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Vestibulo-Ocular Reflex Gain for Adults 20-30 years

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Introduction: Vestibular Ocular Reflex (VOR) is a critical visual component that ensures gaze stability during head movement, with counter eye movement due to activation of vestibular system. The video Head Impulse Test (vHIT) is an objective assessment of the VOR function of the semicircular canals by measuring VOR gain.

Objective: To establish norms for the vestibulo-ocular reflex gain for healthy adults aged 20-30 years through the video head impulse test. Furthermore, the study analyzed the association of VOR gain with age and the asymmetry of VOR gain between ears.

Methods: 178 persons with normal peripheral hearing sensitivity and no known vestibular disorder were selected through convenient sampling. A series of testing in three stages was conducted along with an interviewer administered questionnaire. Instantaneous gain at 40 ms, 60 ms, 80 ms for both rightward and leftward rotations were used separately to analyze the data.

Results: The mean horizontal VOR velocity gain was 1.05(\pm 0.195) for the right and 0.98(\pm 0.191) for the left, at 40ms, 1.10(\pm 0.146) for the right and 1.06(\pm 0.13) for the left, at 60ms, 1.09 (\pm 0.163) for the right and 1.08(\pm 0.156) for the left, at 80 ms. No significant relationship was identified with age and VOR gain in either ear except for 80ms in the left ear ($F=(1,153)= 4.97$, $p =0.03$) which gradually decreased with the participants' age and this linear relationship was significant.

Conclusion: The horizontal VOR velocity gain remained around one in all tested subjects for both right and left, with a significant association only at 80ms with age among 20 -30 years. Established normative values permit the comparison of test results and identification of deviations in that age group.