

Vestibular Rehabilitation

Vestibular (balance) disorders—usually characterized by dizziness, vertigo, or disequilibrium—can afflict people of any age. According to one large study, as many as 35 percent of adults over age 40 in the U.S. have experienced some form of vestibular dysfunction. Increasing attention is now being paid to the disorder in children.

When medical or surgical therapy fails to relieve symptoms, vestibular rehabilitation may prove to be an effective option. It is an exercise-based treatment designed to improve function of the three critical bodily systems that impact your balance: the inner ear, the eyes, and the muscles in your legs. Vestibular rehabilitation promotes the integration and processing of information by the brain from these three sensory systems.

Our Expertise in Vestibular Rehabilitation

The Ear Institute of New York Eye and Ear Infirmary of Mount Sinai (NYEE) has assembled one of the most skilled and experienced vestibular rehabilitation teams in the Northeast. Each member is a specially trained physical therapist (PT) with a clinical doctorate; most are also board-certified in either neurological or geriatric

rehabilitation. Members also bring an average of 16 years clinical experience to their jobs, and continue their academic pursuits through teaching, research, and presentations at national conferences.

Patients benefit in another way that most treatment centers can't match: Our vestibular therapists work as a collaborative team with other clinical specialists at the Ear Institute and New York Eye and Ear Infirmary, who are pivotal to the diagnosis and treatment of balance disorders. These include otologists-neurotologists, audiologists, speech-language pathologists, and ophthalmologists. And because vestibular problems may have a psychological component, our rehabilitation department can bring in social workers, who are able to help patients cope with symptoms like anxiety and depression.

Components of Our Vestibular Rehabilitation Program



You must first be referred by your physician to our vestibular rehabilitation program. Once you're accepted, you will be given an initial evaluation during which a full medical history relating to your balance problem will be gathered and reviewed, including any previous hearing or balance testing. Additional tests may be recommended to provide the fullest possible picture.

Vestibular rehabilitation consists of 45-minute sessions with one of our highly skilled physical therapists. These sessions at our conveniently located and fully equipped center in Manhattan are integrated with a comprehensive home exercise program to ensure maximum results. The length of the vestibular rehabilitation program at the Ear Institute is three to six months, depending on the progress you show.

Whether caused by age, trauma, or disease, patients can find relief in the physical therapy program offered by our vestibular disorder specialties. The balance disorders we treat include:

- Acoustic neuromas
- Benign paroxysmal positional vertigo (BPPV)
- Cervicogenic dizziness
- Concussion
- Dehiscent superior semicircular canal syndrome (DSSCS)
- Imbalance of aging
- Meniere's disease

- Migraine
- Perilymphatic fistula
- Superior canal dehiscence (SCD)
- Vestibular neuronitis and labyrinthitis

About Dizziness (Vertigo)

An individual's sense of balance occurs when the brain integrates normal signals from the ears, eyes, and muscles in the legs. When children or adults have an issue in any of these three areas, balance disorders can arise.

Your Ears and Balance

The most common source of balance disorders is an abnormality of the inner ear. There are two parts to the inner ear: the organ of hearing (the cochlea) and the organ of balance (the labyrinth, which comprises the semicircular canals and utricle). The labyrinth tells a person their position in space. If a person turns around or goes up, that individual is aware of the movement because the inner ear is being stimulated. When the inner ear does not work right, there is a false sensation of moving. This is the definition of “vertigo,” which involves a sensation of the room spinning or the floor rocking. While vertigo is one of the most common complaints of patients with inner ear balance disorders, other common complaints include feeling “woozy,” “light headed,” “drunk,” “off balance,” or “spacey.”

Balance disorders that arise from the inner ear are often associated with hearing loss, ear fullness, or a noise in the ear (tinnitus). In order to evaluate an inner ear balance disorder, hearing tests and balance tests are often necessary. Common disorders of the inner ear that cause imbalance include Meniere’s disease and vestibular neuronitis.

Your Eyes and Balance

The eyes are also powerfully connected to the inner ear. When the inner ear is not working right, there is often an abnormal eye movement that the physician can observe called nystagmus. Conversely, many patients are sensitive to eye stress, such as scanning a computer or being in an area with surrounding motion and excessive visual stimulation, like walking down a supermarket aisle. Think of a person standing on top of a tall building who feels like she is falling, or a person sitting in a train when an adjacent train starts moving, producing the sensation she is going backwards. That is the eye mis-communicating with the rest of the balance system. Accordingly, poor or distorted vision often leads to imbalance.

Your Brain and Balance

All signals (from ears and eyes) eventually come to the brain. Yet, the brain is not commonly the cause of imbalance. Still, conditions like migraine headache, a brain phenomenon, can be associated with dizziness or vertigo. There are rare seizure disorders associated with vertigo. An over accumulation of fluid surrounding the brain, hydrocephalus, can cause imbalance and difficulty walking. Brain disorders are often diagnosed with the help of a neurologist and the use of Magnetic Resonance Imaging (MRI) scans.

Age and Balance

With aging there is a decrease in function of all of the critical areas associated with balance, such as ears, eyes, and leg muscles. As the brain ages there is less plasticity (the ability to rebound from injury) and less ability to integrate complex signals from multiple organ systems. Common issues associated with age that may contribute to balance disorders include:

- The organ of balance in the inner ear becomes less efficient with age.
- Eye diseases such as cataracts and retinal disease affect depth perception.
- The muscles in the legs weaken with age and the muscle sensors are often adversely affected by neurological disease, such as the peripheral neuropathy of diabetes.
- Orthopedic problems in areas such as the back, hips, or knees will often change the way a person holds their posture, causing dizziness or imbalance.

Dizziness caused by aging is difficult to treat because many patients are impacted by a combination of multiple problems. Management based on vestibular rehabilitation therapy can be a very effective treatment strategy because it is an exercise-based therapy designed to improve function between ears, eyes, and muscles, and has no potential side effects.

Patient Information

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