Abstract

Title: Postural Stability in Adults with Down Syndrome

Objectives: The goal of the thesis was to compare postural stability in individuals with Down syndrome and the control group comprising of healthy individuals, and to compare postural stability in adult men with Down syndrome and adult women with Down syndrome.

Methods: The empirical part of the thesis was based on data collected from a pressure sensing platform MobileMat 3140 by Tekscan. The study was made up of 52 probands (30 men and 22 women). The probands were separated into the experimental and the control group based on their Down syndrome diagnosis. The experimental group consisted of 11 men and 15 women, with the average age being 38,4 ± 8,7 years, the average height 156 ± 7,2 cm, and the average weight 75,1 ± 16,2 kg. Similarly, the control group consisted of 11 men and 15 women, with the average age being 38,8 ± 9,2 years, the average height 175 ± 10,1 cm, and the average weight 78,9 ± 14,5 kg. The participants were measured in four modifications of the bipedal stance: wide base of support with the eyes open; wide base of support with the eyes closed; narrow base of support with the eyes open; narrow base of support with the eyes closed. Each measuring session took 30 seconds.

Results: Six parameters of postural stability were compared in the statistical analysis: COP path length, COP excursion front-back, COP excursion left-right, COP velocity average, time to boundary front-back, time to boundary left-right. The postural stability of adults with Down syndrome has proven to be worse than that of the control group with the significance level of $\alpha = 0,05$. No statistically significant difference in postural stability was found between the two genders in the experimental group.

Keywords: Down syndrome, postural stability, posturography, MobileMat