Cutting-edge tech for diagnosis and treatment of vertigo and balance disorders
Advanced VNG
Model 505

Cutting-edge tech for healthcare professionals

Video Nystagmography (VNG) is the most advanced technology for observation, measurement and analysis of eye movement during various oculomotor and vestibular tests.
NeuroEquilibrium VNG is a state-of-the-art system — the most non-invasive, accurate, reliable, and affordable way of evaluating the vestibular and oculomotor systems. This cutting-edge equipment eradicates the issue of myogenic and electrical noise seen in ENG.

NeuroEquilibrium VNG evaluates peripheral and central vestibular functions through the following protocols:

- Spontaneous nystagmus with and without optic fixation
- Gaze evoked nystagmus
- Saccades - fixed & random
- Smooth tracking with varying frequencies
- Optokinetic test
- Head shaking test
- Caloric test
- Positional testing including Dix-Hallpike test, McClure’s test, supine and deep head hanging
- Valsalva, hyperventilation and vibration-induced nystagmus
- Skew deviation

New age VNG goggle

NeuroEquilibrium VNG has the industry’s leading binocular goggle design.

- No adjustment required for focus or mirror setting.
- Lightweight with direct USB connection to a laptop or desktop computer.
- Easy fit magnetic cover allowing for both occluded and unoccluded measurements.
- Built-in fixation light to simplify testing.
- Runs with an advanced eye tracking algorithm that eliminates errors caused by blinking.
**Product specifications**

Real time analysis of all parameters with real time recordings.

**Advanced video playback**
- Pause, slow-motion, and beat-by-beat playback options allow playback in line with VNG tracings as you scroll through the recordings.
- Easy video storage and file transfer to external media storage.

**Superior oculomotor stimuli**
- Projector image instead of traditional light bar to ensure better optokinetic stimulation along with fixed and random saccades, and smooth pursuit recording at varying velocities.

**Comprehensive reporting**
- Detailed, customized reports automatically created in easy format for doctors, audiologists and other healthcare professionals.
- Concise, and organized reports, stored on the cloud, make it convenient to view data from anywhere and share data easily.

**Intelligent software**
- The most advanced eye tracking algorithm.
- The NeuroEquilibrium algorithm automatically calculates the slow phase velocity, and counts the number of beats per second.
- Automatically selects the best 30 seconds in caloric testing.
- Starts the built-in fixation light and calculates the fixation index automatically.
- Corrects the effect of spontaneous nystagmus in caloric testing.
- Generates the caloric butterfly chart and calculates the caloric index.
- Automatically calculates directional preponderance and canal paresis.
- Advanced algorithm to generate random saccades and remove anticipated saccades, automatically calculate latency, precision, and velocity.
- Generates smooth pursuit at varying frequencies and automatically calculates gain.
- Automatically generates graphs of all parameters with easy visual comparison with normative data.

**Camera speed**
- Better recording with USB technology with high resolution video images and superior best-in-class cameras.
- Enhanced image quality because of high quality video.
- Easy torsional eye movement observation because of high quality video recording.
CALORIC IRRIGATOR

Caloric test has been the gold standard in vestibular testing for over 100 years. NeuroEquilibrium Caloric Irrigators are used in combination with the VNG machine to conduct caloric tests on patients with dizziness or balance disorders.

Water Caloric Irrigator

provides water at specified flow and fixed temperatures for caloric testing of the patient.

Features

- Ergonomically designed delivery head
- Visual cues indicating beginning and end of irrigation
- Long 9-ft delivery hose to easily reach the patient's ear across an exam table
- External water tank that holds enough water to test three patients
- Water flow can be started with delivery head switch

Product Specifications

- Cold stimulus temperature at 30°C
- Warm stimulus temperature at 44°C
- Temperature accuracy +/- 1°C
- Flow rate: 500 ml per minute
- Computer integration: Integrated with NeuroEquilibrium VNG

Air Caloric Irrigator

provides air at specified flow and fixed temperatures for caloric testing of patients with vertigo and balance disorders. The Air Caloric Irrigator is especially useful in cases of ear perforation.

Features

- Ergonomically designed delivery head
- Visual cues indicating beginning and end of irrigation
- Long 9-ft delivery hose to easily reach the patient's ear across an exam table
- Air flow can be started with delivery head switch

Product Specifications

- Cold stimulus temperature at 24°C
- Warm stimulus temperature at 50°C
- Temperature accuracy +/- 1°C
- Flow rate: 8 litres per minute
- Integrated with NeuroEquilibrium VNG
CRANIOCORPOGRAPHY

Fast and simple investigation
NeuroEquilibrium Craniocorpography (CCG) is a neuro-otological investigation to evaluate the vestibulospinal reflex, which is responsible for maintenance of balance during gait testing. The protocols evaluated by this screening include:

- Romberg test
- Tandem walking
- Unterberger’s test, which evaluates the following parameters:
  - Displacement
  - Sway
  - Angle of deviation
  - Body axis spin

Product specifications
- Real time data analysis
- Fully integrated and computerized
For detection of abnormal subjective tilt
Subjective Visual Vertical (SVV) is an investigation to evaluate the otolith system which is responsible for perception of verticality. Static and dynamic SVV are important to:
• Assess otolithic disorders
• Assess chronic dizziness
• Differentiate peripheral from central vestibular disorders
• Decide side of peripheral vestibular insult during the acute stage
• Diagnose compensated vestibular disorders
• Assess effect of rehabilitation in vertigo patients

Tests conducted
• Static SVV, head vertical
• Static SVV, head inclined at 30 degrees
• Dynamic moving background, head vertical

Product specifications
• Tubular vision goggle with 9 axis gyroscope
• Real time data analysis
• Fully integrated and computerized
• Simple to use, no moving parts
**FOR SCREENING OF VESTIBULAR IMPAIRMENT**

**DYNAMIC VISUAL ACUITY**

Dynamic Visual Acuity is used for:
- Early detection of vestibulotoxicity
- Detection of bilateral peripheral vestibulopathy
- Rehabilitation tool
- Assessing outcome of rehabilitation

**How it works**
DVA assesses the ability of the subject to maintain the image on the fovea of the retina. This function is carried out by VOR. Defective VOR results in slippage of image from the fovea resulting in blurring of vision and oscillopsia; this is detected by DVA.

**Product specifications**
- Computerized with rate sensor for head movement to provide precise recordings
- Sound assistance for easy head movement
- Evaluation of semicircular canal function

**FOR DIAGNOSIS OF VESTIBULO-CEREBELLAR DISEASE**

VOR (Vestibulo-Ocular Reflex) and VOR Suppression (VORs) tests identify the presence or absence of saccadic eye movement in order to simultaneously test for the co-existence of vestibular and cerebellar pathology and thus diagnose vestibulo-cerebellar disease.

**Product specifications**
- High-speed infrared camera to measure and record eye movements, including the ability to identify catch-up saccades.
- Superior 9 axis sensor that measures head movement and gives precise head position feedback.
- Lightweight design.
- Built-in lasers that provide stimulus for calibration and VORs testing.
- The unique design of the goggles presents the suppression stimulus from the goggles in order to assess VOR suppression in any location.
To evaluate postural control

Stabilometry is an objective and functional evaluation of the postural control system in its steady-state behaviour. It is also a very good evaluation tool to measure the outcome of vestibular rehabilitation. It consists of the following tests:

- **Stability Evaluation Test / mCTSIB**: The mCTSIB test assesses functional balance control based on the patient's postural sway velocity during four testing conditions. Results are presented in graphical form, with COG traces shown for each condition tested.

- **Limits of Stability (LOS)**: The LOS quantifies the maximum distance the patient can intentionally displace their COG in the different directions and maintain stability at those positions. Measured parameters are reaction time, COG movement velocity, directional control, end point excursion, and maximum excursion.

- **Rhythmic Weight Shift (RWS)**: The RWS quantifies the patient's ability to rhythmically move their COG from left to right and forward to backward between two targets at different speeds. The measured parameters are the on-axis COG velocity and directional control.
State of the art rehab protocol

Vestibular Rehabilitation Therapy (VRT) is important for treatment of vestibular disorders. NeuroEquilibrium has pioneered state-of-the-art virtual reality-based VRT exercise protocols designed to help in:

- Gaze stabilization
- Sensory reorganization
- Desensitization and development of alternative compensatory pathways

Patients of vestibulo ocular reflex (VOR) dysfunction, visual vertigo, unilateral & bilateral vestibular dysfunction, visual vertigo or agoraphobia, acrophobia, phobic postural vertigo, etc benefit enormously from virtual reality-based vestibular rehabilitation. Our cutting-edge Vestibular Rehabilitation Therapy improves the following symptoms:

- Dizziness
- Blurred vision during head movement
- Imbalance while walking
- Frequent falls
- Sensation of spinning

The NeuroEquilibrium VRT suite of exercise includes:

- Acrophobia
- Motion sickness
- Visual vertigo / agoraphobia
- VOR & VOR cancellation exercises
- Gaze stabilization
- Head & eye coordination
- Sea sickness

The VR-based VRT advantage

- More interactive and engaging.
- Gamification of exercises improves compliance and helps in quantifying the improvement based on scores.
- Head movements can be very easily tracked in VR.
- The immersion therapy is very effective in certain phobic and psychogenic disorders.
- Patient improvement is accelerated.

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NeuroEquilibrium App

The NeuroEquilibrium app (iOS/Android) helps patients with their daily home-based exercise.

- It progressively schedules exercises
- Daily exercise videos
- Medicine & exercise reminder service
- Helps maintain vertigo and migraine diary.
Comprehensive and robust

The NeuroEquilibrium Assessment Platform is a most robust vertigo and balance assessment platform. The platform is a comprehensive diagnostic system that integrates various diagnostic tests on one platform and helps doctors diagnose and treat vertigo and balance disorders through comprehensive vertigo and balance evaluation, customized reporting, one-click patient data retrieval, rehabilitation and patient monitoring module.

Product specifications

- Comprehensive history module
- All reports on one platform
- Automatically generates graphs of all parameters with easy visual comparison with normative data
- Chronological view of patient’s past visit reports
- Rehabilitation module with suggested exercises
- Patient scheduling with SMS reminders, etc.

We provide comprehensive assessment of reports and have a panel of trained doctors including ENT specialist, neurologist, and psychiatrist for providing clinical interpretation within 24 hours (next working day).

Cloud integration for anywhere access

- Data from the tests is automatically and seamlessly saved on the cloud and can be accessed over internet from anywhere in the world.
- Allows for easy restoration of documentation in case of local system crashes.
NeuroEquilibrium provides a comprehensive management of vertigo and balance disorders by breakthrough innovations. Our strategy is to set up specialized advanced vertigo and balance clinics across the world in collaboration with leading ENT and neurology clinics, and multi-speciality hospitals to treat vertigo and balance disorder patients through:

- Neurotological evaluation with our suite of world class diagnostic equipment
- A specialist neurotological team
- NeuroEquilibrium Assessment Platform

It is India’s first robust diagnostic protocol to help doctors diagnose and treat vertigo cases easily across the world.

Let’s get together to restore balance.