

Abstract

The thesis evaluates the effect of four-week home therapy using stabilometric platform Nintendo Wii Balance Board and tablet with integrated software HomeBalance in patients with brain injury. Software HomeBalance has been developed for the treatment of balance disorders and cognitive function. Manipulating the platform and the tablet may also develop grip and handling abilities of hand, both will be evaluated in this work as well. The theoretical part describes new trends in rehabilitation of cognitive-motor interference, dual-task therapy and therapy using technological equipments.

Methods: A total of 9 subjects underwent four weeks of therapy using a therapeutic set HomeBalance. The control group of 12 subjects received therapy without any technological equipment. Patients participated in the initial examination, home therapy and final examination. As an evaluation of the therapy Mini-BESTest, Timed Up and Go test, Montreal cognitive assessment, 9-hole peg test, and also two games from HomeBalance software and questionnaire assessing satisfaction with therapy have been used.

Results: After treatment the whole group improved in only two tests evaluated: in Mini-BESTest and the time of diagnostic scene in HomeBalance software. The research group had statistically better results in both tests when compared to the control group. A statistically less significant difference was found in two other tests, the 9-hole peg test and the number of memorized planets in HomeBalance game. Two correlation results were found. Age and variation in the TUG test results correlated in research group. Disease duration and the difference in number of memorized planets correlated in control group.

Keywords

stroke, cognitive-motor interference, virtual reality, biofeedback, Wii Balance Board, HomeBalance