

Falls Prevention Education: Biological Risk Factors

Biological risk factors include those pertaining to the human body. They are related to the natural aging process and the effects of chronic, acute or palliative health conditions. Some factors cannot be changed such as gender and age, while others may be prevented or compensated for, such as mobility impairments, muscle weakness or poor vision.

Mobility impairments occur when there are changes to the normal functioning of the visual, vestibular, somatosensory and musculoskeletal systems.

Visual system: tells us about the layout of the environment around us and the spatial relationships of objects in the environment	Somatosensory system: tells us about our spatial location and movement of the body relative to the support surface and to each body part
Vestibular system: triggers sensors in the inner ear to tell us when we are moving or stationary and when we are upright or reclining	Musculoskeletal system: a complex system involving the body's muscles and skeleton, including the joints, ligaments, tendons and nerves

Deficits in one or more of these systems can result in an older person not being able to sense the presence of a tripping hazard or not being able to react quick enough to regain balance.

The three most common symptoms of mobility impairments are balance deficits, gait deficits and muscle weakness.

Balance deficits Balance is the process by which we control the body's centre of mass with respect to the base of support.
Gait deficits The ability to walk normally depends on ease of movement in the joints, appropriate timing and intensity of muscle action and appropriate sensory input.
Muscle weakness Decreases in muscle strength, endurance and power leaves one unable to prevent a slip, trip or stumble from becoming a fall.

What can we do...?

- ✓ **Encourage the use of appropriate assistive devices:** Assistive devices can promote independence and mobility and may prevent falls if used properly and are safely maintained.
- ✓ **Encourage safe maintenance of assistive devices:** Ensure brakes, wheels, cane tips are in working order
- ✓ **Encourage physical activity:** Choose physical activities that focus on balance, gait, muscle strength, flexibility, endurance and coordination, for example Tai Chi, walking, strength training using weights and resistance

(Source: Fall Prevention Programming, Vicky Scott, PhD, RN)