

Vpliv utrujenosti hrbtnih mišic na gibanje središča pritiska pri skupini mlajših in starejših preiskovancev

asist. dr. **Daša Weber**, dipl. fiziot., prof. šp. vzg.¹, prof. dr. **Vojko Strojnik**, prof. šp. vzg.², doc. dr. **Darja Rugelj**, viš. fiziot.¹

¹Univerza v Ljubljani, Zdravstvena fakulteta, Ljubljana, ²Univerza v Ljubljani, Fakulteta za šport, Ljubljana

Korespondenca/Correspondence: dr. Daša Weber, dipl. fiziot., prof. šp. vzg.; e-pošta: dasa.weber@zf.uni-lj.si

Uvod: Namen raziskave je bil ugotoviti vpliv utrujenosti hrbtnih mišic pri skupini mlajših in starejših preiskovancev na gibanje središča pritiska (SP) in ugotoviti, ali je med starostnima skupinama kakšna razlika v odzivu na utrujenost. **Metode:** 14 starejših ($72 \pm 7,2$ leta) in 16 mlajših ($27,5 \pm 4,1$ leta) preiskovancev je stalo na pritiskovni plošči, in sicer z odprtimi in zaprtimi očmi pred utrujanjem hrbtnih mišic, po njem in 10 minut po izvedbi. Merili smo silo reakcije podlage (SRP) na pritiskovni plošči, na podlagi katere smo izračunali šest parametrov gibanja središča pritiska. **Rezultati:** Med starostnima skupinama so se pokazale statistično značilne razlike v gibanju središča pritiska pri stoji z odprtimi in z zaprtimi očmi. Utrujenost hrbtnih mišic pa ni imela statistično značilnega vpliva na gibanje središča pritiska, in sicer ne pri skupini mlajših ne pri skupini starejših preiskovancev. Prav tako ni bilo videti statistično značilnih razlik v odzivu na utrujenost hrbtnih mišic med starostnima skupinama. **Zaključki:** Na podlagi rezultatov naše raziskave lahko sklepamo, da utrujenost hrbtnih mišic ni povzročila različnega odziva med mlajšimi in starejšimi preiskovalci. Kaže se tendenca o uporabi različnih strategij ohranjanja mirne stoji med mlajšimi in starejšimi preiskovalci, o čemer lahko sklepamo zaradi povečanega gibanja središča pritiska po utrujanju pri mlajših in zmanjšanega gibanja središča pritiska pri starejših preiskovancev ter zaradi razlik v smeri gibanja središča pritiska, in sicer pri mlajših v medio-lateralni smeri in pri starejših preiskovancev v antero-posteriorni smeri.

Ključne besede: mišična utrujenost, gibanje središča pritiska, starejši, ravnotežje.

The effect of back muscle fatigue on postural sway in a group of young and elderly subjects

Background: The purpose of this study was first to determine the effect of lumbar extensor muscle fatigue on the movement of the centre of pressure (CoP) in young and elderly subjects. The second purpose was to determine if there is any difference between age groups in the response to such fatigue. **Methods:** Fourteen elderly (72 ± 7.2 years) and 16 young (27.5 ± 4.1 years) male subjects stood on a force platform with their eyes open and closed before, immediately after and 10 minutes following a fatiguing exercise protocol for back muscles. The force platform was used to measure the CoP movements and six variables of postural sway were chosen for the analysis. **Results:** The results showed a difference in the movement of the CoP between the age groups standing with their eyes open and standing with their eyes closed. However, the lumbar extensor muscle fatigue did not affect the movement of the CoP in the young and elderly subjects. There was also no difference in the response to the back muscle fatigue between the age groups. **Conclusions:** The results suggest that fatigue of the lumbar extensor muscles does not lead to a different response among younger and elderly individuals. However, there was a tendency to adopt different strategies to maintain quiet standing between the young and elderly subjects, with increased movement of the CoP in the young compared to the elderly. Further, there were differences in the direction of the CoP movement, with the young subjects moving more in a medio-lateral direction and the elderly subjects in an antero-posterior direction.

Key words: muscle fatigue, postural sway, elderly, balance.

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