

Abstract

- Title:** Evaluation of postural stability among deaf adults
- Objectives:** The purpose of this diploma thesis was to compare the postural stability between the deaf and the normal hearing adults, and to find out if the statistically significant difference in measured parameters does exist.
- Methods:** 102 subjects at the age of 20–45 years participated in this study. The experimental group consisted of 35 deaf adult subjects with congenital or early childhood deafness. The control group has been made by 67 normal hearing adult subjects.
- The postural stability was objectively evaluated by Footscan, the pressure measuring plate. Nine tests were passed, duration of each test was 30 seconds. The total travelled way (TTW) expressing the total path the centre of acting pressure travelled during the test and the Romberg ratio, which is the ratio of TTW values under the condition of closed and open eyes, were selected as indicators of postural stability.
- T-test was used to assess the statistical significance of the differences between the group of deaf adults and normal hearing group. To estimate the influence of individual characteristics of the subjects (evaluating the data from the questionnaires) to their postural stability, the ordinary least squares estimator was used.
- Results:** The experimental group was on average worse in eight out of nine types of tests. The results of the regression analysis showed statistically significant differences in favour of normal hearing adults in two measured postural stability tests. The differences were significant at 1 % ($p = 0.006$) in case of standing on a firm surface with narrow stance, with closed eyes, and at 5 % ($p = 0.014$) in case of standing on a foam pad with wide stance, with closed eyes. The estimation results also indicated that there was a significantly stronger deterioration of stability due to closed eyes in case of deaf adults than in the control group.
- Keywords:** Hearing impaired, Deafness, Vestibular system, Stabilometry, Balance, Romberg ratio