Head Impulse Test
Calorics
Saccades
Optokinetics
Smooth pursuit
VOR suppression

Sampling rate up to 500 Hz
Inertial measurement unit with 6 DOF
3D eye movements with torsion
Binocularity
Battery-driven mobility
WiFi remote control
Bedside testing
Calibration laser
External synchronization
Diagnostic Vestibular Function Testing in Patients with Vertigo

Vertigo is a frequent cardinal symptom in medicine and differentiating between central and peripheral vestibular system disorders is of the utmost clinical significance – not only for stroke patients in emergencies. Impairment of the receptor function of the semicircular canals will cause a pathological vestibuloo-ocular reflex (VOR), which leads to vertigo and disturbed gaze stabilization (oscillopsia).

Besides low-frequency, vestibular function testing by means of caloric tests, a novel video-oculography (VOG) method for quantification of the higher-frequency VOR function is now available: the head impulse test. This method allows the site, extent and the side of the functional impairment to be localized quickly and reliably.

Head and eye movements are measured simultaneously and displayed in graphical form, which allows a quantitative assessment. In case of intact VOR, the gain of head to eye movements is approximately 1 (i.e., head and eye movements are identical, but in opposite directions).

[Figure 1]

In case of acute or chronic impairment of the receptor function of the semicircular canals, different types of saccades can be distinguished:

**overt catch-up saccades:** occurring after head movement

[Figure 2]

**covert catch-up saccades:** occurring during head movement (can only be detected with the video-taped head impulse test).

[Figure 3]

Reduced eye velocity with impaired VOR will lead to a reduced gain. A positive head impulse test with a deficient VOR is most probably indicative of peripheral, receptor dysfunction. A negative head impulse test with acute vertigo is in most cases indicative of a central vestibular disorder.

**Literature**


Jahn K, Schneider E: Untersuchung der vestibulären Funktion bei Schwindelpatienten, Nervenheilkunde 2012 5:370-377