Nydiag 200 – Rotary Chair

Tests

Sinusoidal Pendular Rotational Chair Test

During During the Sinusoidal Pendular Rotational Chair Test the patient is seated in a motor driven rotary chair, with the head bent forward to bring the horizontal semicircular canals in the plane of rotation, and eye movements are recorded by means of a VNG system. The patient is tested with eyes open in total darkness while performing mental arithmetic. He or she undergoes sinusoidal oscillation about a vertical axis at several different frequencies.

Common oscillation frequencies are 0.01, 0.02, 0.04, 0.08, 0.16, 0.32 and 0.64 Hz with peak angular velocities of 50º/sec at each frequency. The patient undergoes multiple cycles of oscillation at each frequency.

Normal patients will have nystagmus with leftward slow phases when the head is moving rightward, and nystagmus with rightward slow phases when the head is moving leftward.

The clinician compares gain, phase and symmetry values for leftward and rightward oscillations.

Step Rotational Chair Test

DuringDuring the Step Rotational Chair Test the patient is seated in a motor driven rotary chair, with the head bent forward to bring the horizontal semicircular canals in the plane of rotation, and eye movements are recorded by means of a VNG system. The patient is tested with eyes open in total darkness while performing mental arithmetic to maintain alertness.
The patient is subjected to a series of velocity steps, both to the right and to the left.
A single trial of velocity step could be defined as follows:
- direction: leftward
- acceleration: 100º/sec² lasting for 1 second
- constant velocity: 100º/sec
- duration: 70 seconds
- de-acceleration: 50º/sec²

In response to this stimulus, the normal individual will display a burst in rightward nystagmus with rapid rise to a peak, and an exponential decline back to zero.

The response is described by two parameters. The first parameter is response gain, which is the ratio of peak eye velocity to head velocity. If the head velocity is 100º/sec and eye velocity is only about 60º/sec the gain will be 0.60

The second parameter is response time constant, which is the time, in seconds, for the response to decline to 37% of its peak value.
For comparison of gain and time constant values for leftward and rightward accelerations, the Interacoustics Step Rotational Chair test protocol calculates the “Side Difference”, available for both per- and postrotatory periods, and for each eye separately.