

Examination of Oculo-motor and Gaze Stability
RM Rine

Oculomotor and Vestibular Testing

Vision Testing:

Optokinetic nystagmus:

Move striped cloth in front of partner's eyes (left-right)
Instruct subject to count stripes as go by DO NOT TRACK
Watch for several beats of nystagmus = normal

Smooth-pursuit:

Continue to hold the patient's head stationary. Have the patient follow your slowly moving finger looking 30 degrees to the right, left, up, and down observe how smoothly they follow your finger. An abnormality would be if the patient follows your finger with saccadic eye movements. Note in which direction of movement this occurs. Again, keep your finger 18-24" away from the patient's face.

Saccadic eye movements:

Continue to hold the patient's head stationary. Hold your finger about 15 degrees to one side of your nose. Have the patient quickly change their gaze from your nose to your finger. Do this several times to the right, left, up, and down. Observe for re-fixation between the two targets. Note if the patient overshoots or undershoots the target and in which direction this occurs. The patient should be able to shift focus with one or two saccades. More than 2 saccades needed to reach a target suggests an abnormality.

Vestibular Testing:

Head thrust:

Instruct subject to look at your nose and keep doing so
Gently move subject's head L-R approx 5 degrees and then rapidly to one direction
Should be able to maintain fixation on nose without corrective saccades

Head-shaking nystagmus (performed with fixation blocked):

Grasp the patient's head firmly with both hands on the side of their head. Tilt their head forward 30 degrees so that horizontal semi-circular canals are level in the horizontal plane. Have them close their eyes. Move their head side to side twenty times. Quickly have the patient open their eyes and observe for nystagmus. Note the direction of the fast phases. It is important that you inform the patient that you will be moving their head side to side and to clear them for any cervical spine problems prior to performing this test. It is also important to maintain the patient's head pitched forward 30 degrees while observing for nystagmus.

Static and dynamic visual acuity:

Have the patient wear their glasses if they need distance correction. Depending on the type of acuity chart being utilized, have the patient sit the appropriate distance from the chart. (The ETDRS charts are designed to be viewed from a distance of 4 meters to provide Snellen equivalent acuity ratios or LogMAR values as noted on the chart).

Static: Have the patient read to the lowest line that they can until they cannot correctly identify all the letters on a given line (3 or more wrong). Note the lines where this occurs and/or the number of optotypes the patient incorrectly identifies.

Dynamic: Now, standing behind the patient, grasp the patient's head firmly with both hands on the side of their head. Tilt their head forward 30 degrees so that horizontal semi-circular canals are level in the horizontal plane. While moving their heads side to side at a frequency of 2 Hz (2 complete side to side cycles per second) have the patient read to the lowest line that they can until they cannot correctly identify all the letters on a given line (3 or more wrong). Note the line where this occurs and/or the number of optotypes the patient incorrectly identifies. Keep the range of motion of the head movements small (15 degrees) so as to not restrict the visual field, which may occur with patients who wear glasses.

Static acuity: _____logMar Dynamic acuity: _____logMar
Score = static – dynamic : S _____ - D _____ = _____

*** 2 or more lines difference = positive test

Reliability = .94 sensitivity and specificity = .89 and .92 respectively (for positive rotary test)