi et al. 2013. Usled toga, viši ispitanici ostvaruju bolje rezultate u testu za procenu gipkosti. Na osnovu dobijenih rezultata regresione analize, utvđeno je da su ispitanicu koji su postigli bolje rezultate na testu *Podizanje trupa za 60 sekundi* ostvarili I ispitanici koji su imali uspešnije rezultate na testu *Pretklon raznožno u sedu* i koji imaju manju telesnu težinu. Telesna težina imala je otežane uslove za izvođenje testa *Podizanje trupaza 60 sekundi*, dok veća telesna visina donosi blagu prednost u testu, što potvrđuju Podstawski, & Borysławski (2012). Kada je reč o rezultatima u testu *Taping rukom* zaključuje se da veća telesna težina ima otežane uslove za frekvenciju pokreta, dok ispitanici koji imaju veću telesnu visinu ostvaruju bolje rezultate na testu. Takođe, rezultati istraživanja ovog testa ukazuju i na odsustvo statistički značajnih razlika između ispitanika različitog pola.Ovaj test zahteva precizniju koordinaciju i kontrolu pokreta rukom i više zavisi od koordinacije i brzine reakcije nego od telesne visine i telesne težine. Slične rezultate u istraživanju navodi Stodden et al. (2014). Nema sumnje, da istraživanja naglašavaju da telesna konstitucija ima snažan uticaj na uspeh u motoričkim testovima, naročito u zadacima snage i brzine (Costa et al. 2017; Čillík, & Willwéber, 2018) U istraživanju je posebno izražena negativna korelacija između veće telesne težine i rezultata na testu *Skok udalj iz mesta*. Na osnovu rezultata istraživanja zaključeno je da telesna visina ima značajan pozitivan uticaj u testu *Skok udalj iz mesta,* dok telesna težina deluje ograničavajuće. Naime, ispitanici treba da usklade više motoričkih radnji u jedinstvenu celinu, kako bi postigli bolje rezultate. Istraživanjem je potvrđeno da su dečaci imali slične rezultate kao devojčice u testu za procenu eksplozivne snage nogu. Ispitanici sa manjom telesnom težinom postigli su bolje rezultate u skoku, odnosno skočili su dalje.Zaključno, mogu reći da su rezultati istraživanja u velikoj meri, u skladu sa Altinkök (2016). Rezulalti u testu *Trčanje 20 m iz visokog starta* su bolji kod ispitanika sa manjim telesnim dimenzijama, odnosno nižom telesnom visinom i telesnom težinom. Dečaci su pokazali bolje rezultate u testu eksplozivne snage nogu, što potvrđuje i istraživanje

Optimal body weight had a slight positive effect on the 20-meter sprint, while body height acted as a limiting factor. Thus, shorter participants tended to achieve better results, suggesting that taller participants performed slightly worse compared to shorter peers.

In the Bent-Arm Hang Test, results showed a clear advantage for boys. These findings are consistent with Sheikh et al. (2011), who reported greater upper-body strength in boys, particularly in tests requiring static strength of the arms and shoulder girdle. Body weight showed a negative effect on performance, which aligns with Vameghi et al. (2013). Therefore, higher body weight represents a limiting factor, while body height does not significantly influence performance in this test.

In conclusion, the results of this study are largely consistent with previous research indicating a relationship between morphological characteristics and motor abilities in children of younger school age (Herrmann et al., 2019; Podstawski & Borysławski, 2012; Sedlak et al., 2015; Čillík & Willwéber, 2018; Karim et al., 2015; Vameghi et al., 2013). These authors emphasize that younger school age is a critical period for the development of motor abilities and represents a foundation for further physical development and long-term health.

It is evident that stability and directionality of development during this period play a crucial role in achieving higher-quality motor abilities, further confirming the importance of timely promotion of physical activity in children.

Conclusion

Based on the conducted research on the relationship between motor abilities and morphological characteristics in children of younger school age, it can be concluded that there is a strong and inseparable relationship between these variables. The obtained results indicate that children's body structure and physical fitness have a direct impact on the development of their motor abilities. Data analysis showed that children with optimal body weight and body height achieved better results in motor ability tests. In contrast, the presence of excess body weight negatively affected performance in tasks requiring coordination, flexibility, strength, and speed.

Based on the analysis of the results, the research hypothesis regarding the existence of a significant and strong relationship between motor abilities and morphological characteristics in children of younger school age was confirmed. It can be concluded with confidence that children with more optimal morphological characteristics, such as appropriate body weight and body height,

Field, & Temple (2017), koje je pokazalo da dečaci u ovom uzrastu pokazuju veću eksplozivnost i brzinu. Optimalna telesna težina imala je blagi pozitivan uticaj na testu *Trčanje 20 m izvisokog starta*, dok telesna visina može predstavljati ograničavajući faktor, dakle niži ispitanici imaju tendenciju da postižu bolje rezultate,što potvrđuje da veća visina ispitanika nešto slabije prolazi test u poređenju sa nižim ispitanicima. U testu *Izdržaj u zgibu*rezultati su pokazali jasnu prednost dečaka. Ovakvi rezultati se podudaraju sa nalazima Sheikh et al. (2011), koji su utvrdili da dečaci imaju izraženiju snagu gornjeg dela tela, što se naročito manifestuje u testovima koji zahtevaju statičku snagu ruku i ramenog pojasa. Telesna težina je pokazala negativan uticaj na uspešnost izvođenja zadatka, što je u skladu sa literaturom Vameghi et al. (2013). Na osnovu rezultata se zaključuje da veća telesna težina ima otežane uslove za test *Izdržaj u zgibu,* dok veća telesna visina nema značajan uticaj na performanse u ovom testu.

Zaključno, može se reći da su rezultati istraživanja u velikoj meri, u skladu saprethodnim istraživanjima koja ukazuju na povezanost određenih morfoloških karakteristika i motoričkih sposobnosti kod dece mlađeg školskog uzrasta (Herrmann et al. 2019; Podstawski, & Borysławski 2012; Sedlak et al. 2015; Čillík, & Willwéber 2018; Karim et al. 2015;Vameghi et al. 2013). Ovi autori naglašavaju da je period mlađeg školskog uzrasta izuzetno važan za intenzivan razvoj motoričkih sposobnosti, te da predstavlja temelj za dalji fizički razvoj i očuvanje opšteg zdravstvenog stanja. Nema sumnje, da stabilnost i usmerenost razvoja u ovom uzrastu igraju ključnu ulogu u postizanju kvalitetnijih motoričkih sposobnosti, čime se dodatno potvrđuje značajpravovremenog podsticanja fizičke aktivnosti kod dece.

Zaključak

Na osnovu sprovedenog istraživanja o povezanosti motoričkih sposobnosti i morfoloških karakteristika kod dece mlađeg školskog uzrasta, može se zaključiti da postoji neraskidiva veza. Dobijeni rezultati nas navode na zaključak da telesna građa i fizička spremnost dece imaju direktan uticaj na razvoj njihovih motoričkih sposobnosti. Analizom podataka ustanovljeno je da deca sa optimalnom telesnom težinom i telesnom visinom, pokazuju bolje rezultate u testovima motoričkih sposobnosti. S druge strane, prisustvo viška telesne težine negativno se odražava na izvođenje zadataka koji zahtevaju koordinaciju, gipkost, snagu i brzinu.

Na osnovu sprovedene analize rezultata, potvrđena je postavljena hipoteza o postojanju značajne i neraskidive povezanosti između motoričkih sposobnosti i morfoloških karakteristika kod dece mlađeg školskog uzrasta.

achieve better performance in motor tests. Properly guided and appropriately dosed physical activity can contribute to the development of motor abilities, as well as the prevention of potential deviations in physical development. Accordingly, the research hypothesis predicting a significant interdependence between the examined variables is accepted.

The study also showed that children engaged in organized sports activities demonstrate better motor abilities and more favorable morphological characteristics. This indicates the effectiveness of current physical education programs in schools, as well as the need for their further improvement and adaptation to individual needs of children.

Sa sigurnošću može se zaključiti da deca sa optimalnijim morfološkim osobinama, kao što su optimalna telesna težina i optimalna telesna visina, ostvaruju bolje rezultate na motoričkim testovima. Pravilno usmerena i prilagođena fizička aktivnost može doprineti razvoju motoričkih sposobnosti, ali i prevenciji potencijalnih odstupanja u telesnom razvoju. Saglasno dobijenim rezultatima, prihvata se istraživačka hipoteza koja je predviđala postojanje značajne međuzavisnosti između ispitivanih varijabli.

Istraživanje je pokazalo da deca koja su uključena u organizovane sportske aktivnosti, pokazuju bolje motoričke sposobnosti i optimalnije morfološke karakteristike. Ovo ukazuje na efikasnost postojećih programa fizičkog vaspitanja u školama, ali i na potrebu za njihovim daljim unapređenjem i prilagođavanjem individualnim potrebama dece.

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