



VESTIBULAR

DISORDERS ASSOCIATION

Balance and Aging

How to Prevent Falls

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Disclaimer: This presentation is not meant as a substitute for medical care.

Disclaimer

*This presentation is not intended nor implied to be medical advice.

You assume full responsibility for how you choose to use this information.

Always seek the advice of your physician or other qualified healthcare provider before starting any new treatment or discontinuing an existing treatment.

About the Presenter

Jordan Tucker, PT, DPT has over 9 years of experience in treating patients with neurological diagnoses, including balance deficits, vestibular deficits and most recently, concussion.

- She received her Certificate of Competence in Vestibular Rehabilitation in 2011
- Dr. Tucker now works at the Jefferson College of Health Sciences as an Assistant Professor and Coordinator of Clinical Education in the Physical Therapist Assistant Program

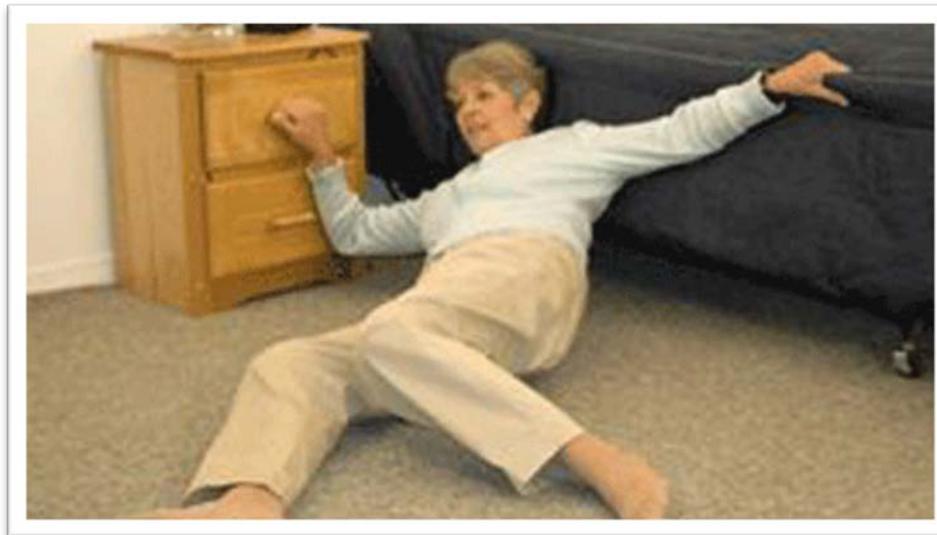
Poll Question #1

How many times have you fallen in the past year?

- 0
- 1-2
- 3-5
- 6+

The Prevalence of Falls

- 1/3 of adults over 65 fall each year.
 - Only half talk to their doctor about it.
- Of those who fall, 3/4 will fall again within 6 months.
- Falls are the leading cause of accidental death & injury in people over 65.



The Financial Cost of Falls

Estimated medical costs
of falls in 2012 were
\$30 billion.



The Impact of Falls

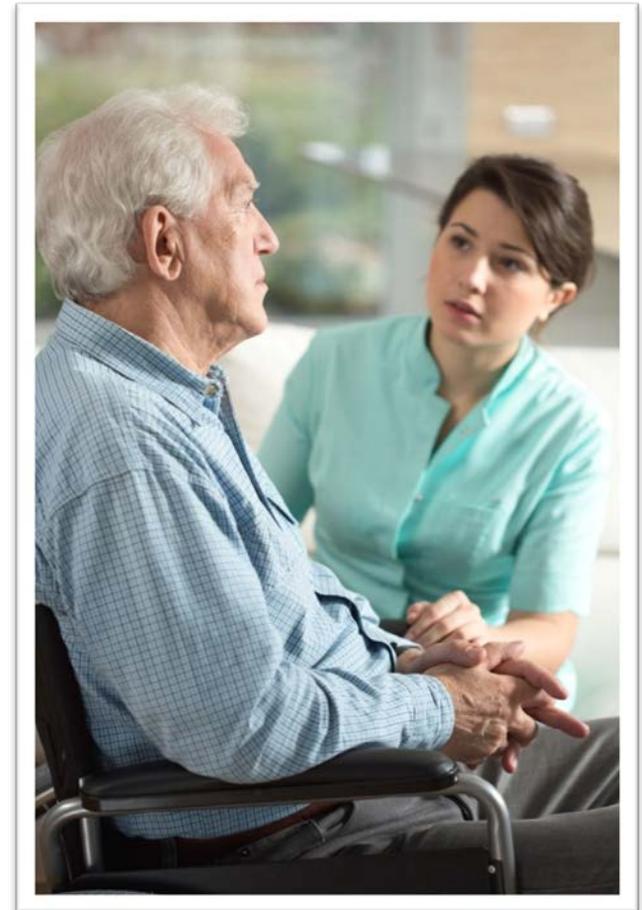
- 20-30% of those who fall will incur serious injuries, such as hip fractures.
- Many of these seniors are no longer able to live independently in their homes.



The Psychosocial Cost of Falls

Falls in older adults may result in:

- The loss of independence.
- Pain and suffering.
- Reduced quality of life.
- Increased caregiver burden.
- Onset of geriatric syndromes.
- Premature morbidity and mortality.



Emotional Impacts of Falls

Fear of falling can lead to:

- Anxiety
- Panic attacks
- Depression
- Agoraphobia
- Suicidal thoughts

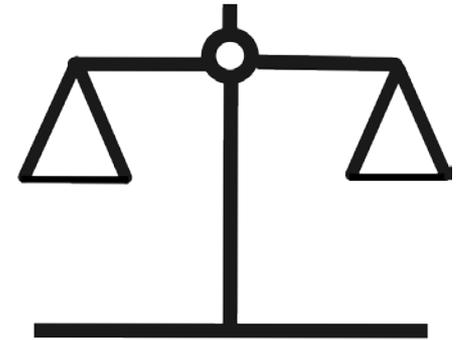


Patients may benefit from professional mental health support.

Components of Balance

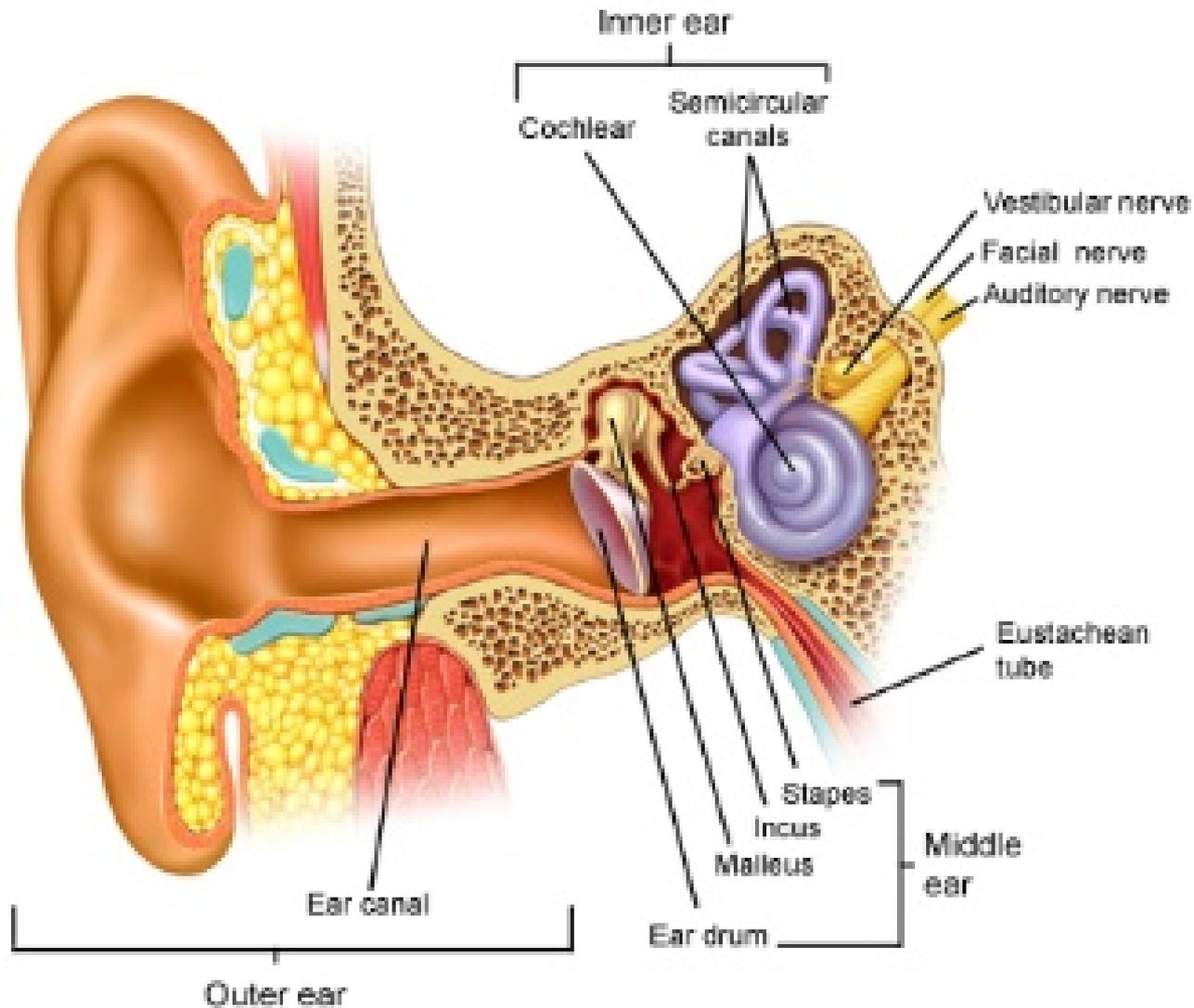
The Balance System

Maintaining balance depends on information received by the brain from the **eyes, muscles & joints, and vestibular (inner ear) organs.**



- The brain takes information from the outside world (vision, muscles, sensation, inner ears) and processes it to create upright posture and steady balance.
- An error in any part of this system, due to normal aging or disease, can cause a loss of balance or stability.

The Vestibular System



The Vestibular System

- The **vestibular system** includes the balance organs within the inner ear.
- The vestibular system communicates to the brain through the vestibular nerve.
- The brain coordinates signals from the vestibular system with signals from the visual system (eyes) and proprioceptive system (the feet) to create posture, balance and stability.
- **Gradual, mild vestibular loss** describes the normal aging process.
- The brain is able to compensate for gradual, mild vestibular loss with aging and serves as a model for vestibular compensation.

Vestibular Dysfunction

- Significantly increases with age
- Higher rates in people with cardiovascular risk factors, such as:
 - Heavy tobacco use.
 - High blood pressure.
 - Diabetes.
 - 70% prevalence in people with diabetes.

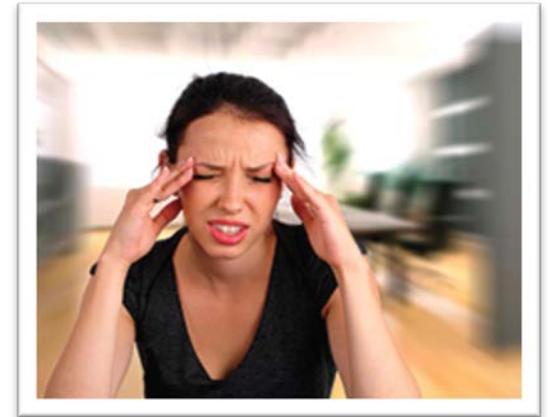


Symptoms of Vestibular Disorders

- Unexplained repeated falls without feelings of vertigo.
- Feelings of unsteadiness or **imbalance**.
- Difficulty walking or gait ataxia.
- Loss of balance with head turns while walking.
- Complaints of **dizziness**.
- **Vertigo** triggered by change in head position.
- Difficulty with concentration & memory.
- Mental fogginess & reduced cognitive stamina.
- Fear of falling.
- Blurred vision, wavy patterns or illusion of movement of objects known to be stationary with high speed or unpredictable head motions (oscillopsia).

Dizziness

- Dizziness is the **most common complaint** to physicians from patients over 70.
- 45-50% of patients complaining of dizziness have some form of **vestibular dysfunction**.
- Dizziness is usually **multi-factorial** and can lead to falls.
- It is important to discuss any dizziness you are experiencing with your doctor.



Poll Question #2

Do you experience dizziness, and if so, how frequently?

- No, I don't experience dizziness.
- Yes, I experience dizziness occasionally.
- Yes, I experience dizziness frequently.
- Yes, I experience dizziness constantly.

Causes of Dizziness

- Vestibular disorders.
- Central nervous system disorders.
- Migraine episodes or sinus headaches.
- Blood pressure (too high or too low).
- Side effects of medications, drug interactions or polypharmacy.
- Interactions of medications with alcohol.
- Blood sugar fluctuations.
- Dehydration.
- Malnutrition and electrolyte imbalance.
- Irregular heart rhythm.
- Low oxygen levels, such as with COPD.
- Anxiety.
- Neck tension.
- Stress.



Vestibular Disorders Common in Older Adults

- **Benign Paroxysmal Positional Vertigo (BPPV)** is the most common vestibular disorder in older adults and occurs when crystals in the inner ear are displaced due to head motion.
- **Meniere's Disease:** Symptoms include periodic episodes of vertigo, decreasing in frequency, with progressive hearing loss, tinnitus (ringing in the ears), and imbalance.
- **Vestibular Neuritis:** An inflammation of the vestibular nerve, which results in dizziness or vertigo, but no change in hearing.

BPPV is Under-Diagnosed

- The average person with BPPV sees 4-5 different physicians and spends \$2,000 to arrive at the diagnosis. This results in delays in care for months to years and increased suffering.
- Older adults with BPPV are often prescribed vestibular suppressants inappropriately, and undergo unnecessary diagnostic testing prior to arriving at an accurate diagnosis. 
- The American Academy of Otolaryngology recommends that **all older adults be screened for BPPV** due to its prevalence and contribution to falls.

Poll Question #3

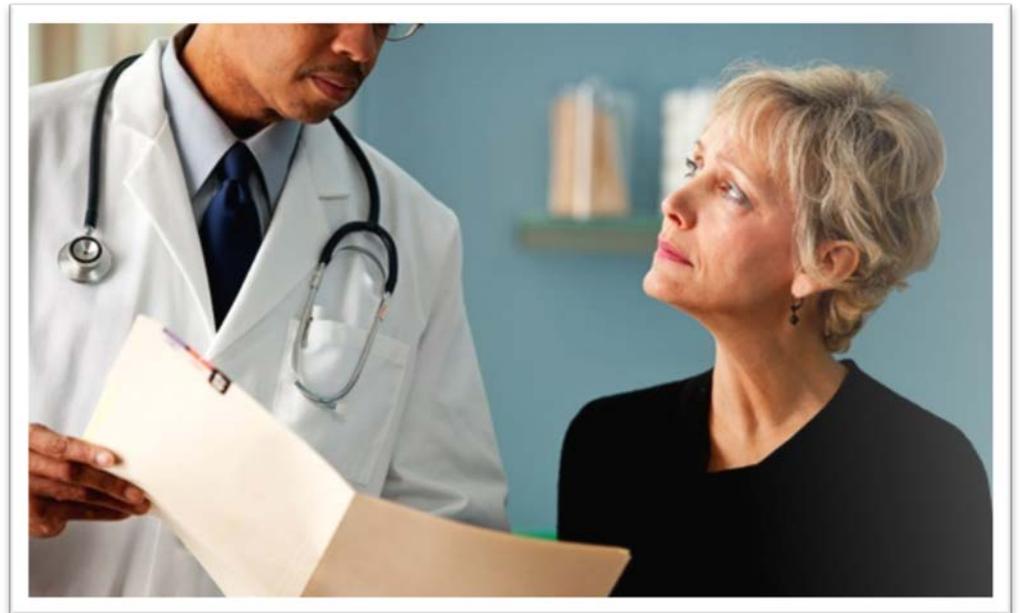
Have you ever experienced vertigo when getting out of bed or turning your head?

- Yes
- No

Why Hasn't My Doctor Evaluated My Vestibular System?

General practitioners receive little training in vestibular medicine.

Vestibular evaluation and treatment is a **subspecialty** within the fields of neurology and otolaryngology (i.e. ear/nose/throat).



Other Causes of Falls in Older Adults

Falls are generally caused by a combination of factors, including:

- Decreased strength and flexibility.
- Decreased vision.
- Decreased sensation in the feet.
- Slower balance reactions.
- Decreased/changed cognitive functioning
- Medication side effects, drug interactions, polypharmacy.
- Chronic health conditions that are not well-managed.
- Home safety hazards.
- Alcohol.



Decreased Strength and Flexibility

Decreased strength and flexibility may prevent older adults from performing daily activities safely or being able to recover from a loss of balance.

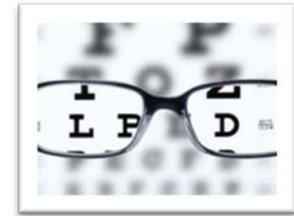
Causes of loss of strength and flexibility may include:

- Sedentary lifestyle in retirement.
- Deconditioning from self-restricted activity levels due to fear of falling or depression.
- Bedrest during a hospitalization, surgery, illness, or episodes of depression or grieving.

Decreased Vision

Vision is a key part of your balance system, so any decrease in vision may lead to imbalance or decreased ability to compensate for balance system difficulties.

There are many causes of decreased vision in older adults:



- **Normal aging:** More than 2/3 of individuals with low vision are over 65 years old.
- **Eye disease:** Macular degeneration, glaucoma, cataracts, and diabetic retinopathy.
- Visual problems that occur during head motions may indicate a **vestibular disorder**.

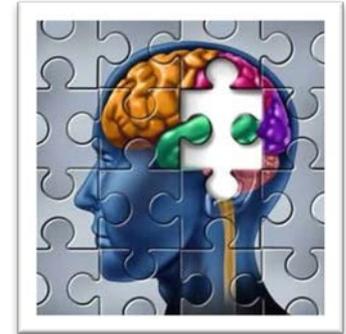
Decreased Proprioception

Proprioception is your body's ability to sense position, motion, and equilibrium so it can react accordingly.



Peripheral neuropathy – or nerve damage, usually in the feet or lower legs - is one major cause of decreased proprioception.

Decreased/Changed Cognition



- Confusion/brain fog
- Lack of attention/ability to focus on tasks can lead to falls.
- Dementia may result in poor safety awareness.
- Many older adults refuse to use an assistive device because they lack the cognitive function to be fully aware of their balance challenges.
- Long term use of some medications used to treat dizziness may cause or exacerbate dementia.

IMPORTANT:

**FALLING IS NOT A
NORMAL PART OF
AGING.**

There are things you can do
to help prevent falls.

Fall Risk Screening

Even though falls are more common in older adults than in younger adults, **falls are NOT considered a normal part of aging.**

- Most falls are preventable.
- The American Geriatrics Society recommends that all healthcare providers ask older adults once a year if they have fallen or are having difficulties with balancing or walking.
- Those who perform poorly on the fall risk screen or express fear of falling should be referred for physical therapy services to focus on balancing, walking and fall prevention.

Poll Question #4

Have you had a fall risk evaluation?

- Yes
- No

Fall Risk Reduction

There are many things that can be done to **reduce** the risk of falling for older adults.

- Three major categories of fall risk reduction include:
 - Medical Management
 - Home and Environmental Safety
 - Balance and Mobility

Medical Management

- Manage chronic health conditions.
- Medication review at doctor's office or pharmacy (include prescription medications, over-the-counter drugs, mail-order medications, vitamins, and herbal supplements).

*****NEVER ALTER YOUR MEDICATIONS WITHOUT FIRST SPEAKING WITH YOUR DOCTOR!*****

- Appropriate hydration and nutrition.



Home and Environmental Safety



- Consider using an assistive device to prevent falls.
- Remove clutter from walkways.
- Increase lighting, including nightlights.
- Reduce glare from windows and TV screens.
- Light switches at the top & bottom of stairs.
- Install grab bars and handrails.
- Fix broken steps and secure loose carpeting.
- Install a raised toilet seat.
- Use a shower chair with hand-held shower and non-skid floor cover.

Balance & Mobility

If an older adult is only going to do ONE THING to reduce fall risk, **EXERCISE is the most important intervention.**



Some Specific
Things You Can
Do

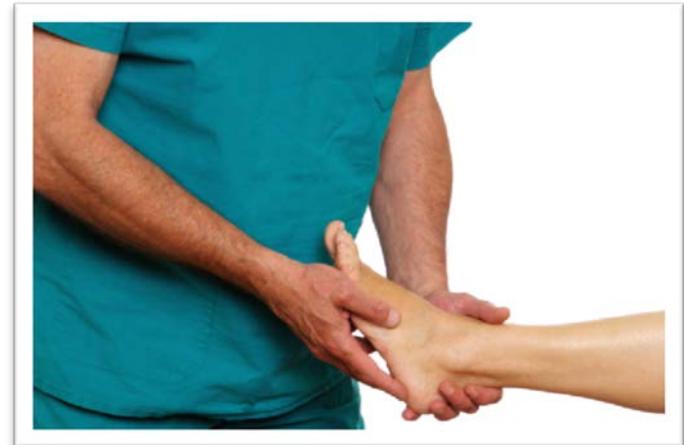
Managing Visual Changes

- Get regular eye exams and manage health conditions that may affect your vision.
- Wear prescription lenses if needed.
- Protect eyes from the sun with sunglasses.
- Bifocals and multi-focal lenses increase fall risk due to impairment in depth perception.
- Vestibular rehabilitation helps train the balance system to adapt to changes in vision.



Managing Somatosensory Changes

- Managing diabetes and high blood pressure may slow progression of peripheral neuropathy (i.e. nerve damage).
- Exercise and staying active keeps muscles in the legs, ankles, and feet strong.
- Proper foot care and footwear and also important.



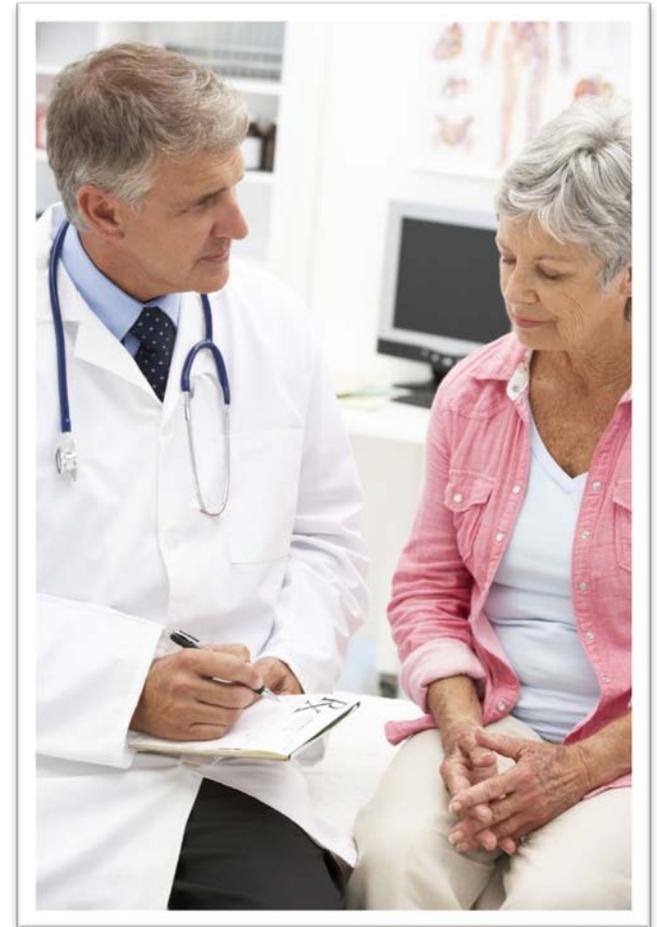
Addressing Vestibular Causes

It is important to identify the **cause** of symptoms of dizziness, vertigo or imbalance.

- Find a vestibular specialist in your area through VEDA's online provider directory (vestibular.org).
- Diagnostic testing may be helpful if recommended by a vestibular specialist.
- Vestibular suppressant medication may be helpful to improve quality of life, if there is a poor prognosis for full vestibular recovery.

Manage Your Health

- Work with your primary care doctor to manage your medications and chronic health conditions.
- Find a qualified vestibular specialist to identify the root cause of your imbalance.
 - Check out VEDA's provider directory at vestibular.org.



Find a Specialist

Specialists who can help you:

- Physical therapist.
- Occupational therapist.
- Vision specialist.
- Mental health counselor.



Enjoy Life

- Call friends or family to socialize and ask for support.
- Watch funny movies, sitcoms, or online videos to lift your mood.
- Engage in creative endeavors like art, music, or other hobbies.



Reduce Stress and Find Support

- Relax.
- Breathe and smile.
- Imagine yourself healthy and happy.
- Find a local or online support group.



Empower Yourself and Share with Others

- Empower yourself by learning more about your condition.
 - VEDA has many useful educational publications on vestibular.org
- Share your story with others.
 - Contact VEDA if you are interested in becoming a vestibular ambassador.



Where to Get Help

VEDA's mission is to support, inform, and advocate for the vestibular community.

Visit <http://vestibular.org> for:

- Educational Resources
- Professional Provider Directory
- Support Group Network Directory



You can join our Community of Support by becoming a VEDA member!

Contact VEDA: 800-837-8428 , info@vestibular.org

Also look for VEDA on Facebook, Twitter and Pinterest.