

Finding Balance: Vestibular Rehabilitation for Your Well-Being

What is the Vestibular System?

The vestibular system is part of the inner ear and is a small sensory organ that helps with balance and orientation to determine where we are in space. It is always engaged due to the effective pull of gravity but is inhibited by movements of the head and body. Additionally, the vestibular system works with the eyes, head, and neck to stabilize the gaze on moving objects or on stationary objects as the head and body move.

The inner ear works closely with the visual and somatosensory system (sense of touch) to give an exact understanding of where the body is so that it can appropriately balance and control movements. It is common to become disoriented when this sensory system is weakened or injured.

Symptoms vary but may include lightheadedness, nausea, disruptions to balance or equilibrium, brain fog, or even vertigo, where there are acute sensations that the room is spinning. Understanding how the vestibular system works and the various treatment methods can help you find the help you need. Knowledge is powerful, the more you understand, the more comfortable you will be taking steps in the right direction.

What is Vestibular Rehabilitation?

Vestibular Rehabilitation Therapy (VRT) is used to reduce the symptoms associated with disorders of the inner ear ^{1,2}. The goal of Vestibular Rehabilitation is to strengthen the inner ear in a way that is similar to how physical therapists target the musculoskeletal system in traditional therapy.

Imagine a muscle that has gotten weaker over time or atrophied through injury or disuse. To strengthen the muscle, you would need to train for many

weeks to develop tolerance. The same conditioning is needed for sensory organs that need to be strengthened, like the vestibular system.

Sensory Reweighting is a therapy used to develop the inner ear by giving challenges or inputs to grow stronger. Navigating the medical system can be difficult while trying to find the help that you need. Sometimes a patient may be seen by several doctors before landing in the office of someone who appropriately diagnoses them. Dealing with something as frightening as dizziness and disequilibrium makes it important to find the help you need as quickly as possible.

How Do We Respond When One of Our Systems Makes Us Uncomfortable?

As humans, it is normal for us to take whatever system is making us uncomfortable and put it in a metaphorical corner for “time out”. In these moments we look to our other senses, for support such as our vision or sense of touch to help us while often over-compensating. Anyone who has found themselves “furniture walking” or rubbing their tired eyes after being up for too long will know what over-compensating with touch or vision looks like.

We always reach for our favorite tools in our belt, which leaves other tools neglected and rusty. However, that does not mean that it is too late to get your underused tools in working order. Vestibular Rehabilitation uses sensory weighting to apply more pressure on the inner ear so that it develops further. Whatever you don’t use, you may lose, and your inner ear is no exception to this rule.

The Process of Rehabilitating the Vestibular System

The vestibular system helps determine balance and coordination. While undergoing Vestibular Rehabilitation tasks are aimed at restoring your abilities by using strategies to stabilize you while standing still or on the

move. Balance Training is a key factor in maintaining the proper functioning of the body's nervous system.

Balance Training helps the body respond more quickly and effectively to potential imbalance or falls and allows movements to be executed without dizziness. By constantly progressing in these exercises, prior compensations can be alleviated and replaced with higher levels of coordination and control. By adding weight and responsibility to the system that needs development, you can regain confidence and control over your symptoms.

Habituation of the vestibular system is when the system is exposed slowly over time to stimuli that have previously increased symptoms. This treatment may be as simple as restoring movements of the head and neck by performing more dynamic tasks like walking, turning, bending, and twisting. Additional challenges may be added to alter head positions, surfaces, visual targets, cognitive dual-tasking, and more.

Gaze Stabilization and How It Can Be Improved

Gaze stabilization is the ability of the eyes to fixate on a stable point when the head is moving in space. Vestibular disorders often heavily impact gaze stabilization due to a miscommunication between the eyes and the inner ear. A reflex exists between these two systems that help you stay focused on objects around you while they or you are in motion.

Without that reflex, your eyes will fall off target causing you to struggle to get them back on. This vestibular-ocular reflex (VOR) is something that can be improved with Vestibular Rehabilitation. One of the benefits of individualized physical therapy is that your therapist will take careful note of your tolerance to stay on target during movements of the head and body.

Having an individualized program will help you slowly increase the use of that reflex during progressively more difficult tasks. Some people may experience disruptions of visual focus associated with the strength and

coordination of the muscles around the eyes. Specific oculomotor tasks can be given in the clinic or at home to improve the ability to use the central nervous system to control your gaze.

What is BPPV?

Benign Paroxysmal Positional Vertigo (BPPV) is a common diagnosis that mainly impacts seniors but can impact anyone. BPPV can cause acute symptoms such as seeing the room spinning when in specific positions like lying down, bending, or looking up. This is caused when otoconia (small crystals that belong in a certain part of the inner ear) become dislodged and make their way into the semi-circular canals where they do not belong. The movement of these crystals excites the system into believing the head is moving when it is really not. The vision then tries to send corrections to keep the eyes on the target and can create a movement of the eyes called nystagmus.

Because it is positionally dependent, the nystagmus will make the eyes move in relation to the canal where the crystals are. At FYZICAL Therapy & Balance Centers, our physical therapists will help determine more information about any debris in the canals and develop an individualized treatment plan. We will identify which side the debris is on, which canal, and which direction it is moving. It is important to get the debris to a place where it can be reabsorbed and filtered out. Canalith Repositioning Maneuvers (CRMs) is the process of clearing out the crystals. It is important to seek the help of a professional to ensure that the treatment is effective and successful.

How Long Does It Take to Recover from BPPV?

The treatments mentioned above may provide a quick fix for BPPV if there is a mechanical problem with debris in the canals. Other times, treatments may consist of maneuvers in a handful of various treatments. It is important to note that there is a higher chance of getting BPPV again in the future if it has happened in the past. This is another reason to seek out an individualized

treatment plan since every case is different. No longer experiencing “room spinning” dizziness is a measure of success and will give you the opportunity to get back to doing what you love.

Recovery Time for Inner Ear Disorders

For inner ear disorders, such as vestibular hypofunctions (weakness), neuritis/labyrinthitis, Meniere's, vestibular concussions, or other specific conditions, timelines for healing may greatly vary. Since the nature of each condition is so different, some healing will require additional time for inflammation of the vestibular nerve to decrease. The inflammation will decrease either naturally or with the use of additional medical management over time. Mild Traumatic Brain Injuries (mTBI) may have additional areas that need to be treated, such as the neck, spine, or other musculoskeletal structures along with addressing the unique needs of the vestibular system. Thankfully, physical therapy can get you on the right track to recovery.

Seeking Professional Help

Since the vestibular system can present symptoms that often overlap with the central nervous system, many patients receive referrals to a neurologist. The neurologist will typically perform head and neck scans to rule out any central pathologies before concluding that the vestibular system is involved. Additionally, due to the potential impacts on vision and hearing, people will often be referred to an Ear, Nose, and Throat specialist (ENT) or an Audiologist. Each healthcare professional will have their own tests to look at the health and function of the inner ears to determine the right diagnosis for you.

When beginning our physical therapy program, your therapist will carefully look at the responses of the central and peripheral nervous systems and systems impacting movement and coordination. This will help determine what can be treated with the help of physical therapy and what issues may need to be referred to other medical providers. Determining both primary

and secondary symptoms are important so that each one can be properly addressed.

At FYZICAL, we believe in treating the individual, not just their symptoms. No one's journey is the same, so no two people should be treated the same. Vestibular Rehabilitation can positively address your current deficits to help you regain confidence and control and get back to loving your life.

Perseverance Matters in the Recovery Journey

For any vestibular disorder, it is important to remember that things may feel worse before they feel better. It sounds counter-intuitive, but the movements that allow the inner ear to grow stronger often exacerbate some of your symptoms.

Similarly, placing load through injured tissues may cause discomfort, but without the therapeutic application of load on those tissues, they will not remodel and heal properly. A well-trained vestibular specialist will consider your personal factors and progress as quickly or as slowly as needed to ensure a successful recovery.

How FYZICAL Can Help

At FYZICAL, we specialize in disorders of the balance and vestibular system. We believe that it is important to address your symptoms and restore the health of this system and equip our patients with the knowledge and understanding they deserve. Our goal is to give our patients an explanation of the natural course of their therapy and any resources they may need at their disposal. To get started with one of our programs, contact your local FYZICAL today!

References:

1. McDonnell MN, Hillier SL. Vestibular rehabilitation for unilateral peripheral vestibular dysfunction. Cochrane Database of Systematic

Reviews 2015, Issue 1. Art. No.: CD005397. DOI:
10.1002/14651858.CD005397.pub4

2. Herdman SJ. Vestibular rehabilitation. *Curr Opin Neurol*; 2013;26:96-101.
3. Tjernström F, Zur O, Jahn K. Current concepts and future approaches to vestibular rehabilitation. *J Neurol*. 2016 Apr;263 Suppl 1:S65-70. doi: 10.1007/s00415-015-7914-1. Epub 2016 Apr 15. PMID: 27083886; PMCID: PMC4833789.
4. Wang, L., Zobeiri, O. A., Millar, J. L., Schubert, M. C., & Cullen, K. E. (2021, March 30). Head movement kinematics are altered during gaze stability exercises in vestibular Schwannoma patients. *Nature News*.
<https://www.nature.com/articles/s41598-021-86533-3#:~:text=Gaze%20stability%20is%20the%20ability,often%20prescribed%20to%20facilitate%20compensation>.