

Finding Balance

Taking steps to prevent falls when you have vision loss

Every year, one of every three adults aged 65 or older falls. Among the elderly, falls are the leading cause of injury and often precipitate admissions to hospitals or nursing homes. Recently, the Centers for Disease Control and Prevention reported that in 2013, about 25,500 older adults died from fall-related injuries in the United States, a rate that increased substantially over the previous decade.

While there are many causes of falls, it's well recognized that a primary risk factor is visual impairment. Research shows that people with visual impairment are more than twice as likely to fall as those without a visual impairment.

You may also be more susceptible to falling if your visual acuity has declined and has not been corrected with cataract surgery or new glasses or contact lenses.

One study involving 2,002 older women found that those whose eyesight had worsened the most over five years—measured by a loss of more than 10 letters on a standard eye chart—had a 43 percent higher likelihood of frequent falling (two or more falls per year) than those whose vision remained the same or improved.

Quality of life affected

One factor that appears to play a role in falls associated with vision loss is poor balance. A 2013 study in *JAMA Ophthalmology* examined 4,950 people aged 40 and older and compared balance measures in people with normal vision, visual impairment and uncorrected refractive error (such as presbyopia). Researchers found that people in both groups with reduced vision had a greater risk of balance problems and reported more difficulty with falling than people with normal vision.

The researchers believe that reduced visual inputs weaken the vestibulo-ocular reflex. This reflex is important to stabilize the eyes, and therefore vision, during motion and is an important system for maintaining balance. It relies primarily on input from the bones and soft tissue of the inner ear. Thus, to minimize falling and improve a person's quality of life, it's essential not only to treat impaired or deteriorating eyesight but also to address any balance issues.

The study also found that people with visual impairment engage in a lower level of physical and balance activities that benefit postural balance. For many older adults, fear of falling can limit the amount and

type of activities they participate in on a daily basis. People who suffer from eye disease in particular are likely to restrict their activity levels to avoid falling.

One study, published in *Investigative Ophthalmology & Visual Science* in 2012, found that nearly 50 percent of people with poor vision curtailed once-enjoyable activities because of a fear of falling. Among the 345 adults in the study, the participants who limited their activity had actually fallen in the previous year and were more likely to fail a balance test than those who did not curtail their activity level. Participants included those who had age-related macular degeneration (AMD), glaucoma or Fuchs corneal dystrophy (a progressive disease that causes the cornea to become swollen and cloudy).

One way adults with vision problems restrict activity is by reducing the distance they travel from their homes in their normal daily routines. A study of 193 adults published in *JAMA Ophthalmology* in 2013 found that people with AMD traveled on average a quarter mile less on a daily basis for each one-line loss of letters on a standard eye test, compared with a control group.

activities earlier than after filtration surgery. This form of glaucoma surgery is usually used only when other measures have failed.

Treating Angle-Closure Glaucoma

People who have narrow angles, identified on gonioscopic examination, but no sign of damage, can be followed with annual exams or treated with laser iridotomy. This surgical procedure involves making a

While people with vision problems may restrict their activity to protect themselves from falling, these limitations can lead to social isolation, a potential risk factor for poor health, as well as dementia and premature death. A lack of physical activity weakens strength and balance, which in turn allows restricted movement to become a contributor to the likelihood of falling. And as people travel less, they not only stop participating in recreational activities, such as exercise or social gatherings, but also lose access to necessary services, whether it's seeing a doctor specializing in retinal care or meeting with a financial planner.

Reducing fall risk

People with vision problems should talk with their doctors about being afraid of falling and what they can do to overcome their fears. Older adults should have their vision checked at least once a year and make sure their eyeglasses are up to date. Interventions to evaluate and correct eye disease are also critical so that visual impairment will not prevent sustaining a more active lifestyle.

As people age, they need to remain as mobile as possible; a sedentary lifestyle has been shown

to double the risk of cardiovascular disease, diabetes and obesity. Exercising on a regular basis will also strengthen balance and mobility and reduce the likelihood of falling.

For older adults at risk for falling, experts recommend balance training on three or more days per week. One type of exercise that can improve balance is tai chi, a gentle form of martial arts that can be practiced by people of all ages. A study published in 2014 in the *Journal of Sport and Health Science* found that older adults who participated in a 14-week program called Tai Ji Quan: Moving for Better Balance showed improvement in physical performance, balance and cognitive tests.

Regular strength training, which includes using weights or performing resistance exercises, will also increase balance and flexibility.

Exercise classes that help with balance are offered at community fitness centers, senior centers, and parks and recreation facilities. Before starting an exercise program, you should talk with your medical doctor and your eye doctor, because some vision problems and medical conditions can be affected by rapid movement, bending, lifting or straining.

When signing up for an exercise class, make sure that the instructors have specialized training in working with older adults. Since exercise instructors are not licensed, they should have a national certification or accreditation to teach fall prevention exercise programs to older adults.

In addition, tai chi instructors should have completed a tai chi course taught by a tai chi master or grand master and have a national certification to teach physical activity to older adults.

Another option would be to participate in A Matter of Balance: Managing Concerns About Falls, a program designed to reduce the fear of falling and increase activity levels among older adults, including those with vision loss. This evidence-based program, which consists of eight two-hour sessions for a small group led by a trained facilitator, was developed at the Roybal Center at Boston University and is now offered in 39 states and Washington, DC.

To find A Matter of Balance programs, contact your local agency on aging or go online to tinyurl.com/White-Paper-balance for a listing of contacts by state.

tiny hole in the iris to allow a path for the flow of aqueous humor.

Individuals with narrow angles and signs that the outflow of aqueous humor has already been occluded, such as a higher than normal IOP, are treated with laser iridotomy. After the procedure, daily use of IOP-lowering eyedrops is often not necessary. In people with more severe angle-closure glaucoma, both iridotomy and daily eyedrops are required.