

DESCRIPTIVE, FUNCTIONAL AND SEXUAL DIMORPHISM OF EXPLOSIVE ISOMETRIC HAND GRIP FORCE IN HEALTHY UNIVERSITY STUDENTS IN SERBIA

Milivoj Dopsaj¹, Jelena Ivanović², Miroljub Blagojević³, Goran Vučković³

¹University of Belgrade, Faculty of Sport and Physical Education, Serbia

²The Republic Institute for Sports, Belgrade, Serbia

³University of Belgrade, Academy for Criminalistic and Police Studies, Serbia

E-mail: jelenaiv77@yahoo.com

Abstract. The aim of this work is to define basic descriptive model characteristics considering descriptive, functional and sexual dimorphism of basic explosive isometric hand grip force characteristics in healthy and well-trained students of the Academy for Criminalistic and Police studies (ACPS) in the Republic of Serbia. For the purpose of this research, 239 examinees were tested, among whom 143 were men and 96 were women, aged 18 to 24. In order to assess the RFDBASICHG different contractile characteristics we used standardized equipment, i.e., a sliding device that measures isometric finger flexor force, with a tensiometric probe fixed inside the device. Our results showed that the tested male sample had a significantly greater explosive hand grip force in both hands (dominant and non-dominant) than the tested female sample, with regard to both absolute and relative indicators. A statistically significant difference was established for the whole measurement range (the total of variable samples in the function of gender) between men and women, as parameters of sexual dimorphism, at the level of Wilks' Lambda – 0.519, $F = 30.567$, $p = 0.000$. In the function of gender, statistically significant functional dimorphism was found in women, i.e., the dominant hand was found to be stronger than the non-dominant one with a statistical significance of $t = 2.389$, $p = 0.019$. Considering the defined model parameters for the population of the given age, the results obtained can be used as criterion values for various testing purposes, such as the assessment of explosive hand grip force in athletes and non-athletes of both genders, or the evaluation of gender-related and functional dimorphism of the same.

Key words: Isometric explosive force, hand grip, dimorphism, student population

DESKRIPTIVNI, FUNKCIONALNI I POLNI DIMORFIZAM EKSPLOZIVNE IZOMETRIJSKE SNAGE STISKA ŠAKE KOD ZDRAVIH STUDENATA U SRBIJI

Cilj rada je definisanje modela karakteristika deskriptivnog, funkcionalnog i polnog dimorfizma eksplozivne izometrijske sile stiska šake obe ruke kod zdravih i dobro treniranih studenata Kriminalističko policijske akademije (KPA) u Republici Srbiji. Testirano je 239 studenata, 143 muškog i 96 ženskog pola, starosti od 18 do 24 godine. Za procenu eksplozivne izometrijske sile stiska šake RFDBASICHG korišćena je standardizovana oprema, klizni instrument za merenje izometrijske sile pregibača prstiju sa tenziometrijskom sondom unutar nje. Rezultatiti dobijeni ovim istraživanjem pokazuju da testirani ispitanici muškog pola imaju značajno veće vrednosti eksplozivne sile stiska šake obe ruke (dominantne i nedominantne) u odnosu na ispitanike ženskog pola, sa aspekta kako apsolutnih tako i relativnih vrednosti. Statistička analiza je utvrdila da između posmatranih sub uzoraka između muškaraca i žena postoji generalna statistički značajna razlika svih ispitivanih kontraktilnih karakteristika na nivou Wilks Lambda 0.519, $F = 30.567$, $p = 0.000$. U funkciji pola, statistički značajne razlike funkcionalnog dimorfizma izmerene su kod žena, dominantna ruka je snažnija od nedominantne na nivou statističke značajnosti $t = 2.389$, $p = 0.019$. Na osnovu definisanog modela karakteristika, dobijeni rezultati se mogu koristiti kao kriterijumi u različite svrhe testiranja, za procenu eksplozivne sile stiska šake kod trenirane i netrenirane populacije oba pola ili u svrhu procene polnog i funkcionalnog dimorfizma.

Ključne reči: eksplozivna izometrijska sila, stisak šake, dimorfizam, studentska populacija

