

BACKGROUND: With increasing age there is an evident rise in vestibular system abnormalities what successively lead in balance disorders. In my work, using a novel approach that quantitatively simulates common locomotion I aimed to describe how a function of the balance system deteriorates with age.

MATERIAL AND METHODS: 38 normal human subjects divided into 3 groups according to age were studied. Subjects were tested using manually delivered, passive, low amplitude and high acceleration head rotations in three orthogonal planes called the head impulse tests.

Angular displacement of the head and eye were recorded using the search-coil technique. The real spatial ratio of head and eye velocities, the so called \square -gain, was computed. Repeated measures analysis of variance (ANOVA) was performed.

RESULTS: An age-related deterioration in measured characteristics of function of the vestibulo-ocular reflex with special effect in the roll and pitch planes was identified

DISCUSSION AND CONCLUSION: The relation of \square -gain and age shows an inverse U-shaped curve indicating age dependency. Continuous central mechanisms that facilitate inputs from peripheral vestibular structures are suspected. Subsequently, in contrary to previous studies, I suggest a critical threshold age after which these essential central mechanisms are not able to serve any more resulting in decrease of vestibular performance — age after which the system collapses.