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PATIENT INFORMATION

VAT/ENG TESTING - BALANCE TEST

What is Vestibular Autorotation Test (VAT)?

Vestibular Autorotation Test (VAT) measures vestibular ocular reflex (VOR) function. VOR stabilizes visual images by maintaining eye-head coordination during head movement. Specifically, it steadies the visual image during motion when fixated on a target. This process is important for a person's ability to perceive speed and direction of body movement. Improper, or out of tolerance coordination can result in or contribute to dizziness, disequilibrium, or vertigo.

The Vestibular Autorotation Test (VAT) is a computerized test of head and eye movements to evaluate both the high frequency horizontal and vertical vestibular-ocular reflex (VOR). The VOR system stabilizes fixation of the eyes during head rotation by causing the eyes to move in the opposite direction of the head motion. The main purpose of the VOR is to allow clear vision during movement by sending signals to move the eye muscles to compensate for the small rapid head movements that occur in everyday life. However if the speed or timing is off, even slightly, vision is distorted because of apparent movement of the visual fields. The VAT tests the normal, everyday range of head motion where many balance disorders occur. The computer analyzes head motion and simultaneous eye movements. Electrodes record eye movement while a velocity head sensor records head movement. The VAT is used in the diagnosis of inner ear disturbances and to monitor changes during vestibular rehabilitation. The VAT is comfortable and easy to perform. You are asked to look at the target and move your head to the computer-generated tone. The tone begins slowly and becomes increasingly faster over an 18-second period. VAT testing measures physiologically significant movement with a velocity great enough to represent real world activity, such as walking and running.

What is Electronystagmogram (ENG)?

ENG measures normal eye movement and involuntary rapid eye movements called nystagmus. It also checks the muscles that control eye movement. This test monitors how the eyes, inner ear, and brain help maintain your balance. Any damage or problems in these areas can cause chronic dizziness or vertigo (a false sense of spinning or motion that can cause dizziness) and certain other disorders that affect hearing and vision. Electrodes are placed at locations near the eyes to record electrical activity and monitor movement. By measuring the changes in the electrical field within the eye, ENG can detect nystagmus (involuntary rapid eye movement) in response to various stimuli.

Calibration test: This involves following a light about 6 to 10 feet away with your eyes. This test measures ocular dysmetria (a condition in which movements of the pupil of the eye overshoot their target).

Gaze nystagmus test: This involves staring at a fixed light placed either to the center or side as you are seated or lying down. This test measures how well you can fix your gaze at an object without your eyes moving involuntarily.

Positional test: This involves moving your head and perhaps your whole body as opposed to just your eyes. For example, you may be instructed to lean your head to one side, or you may be asked to hang your head down touching your chin to your chest. The amount of eye motion that results from this activity is recorded.