

## Age-Related Dizziness

Age-related dizziness is a serious issue that affects a sizable percentage of older adults each year. A number of factors, including visual loss, inner ear disorders, muscle loss, and decreased proprioception, combine to increase fall risk in those with age-related dizziness. For physical therapists, age-related dizziness is of great concern as these patients are more susceptible to falls and are at greater risk of sustaining serious and even fatal injuries. Of primary concern for physical therapists is ensuring that the body systems contributing to age-related dizziness are properly examined and treated in order to improve overall functional mobility in their patients as well as reduce fall risk.



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### Presbystasis

#### Present-stay-sign

Presbystasis is the loss of balance with associated dizziness as an individual ages (also known as age-related dizziness). This condition often coincides with other age-related changes, such as hearing loss and muscle atrophy, which can combine to increase a patient's risk of falling and serious injury.

### Pathophysiology

#### Visual Decline

##### Eyes in Decline

Visual decline is a natural, common occurrence with aging. Decreased visual acuity lowers the ability of patients to identify obstacles and potential threats and can contribute to fall risk significantly. Common causes of visual decline also include cataracts, the leading cause of visual decline worldwide, followed by uncontrolled diabetes, which can cause neural dysfunction.

#### Somatosensory Dysfunction

##### Sumo-sensory-satellite Dysfunctioning

The somatosensory system utilizes sensations such as touch and pressure to aid with maintaining balance. As we age, these systems may decline naturally or due to diseases such as diabetes or strokes, which can negatively impair the body's ability to detect sensation. This decline can become even more evident when older adults have to move around in dark areas and lose the aid of their visual system.

#### Vestibular Dysfunction

##### Vest-bull Dysfunctioning

The vestibular system is composed mainly of the nerves and structures within the inner ear, which aid in the perception of balance via monitoring the position of the head. Age-related hearing loss, ear infections, and vestibular disorders such as BPPV can negatively impact the inner ear as well as the vestibular system, leading to symptoms such as dizziness and vertigo, which can significantly increase the risk of falling.

#### Muscular Atrophy

##### Muscle-man @-trophy

Muscular atrophy, also known as sarcopenia, describes the steady decrease in muscle mass during the aging process. The decline in muscular strength will often result in decreased gait speed and stability, increasing the risk of falling. On average, men will experience a more rapid loss of strength when compared to their female counterparts. However, both genders will experience an overall decline in motor unit recruitment.

## Signs and Symptoms

### Increased Loss of Balance

#### Up-arrow Loss of Balance-beam

Adults suffering from age-related dizziness will often report a greater number of falls or instances of near-loss of balance. This increased loss of balance and falls puts older adults at greater risk for injuries and the requirement of corrective surgeries such as hip replacements. Comorbidities, such as decreased proprioception due to diseases such as diabetes as well as decreased muscular strength, can all further exacerbate and increase the chances of loss of balance.

### Vertigo

#### Vertigo-vortex

Vertigo is the sensation that the environment is spinning relative to the person. The presence of vertigo can drastically affect postural stability and increase the risk of falling. One of the most common causes of vertigo in older adults is benign paroxysmal positional vertigo (BPPV), which occurs due to calcium carbonate debris in the inner ear sending false signals to the brain regarding the position of the head. Other issues, such as medication side effects and orthostatic hypotension, may also cause acute but serious episodes of vertigo.

## Treatment

### Vestibular Rehabilitation

#### Vest-bull Rehabilitation

Vestibular rehabilitation training involves assessing and improving the patient's current level of vestibular function. During the sessions, the physical therapist will aim to improve the patient's vestibular-ocular gains and work on postural strategies to decrease fall risk. Prior to starting vestibular rehabilitation, therapists should ensure that other factors, such as the origin of the vestibular issues being peripheral or central and the patient's level of cognitive function, are all properly accounted for.

### Strength Training

#### Strong-man Training-wheels

Strength training will involve weight-bearing exercises aimed at improving muscular strength and bone density. Improvements to muscular strength and endurance can aid in reducing fall risk as well as improving overall functional mobility.