

VISION

To maintain balance and navigate space in our physical world, we must organize and integrate information from our eyes to help guide our movements.

WHAT DOES THE RESEARCH SAY?

- **Evidence (Brundle et al, 2015) suggests sight impairment in older people is associated with increases in the incidence of falls and hip fractures**
 - **Compared to the general older population, this group is 1.7 times more likely to fall, 1.9 times more likely to have multiple falls and 1.3–1.9 times more likely to experience hip fractures.**
- **Dhital et al (2010) found that older people with eye diseases (age-related macular degeneration, glaucoma, and Fuchs corneal dystrophy) were 3x more likely than those with good vision to limit their activities due to a fear of falling.**
- **This cautiousness may actually increase their risk of falling, as Lord et al (2007) found that people with sight loss who did not take part in physical activity were 3x more likely to fall.**

Visual changes

- **Poor visual contrast sensitivity and acuity, reduced visual field and decreased depth perception as well as environmental factors, including poor lighting, are known to be associated with an increased risk of falls amongst older people.**
- **People with poor vision can lack stability when stepping up and down and adopt different gaits when avoiding obstacles, thus increasing the risk of trips and falls.**

Visual attention/ gaze behavior

- **Age-related declines in visual attention encompass a decrease in processing speed and difficulty with selective attention that could result in less active scanning of the relevant environmental cues and longer fixation durations on certain people or objects in the more complex real-world environment (Zukowski et al, 2020).**
- **Anxiety in older adults is a negative predictor of successfully avoiding obstacles while walking and is related to longer fixation times on walking targets (Zukowski et al, 2020).**

TRAINING

- **Older adults prone to falling may benefit from eye movement training that teaches them where to look while walking in busy environments.**
- **Curzon-Jones BT et al (2018) found route previewing results in altered gaze behaviour, increased self-confidence and improved stepping safety in both young and older adults during adaptive locomotion.**
- **Gunn et AL (2019) demonstrated that it is possible to modify mobility-related gaze behavior and mobility performance in older adults with glaucoma.**