ABSTRACT OF BACHELOR THESIS

Author: Michaela Janíčková

Supervisor: MUDr. Karla Kotková

Opponent:

Title of the bachelor thesis: Balance and ways of affecting it by motor learning

Abstract:

This bachelor thesis is a theoretical-practical thesis. In the theoretical part, the problems of balance and motor learning, are discussed. This part includes explanation of basic terms and presentation of basic standard balance tests and physiotherapeutic methods improving balance.

The practical part is of a research type and focuses on data collection and their partial analysis. The study was performed on 16 respondents – healthy young females without balance dysfunction. The aim of the bachelor thesis was to evaluate an effect of motor learning on the balance of these volunteers. Motor learning took place on stabilometric platform Nintendo Wii Balance Board with the use of interactive Homebalance system. All respondents underwent the program of motor learning once a week for the duration of 10 weeks. Both before and after the learning, the volunteers were examined through static posturography. They performed a series of 12 different standing balance tasks. In all tasks, apart from task 3, SKG area, SKG lenght, Maximum amplitud ML and Maximum amplitud AP parameters were monitored. In balance task 3, Maximum amplitud ML, Maximum amplitud AP, Total area, Forward area, Backward area, Right area and Left area parameters were monitored. The acquired data of selected parameters was processed in MS Excel and statistically compared. Pair t-test was used to evaluate the effect of the motor learning. The results show balance improvements mainly in parameters of SKG area, Maximum amplitud AP and Maximum amplitud ML. There was no significant shift in values on standing balance tasks 3, 5, 6 and 11. Balance task 10 exhibited a balance impairment of 35,9 % in Maximum amplitud ML.

The final section, ‘Discussion’, evaluates gathered data and compares results, moreover studies with similar topic are mentioned.

Key words: balance, motor learning, postural stability, posturography