

Abstrakt

Introduction: The theoretical part of the thesis summarizes findings from foreign literature on virtual reality and its use in rehabilitation, as well as the possibility of the benefits of active video games as part of balance training, specifically gaming console Nintendo Wii. The practical part is a pilot study to evaluate the effect of balance training in patients with cerebral palsy using this gaming console.

Methods: The study included five patients with cerebral palsy, three in the form of spastic hemiparesis, two in the form of spastic tripareisis. Patients were aged 8-18 years. Therapy took place on the Nintendo Wii, selecting five games from cd/dvd Wii Fit Plus. Patients underwent a total of 8 treatments with a frequency of once a week. One therapy lasted 20-30 minutes, according to success in individual games. The effect of therapy was evaluated using the Balance Master, specifically through tests Weight / Bearing squat (weight distribution of the lower limbs), mCTSIB (modified test balance sensory interaction) Limits of Stability (CoG sway to the borders of support base), Rhythmic Weight Shift (fast active transfer of CoG), Walk Across, Tandem walk and Step/Quick Turn (walking with a turn). For statistical evaluation and comparison of the results before and after treatment was used Student's paired t-test.

Results: After the therapy CoG sway had increased for moving forward, right and left. Furthermore, there was a reduction of reaction time for the backward movement. There was an increase of average on axis velocity latero-lateral with a frequency three seconds from one mark to another and improvement of directional control movement at a frequency of two seconds. The time needed to perform a turn to the left was significantly reduced and also CoG sway was reduced during a turn to the left.

Conclusions: In children with cerebral palsy occurred after therapy to improve the ability to move their CoG, shorten the time needed to transfer and enhance the range of sways in the given direction. Patients could be moved in rhythmic transfer of CoG more accurate and faster. When walking, and its modifications the patients narrowed the base width, accelerated the gait and reduced CoG sway. Therapy had an impact on the improvement in the complicated dynamic tests such as the shortening of time while walking with a turn. Further research requires a larger number of subjects. For the final evaluation of the effect of therapy

we recommend the inclusion not only the balance tests, but also tests for assessing gross motor function and fine motor skills.