

Abstract

Title: Effect of home-based resistance training on balance and gait performance in patients with multiple sclerosis.

Objective: The aim of the first part of this diploma thesis is to introduce the newest and the most important knowledge about multiple sclerosis. This part also deals with the evaluation of the connection between resistance training and gait in patients with multiple sclerosis. The aim of the experimental part is to verify these findings, particularly the hypothesis whether regular home-based resistance training has influence on gait characteristics and postural stability in patients.

Methods: The studied sample included 15 patients - 11 patients in the experimental group and 4 patients in the control group. Patients in the experimental group were educated about home-based resistance training that took place 3 times per week during 12-weeks long period. Patients in the control group perserved their usual training program. Gait characteristics were objectively measured using GAITRite system. Registered physical performance measures include gait speed and cadence, step length and duration. Another objective evaluation methods included TUG (Timed Up and Go), FRT (Functional Reach Test) and LRT (Latreal Reach Test). Questionnaires were used to assess subjective perception of the gait, postural stability and mental state.

Results: After completing 12 weeks home-based exercise training programe there were some significant changes to postural stability in patients from the experimental group - improved results of FRT and LRT occurred. There was a slight but statistically insignificant improvement of gait characteristics. There was also mild improvement of mental state, especially anxiety levels decreased. Thus, our study suggests that home resistance training has a positive effect on balance in patients with MS.