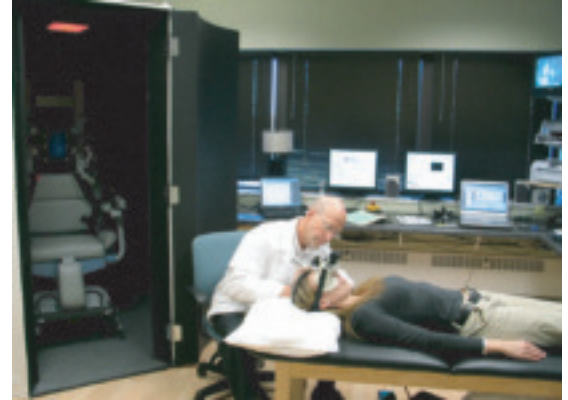


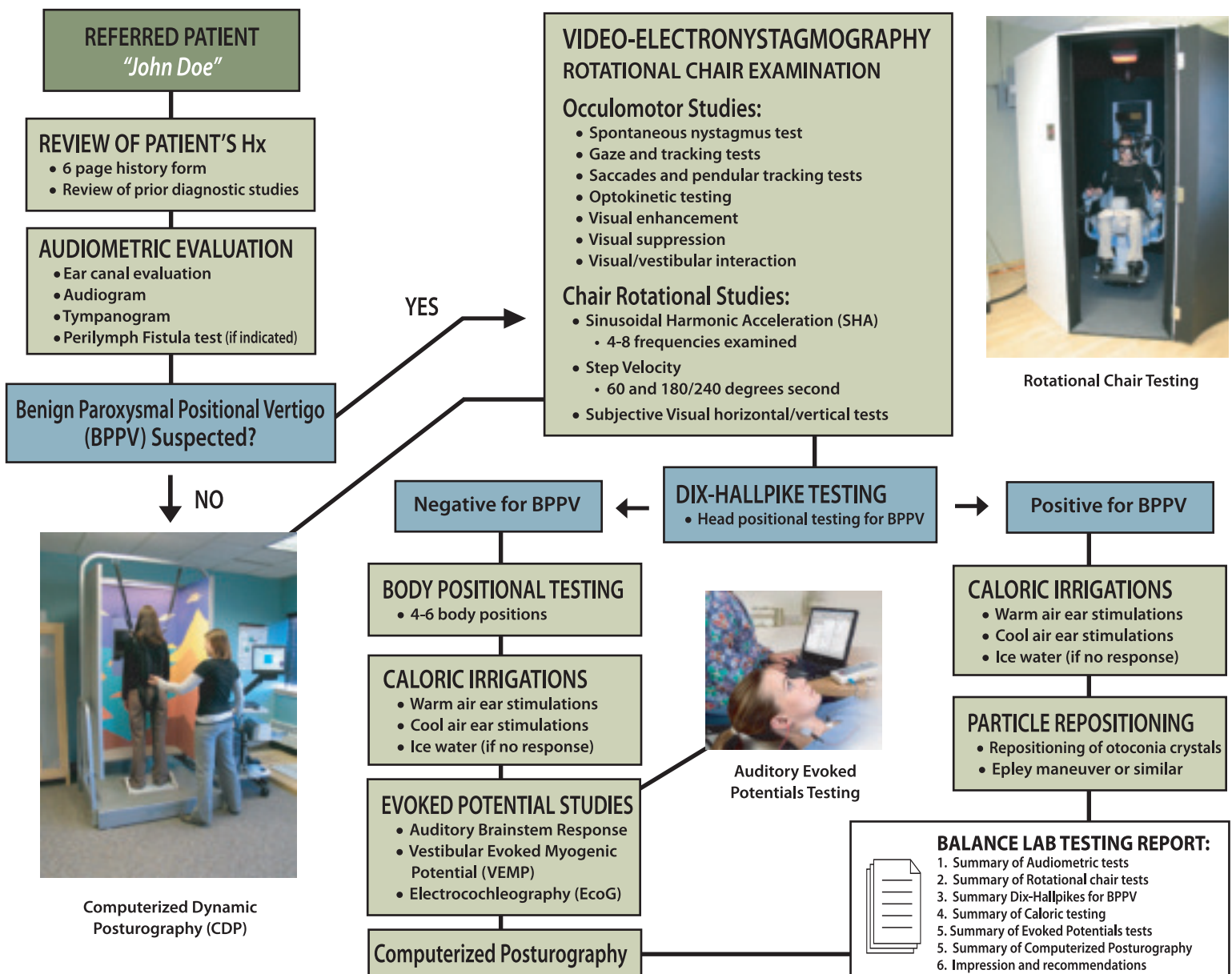
National Dizzy and Balance Center's

Comprehensive Balance Testing Lab Evaluation protocol is designed for providers who would like a comprehensive vestibular and neuro-otologic evaluation to help confirm a diagnosis and to guide patient treatment.

The tests performed in our balance testing lab will be based on the patient's medical history form, referring provider order, and our diagnostic testing protocol. Referring providers may also select individual tests to be performed at their discretion.



Caloric & Positional Testing



SUMMARY OF TESTS AVAILABLE IN OUR BALANCE TESTING LABS

AUDIOMETRIC STUDIES:

- ⊗ **TYMPANOMETRY / ACOUSTIC REFLEXES** - Measures the integrity of middle ear system
- ⊗ **PURE TONE AND SPEECH AUDIOENTRY** - Measures basic hearing sensitivity and speech understanding ability.

Possible Differential Diagnosis Includes of Audiometric Studies:

- Eighth nerve (VIIIⁿ) reflex arc screening for acoustic tumors
- Multiple Sclerosis
- Conductive vs. Sensorineural hearing loss (important for caloric and evoked potential studies).

OCULOMOTOR STUDIES:

- ⊗ **SPONTANEOUS & GAZE NYSTAGMUS** – Measures nystagmus or involuntary eye movement with and without visual fixation.
- ⊗ **SACCADES** – Measures speed or velocity, latency and accuracy of short precise eye movements.
- ⊗ **PENDULAR TRACKING** – Measures the ability to smoothly track or following target at a variety of different speeds.
- ⊗ **OPTOKINETIC** – Measures a combination of saccadic and smooth pursuit or Pendular tracking capabilities.
- ⊗ **VISUAL ENHANCEMENT/SUPPRESSION/INTERACTION** – A more accurate measure of visual fixation than the typical fixation protocol during caloric testing. Research is showing that this may also be good indice of VBRT progress on a test / retest basis.

Possible Differential Diagnosis of Abnormal Oculomotor Studies:

Migraine, Meniere's disease, Mal de Debarquement, anxiety, Internuclear Ophthalmoplegia (INO), medications, Progressive Supranuclear Palsy (PSP), and central lesions (posterior fossa, dorsal central medulla, cervicomedullary junction, basal ganglia, brainstem, Medial Longitudinal Fasciculus (MLF), ipsilateral cerebellar pontine (CP) angle, or large cerebral lesions.

ROTATIONAL CHAIR STUDIES:

- ⊗ **SINUSOIDAL HARMONIC ACCELERATION (SHA)** – Measures horizontal semicircular canal function over a variety of different speeds of velocities of back and forth smooth movement.
- ⊗ **STEP VELOCITY TESTING** – Measures function of horizontal semicircular canal and capacity of central velocity storage mechanism. May help identify the pathologic ear.
- ⊗ **SUBJECTIVE VISUAL VERTICAL/HORIZONTAL** – Allows assessment of utricular function.

Possible Differential Diagnosis of Abnormal Rotational Studies:

- Gold Standard for bilateral loss (for example following IV antibiotics - vestibulotoxins).
- Differentiate CNS vs. peripheral vestibular pathology and static central compensation level
- Rotational chair studies are not affected by abnormalities of the external or middle ear systems (wax, surgeries, etc).
- Research has shown correct identification of 100% of vestibular abnormalities (Shepard and Telian, 1996).
- Rotational chair testing has been shown to be more sensitive than ENG/VNG in diagnosing vestibular pathology (Arriaga et al., 2005).

POSITIONAL AND CALORIC STUDIES:

- ⊗ **HALLPIKES** – Measures the function of the posterior and anterior semicircular canals.
- ⊗ **POSITIONAL** – Measures more mechanical (horizontal semicircular canal) or cervicogenic (neck) involvement in symptoms or nystagmus.
- ⊗ **CALORICS** – Measures relative strength/weakness of the very low frequency peripheral vestibular system (horizontal semicircular canal). Allows assessment of individual ear but dependent on clear ear canal and normal physiology.

Possible Differential Diagnosis of Abnormal Rotational Studies:

- Benign Paroxysmal Positional Vertigo (BPPV) of the Posterior, Anterior, or Horizontal semicircular canal.
- Central positioning, and Cervicogenic vertigo.

EVOKED POTENTIAL STUDIES:

- ⊗ **AUDITORY EVOKED POTENTIALS** – Assessment of ascending auditory VIIIⁿ tract (screen for retrocochlear disorders).
- ⊗ **VESTIBULAR EVOKED MYOGENIC POTENTIALS** – Assessment of saccule and inferior portion of vestibular nerve (VIIIⁿ) tract.
- ⊗ **ELECTROCOCHLEOGRAPHY** – Assessment of cochlear potentials – commonly used for Meniere's assessment.

Possible Differential Diagnosis of Abnormal Evoked Potentials Studies:

Normal/cochlear responses, VIIIⁿ tumor (vestibular schwannoma), MS vestibular neuritis, neurolabyrinthitis, Migraine, Meniere's, spinocerebellar degeneration.

COMPUTERIZED DYNAMIC PLATFORM POSTUROGRAPHY (CDP):

- ⊗ **SENSORY ORGANIZATION TESTING** – Assessment of ability to maintain volitional, quiet stance and the contributions of Somatosensory, Visual and Vestibular sensory inputs to the patients' ability to maintain postural stability.
- ⊗ **MOTOR CONTROL TESTING** – Assessment of patients' response to unexpected anterior and posterior platform perturbations.

Possible Differential Diagnosis of Abnormal Evoked Potentials Studies:

Provides a non-localizing picture of patients balance capacity, risk of falling and aids in directing rehabilitation therapy. May also help differentiate peripheral, central and aphysiologic patterns of postural instability.