

Common Vestibular Function Tests

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Fact Sheet

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VESTIBULAR REHABILITATION
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NEUROLOGIC
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The purpose of Vestibular Function Tests (VFTs) is to determine the health of the vestibular portion of the inner ear. These tests are commonly performed by ENTs, Audiologists, and Otolaryngologists.

Electronystagmography or Videonystagmography

Electronystagmography (ENG test) or Videonystagmography (VNG test) evaluate the inner ear. Both record eye movements during a group of tests in light and dark rooms. During the ENG test, small electrodes are placed on the skin near the eyes to record eye movements. For the VNG test, eye movements are recorded by a video camera mounted inside of goggles that are worn during testing.

ENG and VNG tests evaluate eye movements while following a visual target (tracking test) or during body and head position changes (positional test). The caloric test evaluates eye movements in response to cool or warm air (or water) placed in the ear canal. If there is no response to warm or cool air or water, ice water may be used in order to try to produce a response. The caloric test determines the difference between the function of the left and right inner ear. During this test, you may experience dizziness or nausea. You may be asked questions (math questions, city names, alphabet tasks) to distract you in order to get the best results.



Other Common Vestibular Function Tests

The rotary chair test is used along with the VNG to confirm the diagnosis and assess compensation of the vestibular system. Not all individuals need a rotary chair test and many health care facilities do not have access to this equipment due to cost and space. The rotary chair test measures responses of head movements that are similar to daily activities. During this test, the patient sits in a chair that moves to the right and left at various speeds and eye movements are recorded. The rotary chair test is the best test for determining vestibular loss in both ears.

Computerized Dynamic Visual Acuity (DVA)

Computerized DVA testing helps to determine how well you are seeing when doing activities such as walking, riding in a car over bumpy roads, or turning your head from side to side. This test measures how well the vestibular ocular reflex (VOR) is working before and after vestibular rehabilitation. The VOR allows

you to keep objects in focus while you are moving your head. Individuals who have problems with the VOR may have bouncy, jumping vision (oscillopsia), and are not able to keep objects in focus when moving their head.

During this test you will be asked to view the letter "E" on a screen and tell the tester the direction it is pointing while your head is still. Then you perform the same test with your head moving quickly. If one inner ear is damaged, the letter "E" may need to be larger for you to see it clearly when moving your head towards that side. As you do your daily gaze stability exercises, you will be able to see the letter when it is smaller, showing improvement of the VOR. A similar test uses an eye chart. Again, testing begins with the head still and is then repeated with head movement at a certain speed. The lowest line visible is determined for each test condition. Patients with bilateral vestibular loss often have more than a 4-6 line difference in static and dynamic acuity before therapy.

Computerized Dynamic Posturography (CDP)

This test evaluates how well you are able to use the visual, vestibular and sensory systems during balance. The Sensory Organization Test (SOT) measures body sway under six different test conditions. You will be tested with your eyes open and eyes closed, with the platform either static or moving. Computerized Dynamic Posturography is frequently administered by a physical therapist and is useful for measuring progress with therapy.

A clinical test, modified Clinical Test for Sensory Integration of Balance (mCTSIB) is a low-tech test that can be substituted for the CDP if the facility does not have the computerized machine.

Subjective Visual Vertical (SVV)

The subjective visual vertical (SVV) test evaluates the utricle, which is one of the inner ear organs responsible for sensing gravity. In a dark room, you will see a projected image of a line on the wall and when it moves to the vertical position, you will click on a mouse. Typically, you will complete ten trials of this test. When you have damage of the inner ear or in the brainstem on one side, your lines may tilted. A clinical test may be used with a bucket and plumb line to see if you perceive the world correctly.

Vestibular Evoked Myogenic Potential (VEMP)

The purpose of this test is to determine if the saccule (one of the inner ear organs) and the vestibular nerve are working normally. The saccule is sensitive to sound and this response can be measured by recording electrical activity in a muscle located in the front of your neck. Small electrodes are applied to the neck. Repetitive loud clicks or sounds are presented to each ear and the electrical response of the muscle is recorded. You must be able to hear for the test to be done.

Video Head Impulse Test

The Video Head Impulse test (vHIT) uses cameras and sensors (mounted in goggles) to observe your eye movements during quick head movements. The vHIT is used to assess the function of the six semicircular canals.

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