

Vpliv vadbe s pripomočkom za spodbujanje mišic stabilizatorjev Flexi-bar na ravnotežje pri bolniku z multiplo sklerozo – študija primera

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Uvod: Za uravnavanje ravnotežja med motnjami, ki jih pri gibanju povzročimo sami ali so posledica zunanjih dejavnikov, je potrebna usklajenost gibalnih strategij za stabilizacijo težišča telesa (1). Pri bolnikih z multiplo sklerozo je ravnotežje zelo pogosto prizadeto (2). Flexi-bar je pripomoček, ki spodbuja aktivacijo mišic stabilizatorjev, ki imajo veliko vlogo pri ohranjanju ravnotežja (3). Učinki treninga s pripomočkom Flexi-bar pri bolnikih z multiplo sklerozo niso znani. Namen prispevka je ugotoviti, ali tritedenska vadba s pripomočkom Flexi-bar® vpliva na ravnotežje, in rezultate primerjati z učinkovitostjo enako časa trajajoče standardne nevrofizioterapije s poudarkom na vadbi za ravnotežje (4). **Metode:** 49-letni bolnik s primarno napredujočo multiplo sklerozo je bil vključen v tritedensko vadbo s pripomočkom Flexi-bar. Vadba je potekala trikrat na teden po deset minut, kar je v skladu s priporočili (3). V tem obdobju je prejemal tudi funkcionalno električno stimulacijo na n. peroneus desno (v sedečem položaju, 20 minut na dan), nato pa je še tri tedne nadaljeval standardno nevrofizioterapijo s poudarkom na vadbi za ravnotežje (30 minut na dan). Za ocenjevanje (pred vadbo, po treh tednih ob koncu vadbe s flexi-barom ter po končani nevrofizioterapevtski obravnavi) smo uporabili Bergovo lestvico za oceno ravnotežja, test korakanja v štirih kvadratih, časovno merjeni test vstani in pojdi, test hitrosti hoje na 10 metrov ter 6-minutni test hoje. **Rezultati:** Po obdobju vadbe s pripomočkom Flexi-bar® so se izboljšali ravnotežje, ocenjeno z Bergovo lestvico (s 44 na 48 točk), čas pri testu korakanja v štirih kvadratih (s 13,96 s na 9,69 s), hitrost hoje (s 7,22 s na 6,95 s) in vzdržljivost pri hoji (s 360 m na 390 m). Rezultati testa vstani in pojdi pa so se po drugem merjenju celo nekoliko poslabšali (s 7,75 s na 8,01 s). Po obdobju standardne nevrofizioterapije so se izboljšali rezultati Bergove lestvice (na 52 točk) in rezultati testa vstani in pojdi (na 7,65 s), rezultati vseh drugih testov pa so se poslabšali glede na drugo testiranje; test korakanja v štirih kvadratih (na 10,7 s), hitrost hoje (na 7,4 s) in vzdržljivost hoje (na 380 m). **Zaključki:** Rezultati testov so se po vadbi s pripomočkom Flexi-bar sicer nekoliko izboljšali, vendar o bistvenem izboljšanju ravnotežja ne moremo govoriti, saj se mora po ugotovitvah Steffena in Senneyja (5) rezultat Bergove lestvice izboljšati najmanj za 5 točk, da lahko govorimo o kliničnem izboljšanju. Morda bi k večjemu izboljšanju pripomogla več tednov trajajoča vadba s pripomočkom Flexi-bar® ali kombinacija te vadbe z drugimi fizioterapevtskimi postopki.

Ključne besede: časovno merjeni testi hoje, trening ravnotežja, Flexi-bar.

The influence of training with Flexi-bar on balance in a multiple sclerosis patient – single case study

Background: Postural balance involves the coordination of movement strategies to stabilize the center of mass during both self-initiated and externally triggered disturbances to stability (1). Balance is frequently impaired in patients with multiple sclerosis (2). Flexi-bar is a tool that encourages muscle activation of stabilizers, which play a major role in maintaining balance (3). Effects of training with Flexi-bar in multiple sclerosis patients are unknown. The purpose of this study is to determine the effectiveness of balance training with Flexi-bar and to compare the results with effectiveness of classic neurophysiotherapeutic treatment, based on balance training. **Methods:** 49-year-old patient with primary progressive multiple sclerosis was included in three weeks' training with Flexi-bar. He trained 10 minutes per day, three times a week, which is in line with recommendations. Additionally, he was given functional electrical stimulation of right nervous peroneus (in sitting position, 20 minutes per day). After training with Flexi-bar we continued with three weeks' classic neurotherapeutic treatment, based on balance training (30 minutes per day) (4). The outcomes were measured with: Berg balance scale, timed 10 m walk test, up and go test, four square step test and 6 minutes walking test. The first measurement was made before the beginning of the training, the second measurement after three weeks of training with Flexi-bar, and the third measurement at the end of neurotherapeutic treatment. **Results:** Berg balance scale results improved from 44 to 48 points, four square step test results improved from 13.96 s to 9.69 s. The results of timed 10 m walk test improved from 7.22 s to 6.95 s, the results of 6 minutes walking test improved from 360 m to 390 m. But the results of up and go test worsened from 7.75 s to 8.01 s. After classic neurophysiotherapeutic treatment the results improved in Berg balance scale from 48 to 52 points, the results of up and go test from 8.01 s to 7.65 s, but the results of other tests worsened at the second testing: four square step test results from 9.96 s to 10.7 s, the results of timed 10 m walk test from 6.95 s to 7.4 s, the results of 6 minutes walking test from 390 m to 380 m. **Conclusions:** We noticed slight improvement in test results, but we cannot talk about real improvement of balance after training with Flexi-bar because the findings of Steffen and Senney (5) suggest that the results of Berg scale must improve at least for 5 points in order to be able to talk about clinical improvement. Maybe the results would have been better if the training had taken more weeks or we had used a combination of this training with other physiotherapy techniques.

Keywords: balance training, timed walking test, Flexi-bar.

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