

DOES THE HEARING LOSS AFFECT THE BALANCE FUNCTION IN CHILDREN?

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Introduction. Childhood hearing impairment is a common condition that may significantly impact speech, social and physical development. Based on literature data, 80% of children with SNHL (sensorineural hearing loss) and MEE (middle ear effusion) may suffer from balance control deficits. Despite the fact that, vestibular impairment can lead to balance deficit and disturb normal motor development, balance evaluation is not routinely performed in the pediatric population.

Research objectives. To evaluate the balance function with BOT – 2 test (Bruininks-Oseretsky Test of Motor Proficiency, Second Edition) in children with SNHL and MEE and compare it with normally hearing controls.

Methods. Research participants were recruited from the Department of Otorhinolaryngology of Lithuanian University of Health Sciences. The audiology tests assessed the hearing status. All subjects underwent the Balance subset of the BOT – 2 test, consisting of nine balance-related tasks performed with eyes opened and eyes closed.

Results. Study group consisted of 93 children, age range 4 – 15 years (mean 7.51 ± 2.9): 31 children (33.3%) with SNHL, 32 (34.4%) children with MEE, and 30 (32.3%) healthy children. Groups matched in age and gender. Balance abilities performing one leg standing tasks on a line and one leg standing on a balance beam with eyes opened and closed were statistically significantly better in the control group when compared with the SNHL ($p < 0.05$) and MEE ($p < 0.05$) groups. During the tasks mentioned above, all groups stood shorter with eyes closed than with eyes opened. However, children with SNHL and MEE performed these tasks statistically significantly poorer with eyes closed than healthy children.

Conclusion. Children with SNHL and MEE showed significantly lower balance abilities than the control group. One-leg standing tasks with eyes closed and eyes opened are appropriate to identify the balance dysfunction in children with SNHL and MEE. BOT – 2 test is a feasible tool to detect balance disorders in children.