The prevalence of dizziness and imbalance increases with age and as a result, these problems are common in older adults. Studies have shown that older adults who suffer from dizziness and imbalance are at higher risk of falling, and falls are the leading cause of hospital admission and accidental death among older adults.

**Age-Related Vestibular Degeneration**

Maintaining balance is a complex process involving rapid brain processing of input from the vestibular system located in the inner ear, the proprioceptive system, and vision, along with musculoskeletal coordination. While the causes of dizziness in older adults are multifactorial, vestibular degeneration is one of the most frequent contributors.

An important component of the balance system is the vestibulo-ocular reflex (VOR). When the head moves in one direction, the VOR causes the eyes to move equally but in the opposite direction so as to maintain gaze on an object. Gaze maintenance is important to reduce blurry vision during motion (called “retinal slip”). Reduced VOR function occurs with aging because of a decrease in hair-cell receptors and neurons in the vestibular end organs.

**Common Vestibular Disorders in Older Adults**

Table 1 lists the common vestibular disorders in older adults, along with their causes and symptoms.

**Benign positional paroxysmal vertigo** (BPPV) is the most common cause of vertigo across the lifespan, with an increased prevalence in older adults due to degenerative changes in the inner ear. In addition to age, osteoporosis and osteopenia are risk factors for BPPV.

**Meniere’s disease** affects approximately 17% of older adults 61-70 years. While the exact cause of Meniere’s disease remains unknown, it is likely related to an abnormal volume of endolymphatic fluid in the inner ear.

**Vestibular neuritis** accounts for 3-11% of patients seen in otology clinics because of dizziness. It occurs due to an inflammation of the vestibular nerve.

**Exacerbating Factors**

A number of conditions that are common in older adults can increase the fall risk associated with these common vestibular disorders. They include presbycusis, presbyopia, medication side effects, and cerebrovascular disease. Dizziness can also lead to fear of falling, which in turn can lead to sedentariness, and being sedentary decreases strength and balance and further exacerbates fall risk.

**Diagnostic Evaluation**

When taking a history from patients with dizziness or balance problems, note whether their symptoms are consistent with one of the common disorders in Table 1. Be alert for “red flags” that might indicate a serious neurological condition rather than one of those common vestibular disorders. Red flags include dysphagia, facial weakness, diplopia, and ataxia.

| Table 1. Common Vestibular Disorders in Older Adults |
|-----------------------------------------------------|---------------------------------------------------|
| Disorder                                            | Cause                                             | Symptoms                                                                 |
| Benign positional paroxysmal vertigo                | Mobile calcium carbonate crystals (otoconia) dislodged from the utricle and mislocated in the semi-circular canals | Brief episodes of vertigo and dizziness lasting less than 1 minute and typically provoked by changes in head position. Diagnosis can be confirmed with Dix-Hallpike maneuver (Table 3). |
| Meniere’s Disease                                   | Overproduction or under-absorption of endolymphatic fluid from inner ear | Multiple episodes of vertigo (lasting 20 minutes to several hours), aural fullness, “roaring” tinnitus, and fluctuating hearing in the affected ear |
| Vestibular Neuritis                                 | Inflammation of the balance portion of the 8th cranial nerve due to viral infection | Prolonged episodes of vertigo and dizziness lasting up to several days, typically without auditory symptoms |

**TIPS for Dealing with Vestibular Disorders in Older Adults**

- Consider vestibular disorders as a cause of falls in older adults.
- Consider referral for a vestibular evaluation with an audiologist if a patient feels unsteady or dizzy, has a fear of falling, or has incurred a fall within the last year and the cause for the fall is not apparent.
- When patients have a diagnosed vestibular disorder, consider referral for vestibular rehabilitation therapy. It can accelerate compensation strategies to help patients recover and manage uncomfortable long-term symptoms.
weakness or drooping, dysarthria, diplopia, drop attacks, and spontaneous nystagmus with an inability to suppress eye movements when fixating on a visual target. In older adults at fall risk in whom one of the common vestibular disorders is not apparent and in whom no red flags are present, consider referral for evaluation for vestibular dysfunction by an audiologist. Common tests an audiologist will perform are shown in Table 2.

### Treatment

BPPV can often be successfully treated with Epley maneuver (see [https://www.youtube.com/watch?v=1BzID5nVQjk](https://www.youtube.com/watch?v=1BzID5nVQjk)), which repositions the dislodged otoclonia in the inner ear. For Meniere’s disease and vestibular neuritis, vestibular suppressants (i.e., meclizine) are often prescribed and can be effective for reducing the uncomfortable symptoms, but they should be used with caution in older adults because of their anticholinergic effect and because they impair the process by which the central nervous system adjusts to vestibular lesions over time - a process known as central compensation. For patients with BPPV, symptoms may persist until otoclonia repositioning with the Epley maneuver is complete, even if vestibular suppressants are used.

While central nervous system compensation over time may improve a patient’s symptoms, some dizziness and imbalance may persist. Patients with persistent symptoms may benefit from early referral for vestibular rehabilitation therapy (VRT).

VRT exercises can be completed in clinical settings and/or at home. Without VRT, patients may develop inappropriate ways to avoid bothersome symptoms, like becoming sedentary. VRT can accelerate good compensation strategies to help patients recover and manage uncomfortable long-term symptoms.

Research suggests that VRT is particularly effective for adults with unilateral vestibular impairment. Patients who underwent VRT in placebo-controlled trials reported more improvements in balance, walking, vision, dizziness, and ability to participate in daily activities. VRT also results in significant improvement in balance test scores, demonstrating VRT as a means to prevent falls - a primary concern for older adults with vestibular disorders.

Examples of some commonly used home VRT exercises can be viewed at [https://www.youtube.com/watch?v=eqJ1luFyF2o](https://www.youtube.com/watch?v=eqJ1luFyF2o).