System2000™

Rotational Vestibular Chair

Micromedical™ TECHNOLOGIES INC.

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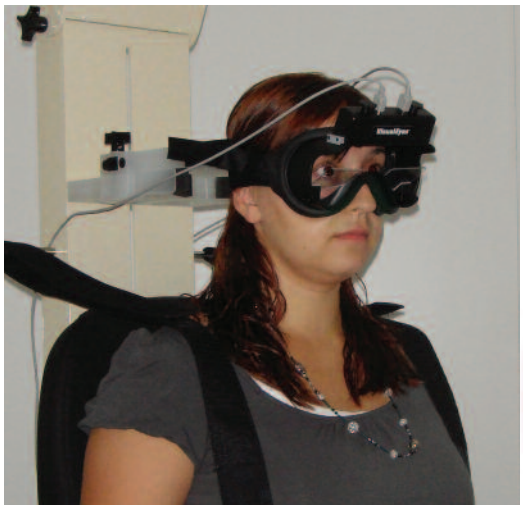
Rotational Chair testing provides versatility in measuring the Vestibular- ocular Reflex (VOR). The System 2000 Rotational Chair is engineered to deliver precisely controlled stimuli and superior waveform detail while utilizing either Firewire Infrared video recording or electrodes to discriminate the extent and progress of peripheral and central vestibular disorders.



GOGGLES WITH COVER

FIREWIRE GOGGLES

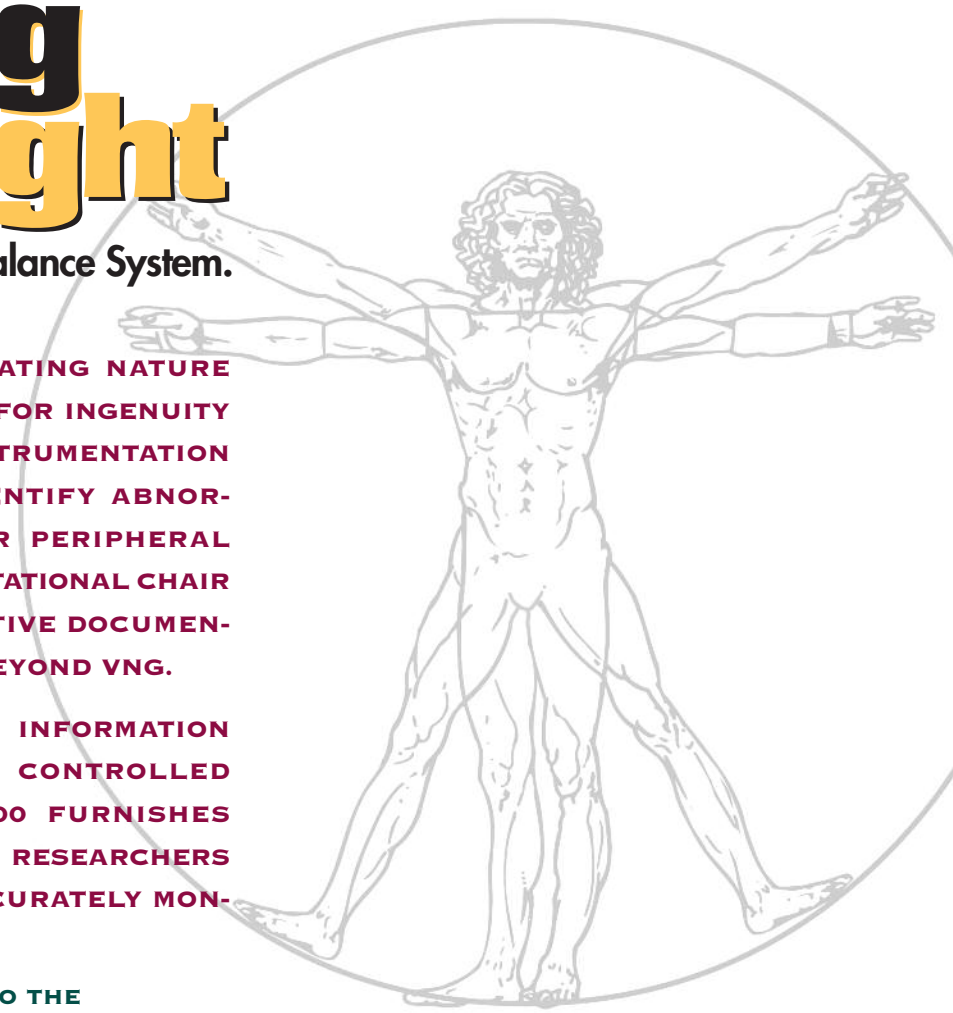
THE INNOVATIVE BINOCULAR DESIGN OF THE GOGGLES INCLUDES THE FOLLOWING KEY FEATURES:

- Mirrors are mounted below eye level to reduce eyelid and eyelash interference
- Integrated external focus knob
- Full field of view
- Comfortable and light weight goggle weighing only 8 oz; with cover removed, 10.5 oz with cover
- Designed to utilize high speed Firewire cameras

The turnkey system includes – the chair, controller, enclosure, ceiling mounted Optokinetic drum and XY axis laser projector. System 2000 is capable of testing patients weighing up to 400 pounds while testing ocular motor and VOR function from 0.01Hz to 0.64 Hz and step velocities up to 350 deg/sec.

Providing Insight

into the Complexity of the Balance System.



THE PREVALENCE AND DEBILITATING NATURE OF BALANCE DISORDERS CALLS FOR INGENUITY IN DESIGNING DIAGNOSTIC INSTRUMENTATION THAT CAN HELP THE CLINICIAN IDENTIFY ABNORMALITIES WITHIN THE CENTRAL OR PERIPHERAL VESTIBULAR SYSTEM. SYSTEM 2000 ROTATIONAL CHAIR IS AN IDEAL CHOICE FOR THE OBJECTIVE DOCUMENTATION OF VESTIBULAR FUNCTION BEYOND VNG.

THE RELIABILITY OF THE CLINICAL INFORMATION ATTAINED UNDER THE PRECISELY CONTROLLED ENVIRONMENT OF THE SYSTEM 2000 FURNISHES BALANCE DISORDER SPECIALISTS AND RESEARCHERS WITH A UNIQUE OPPORTUNITY TO ACCURATELY MONITOR THEIR PATIENTS THROUGH:

- ASSESSMENT OF TRAUMATIC INJURY TO THE MEMBRANOUS LABYRINTH (TBI)
- SERIAL TESTING FOR MONITORING OTOTOXIC DRUG EFFECTS
- CHILDREN AND INFANT FUNCTIONAL TESTING
- OBJECTIVELY DETERMINE REMAINING VESTIBULAR FUNCTION IN PATIENTS WITH POOR CALORIC RESPONSE
- IDENTIFYING PATHOLOGIES NOT APPARENT WITH TYPICAL VNG/ENG PROTOCOLS

TAKE ADVANTAGE OF SYSTEM 2000'S TESTING CAPABILITIES AND THE TIME PROVEN INFORMATION THAT IT PROVIDES.

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Spectrum™
balance software

Programming and analysis presentation are the nucleus of the System 2000. Rotational chair testing utilizing Spectrum Software aids in the identification of vestibular problems not apparent with typical VNG/ENG testing protocols.

AUTO-TRAVERSE MICRO-CENTRIFUGE

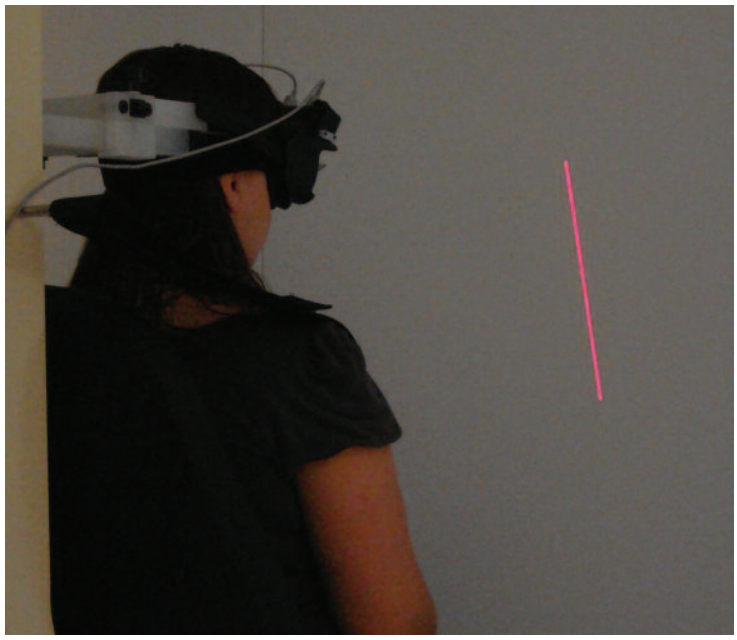
A computer controlled stepper motor drives programmable lateral movement of the chair up to +/- 7 centimeters during an eccentric otolith test. In a typical test, the chair is directed to spin up on center to a velocity of 300 deg/sec until any nystagmus response from the horizontal semicircular canal has diminished. The chair migrates off-axis at a rate of 1 cm/sec to its designated end point.

DYNAMIC SUBJECTIVE VISUAL VERTICAL (DSVV)

When rotating a patient off-axis, outward centripetal acceleration continuously stimulates the patients lateral otolith organ (utricle) producing a tilt sensation (normally toward the center of rotation). To record this perception of tilt (SVV), the patient uses an RF remote to adjust a projected laser line in increments of 0.1 degrees to their perceived vertical. Impaired otolith function may result in an asymmetric static and/or dynamic perceived vertical.

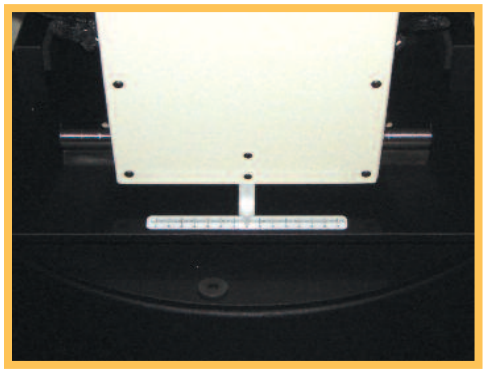
DYNAMIC OCULAR COUNTER ROLL (DOCR)

Another test option utilizing Firewire goggles and Auto-Traverse capability is to measure the torsional eye movement created while the chair is off center. Patients with a normal utricle will exhibit a measureable ocular counter roll toward the center of rotation as a compensatory eye movement. This test helps to objectively define the integrity of right and left utricle function and their communication with the vestibular cortex.



AUTO-TRAVERSE INDICATOR

The indicator gauge at the base of the chair frame shows the lateral offset of the chair as the software moves the chair to the desired set point.



STANDARD TESTING MODALITIES

After an initial test for spontaneous nystagmus, the following tests are available measuring gain, phase and symmetry:

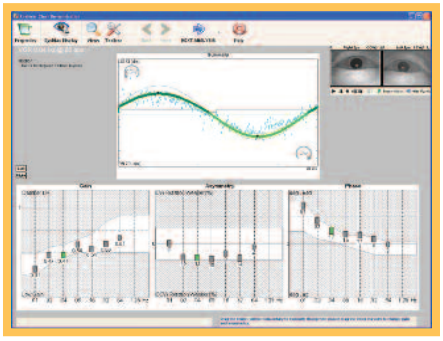
SINUSOIDAL HARMONIC ACCELERATION (SHA) TESTS

VESTIBULAR-OCULAR REFLEX (VOR) 0.01 Hz to 0.64 Hz

VISUAL ENHANCED VOR (VVOR) – utilizes stationary Optokinetic stripes to enhance the VOR

VISUAL FIXATION OF VOR (VFX) – the laser projects a dot on the wall of the enclosure that rotates with the patient

VELOCITY STEP TEST Measures the VOR time constant, gain and symmetry



Single mouse click eye centering removes the need to adjust cameras.

OCULAR-MOTOR TESTS

OPTOKINETIC AFTER NYSTAGMUS (OKAN) – measures Optokinetic velocity storage

OPTOKINETIC (OKN) – full field stripes or planetarium style dots

PURSUIT TRACKING – laser projector produces target at 0.05 to 0.5 Hz up to 50 deg/sec

SACCADE – fixed or random timing and amplitude in X and Y

OPTIONS

THE SYSTEM 2000 IS AVAILABLE IN THE FOLLOWING CONFIGURATIONS:

- Comprehensive
- Auto-Traverse Micro-Centrifuge

EITHER CONFIGURATION CAN BE ACQUIRED IN A WINDOWS® OS WITH THE FOLLOWING OPTIONS:

- VisualEyes VNG – add nystagmus and caloric testing
- EOG - Electrode Capability
- Air Fx air caloric irrigator
- Aqua Stim water caloric irrigator
- Vorteq – Active Head Rotation Testing
- DVAT – Dynamic Visual Acuity Test
- Child & Infant seat for assessing children

CUSTOMER CARE

MICROMEDICAL'S KNOWLEDGEABLE STAFF IS DEDICATED TO ASSISTING YOU AND MAXIMIZING YOUR INVESTMENT BY:

- Providing on-site installation and training using factory representatives
- Providing technical, operational and interpretation assistance from Micromedical's experienced support staff
- Sponsoring continuing education courses
- Including a one year hardware warranty
- Including one year of free software updates

QUALITY AND REGULATORY STANDARDS

All equipment is designed and manufactured under our ISO 13485 certified quality management system to meet U.S. FDA; Canadian; European and International Standards.

- UL 60601-1
- IEC 601-1, EN 60601-1
- CMDCAS
- ANSI S3.45-2009
- Medical Device Directive (MDD) to comply with EC Directive 93/42

Micromedical™ TECHNOLOGIES INC.

To Preserve and Improve Balance

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