

Učinki vadbe s sistemom Nintendo Wii Fit na ravnotežje pri bolniku s Parkinsonovo boleznijo – poročilo o primeru

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Uvod: Parkinsonova bolezen je počasi napredujoča degenerativna bolezen možganov neznanega vzroka, ki prizadene predvsem telesno gibanje (1). Moteno ravnotežje pri bolnikih s Parkinsonovo boleznijo je lahko posledica spremenjene, naprej nagnjene drže pri stoji, kar zmanjša učinkovitost izvajanja reakcij nadzora drže (2). Uporaba navidezne resničnosti sistema Nintendo Wii Fit pri telesni vadbi poveča motivacijo bolnika ter intenzivnost vadbe za nadzor drže oziroma ravnotežja (3, 4). Namen raziskave je bil ugotoviti, ali lahko štiritedenska vadba s sistemom Nintendo Wii Fit vpliva na izboljšanje ravnotežja in hoje pri bolniku s Parkinsonovo boleznijo. **Metode:** Sodeloval je 73-letni bolnik s Parkinsonovo boleznijo, ki se je začela 10 let pred raziskavo. Program vadbe s sistemom Nintendo Wii Fit je trajal štiri tedne, trikrat na teden, od 35 do 40 minut na dan. Vključeval je šest iger, in sicer korakanje, nagibno mizo, ravnotežni mehurček, drsenje pingvina, zasuk trupa in boksanje v ritmu. Dodatno je preiskovanec vsak dan pred začetkom vadbe izvajal vaje za ohranjanje splošne gibljivosti ter 20 minut tek na tekočem traku. Pred štiritedensko vadbo in po njej smo v fazi vklopa izvedli Bergovo lestvico za oceno ravnotežja, časovno merjeni test vstani in pojdi ter test hitrosti hoje na 10 metrov z motoričnim delom združene ocenjevalne lestvice za Parkinsonovo bolezen, in sicer za oceno splošne prizadetosti. Razporeditev telesne teže na spodnja uda smo z ravnotežno ploščo Wii merili enkrat na teden. **Rezultati:** Po vadbi so se izboljšali ravnotežje in funkcijska sposobnost (Bergova lestvica za 10 točk, časovno merjeni test vstani in pojdi za 4,5 sekunde, hitrost hoje za 0,3 m/s) ter motorični del združene ocenjevalne lestvice za Parkinsonovo bolezen za 3 točke. Razporeditev telesne teže na bolj okvarjeni strani se je po končanem programu vadbe povečala iz 46,7 % na 51,1 %. **Zaključki:** Štiritedenska vadba na ravnotežni plošči Wii je pri tem bolniku s Parkinsonovo boleznijo vplivala na izboljšanje statičnega in dinamičnega ravnotežja ter funkcijske sposobnosti v fazi vklopa. Glede na rezultate tega poročila o primeru lahko priporočimo uporabo sistema Nintendo Wii Fit pri vadbi za izboljšanje ravnotežja pri nekaterih pacientih s Parkinsonovo boleznijo. Za določitev, kateri pacienti so sposobni te vrste vadbe, in za ugotavljanje dolgoročnih učinkov so potrebne nadaljnje raziskave z naključno izbrano kontrolno skupino.

Ključne besede: Parkinsonova bolezen, ravnotežje, navidezna resničnost, Nintendo Wii Fit.

Effects of training with Nintendo Wii Fit on balance at a patient with Parkinson's Disease – a case report

Background: Parkinson's disease is a progressive degenerative disease of the brain, which causes disorder of physical activity from unknown reasons (1). Disturbed balance at patients with Parkinson's disease can be caused by altered, forward sloping posture in standing position, which reduces the effectiveness of postural control (2). Use of a virtual reality system Nintendo Wii Fit during physical activity increases patient's motivation and intensity of postural control or balance training (3, 4). The purpose of the study was to investigate whether four-week's training with Nintendo Wii Fit system might influence improvement of balance and walking at a patient with Parkinson's disease. **Methods:** A 73-year-old patient with Parkinson's disease, which began 10 years before the study, was included. The training program using Nintendo Wii Fit was performed for 35 to 40 min, three times per week, four weeks, and included six games (Basic step, Table tilt, Balance bubble, Penguin slide, Torso twist, Rhythm boxing). Additionally, the patient performed a 20-minute run and exercises for general flexibility maintenance before each Nintendo Wii Fit training session. Before and after the four weeks' training period, Berg Balance Scale, Timed Up and Go test, and 10-meter walk test were performed to evaluate balance and gait speed and motorpart of Unified Parkinson's disease rating scale to generally evaluate the disorder. Additionally, weight distribution on each foot was measured with Wii balance board once a week. **Results:** After the training period, improvement of balance and functional capability of the patient (Berg Balance Scale: for 10 points, Timed Up and Go test: for 4.5 s; walk speed: for 0.3 m/s), and motor part of Unified Parkinson's disease rating scale (for 3 points) were evident. Weight distribution on the more affected side increased from 46.7 % to 51.1 %. **Conclusion:** The four weeks' training with Wii balance board influenced improvement of static and dynamic balance and functional capability at this patient with Parkinson's disease. According to the results of this single case report we might recommend the use of Nintendo Wii Fit for balance training in some patients with Parkinson's disease. To define certain group of patients who are capable for this type of training and to establish the long-term effects further research with RCT design is needed.

Keywords: Parkinson's disease, balance, virtual reality, Nintendo Wii Fit.

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