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Well fitting shoes with a flat heel can reduce the risk of falls.

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Proper Footwear for People with Gait Imbalance

By Denise Schneider, DPT, FAAOMPT, ATC, adapted from an article by Juie Shein, PT

Proper footwear is essential for individuals with balance issues, particularly seniors and those at risk of falling.

KEY POINTS

- Proper footwear is an important part of a fall prevention strategy.
- The "correct shoe" is different for every person, but there are some key considerations to keep in mind.
- Balance and gait testing by a trained professional will aid in fall prevention.
- Consult a shoe expert, physical therapist, or podiatrist to determine the best footwear for your specific needs.
- Feet change as we age, so it's important to assess your shoes and replace them as needed regularly.
- Proper footwear is essential for individuals with balance issues, particularly seniors and those at risk of falling.

FALL PREVENTION

As more people age, the frequency of falls also increases, along with the associated financial burden.

- Falls occur in 30-60% of older adults
- 10-20% of falls result in injury, hospitalization, and/or death
- Every 14 seconds, an older adult is treated in the emergency room for a fall
- Every 29 minutes, an older adult dies from a fall-related injury
- In 2023, fall-related medical costs totaled $50 million in the United States (Centers for Disease Control, CDC)

WHAT TO LOOK FOR IN A SHOE:

Low heel height (1-3 cm) aids in balance and stability. Higher heel height is linked to a greater risk of falls.

Fall prevention for seniors is crucial to reduce serious physical injury, disability, and even death. Other impacts of falls include:

- Fear of movement
- Isolation
- Increased rate of physical and emotional decline
- Lack of independence
- Decreased quality of life

Older people are at risk for falls due to age-related changes in the neuromuscular system, among other factors. Postural stability (ability to balance) also plays a role and is affected by damage to the vestibular system in the inner ear, which sends signals to the brain to tell you where you are in space.

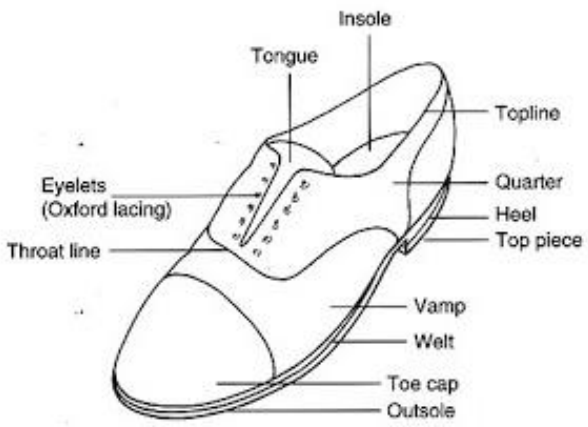
Many risk factors have been identified that contribute to falls. One easily modifiable risk factor is proper footwear.

THE GOALS OF PROPER FOOTWEAR

The goals of proper footwear include comfort, safety, function, stability/support, and mobility. Certain types of footwear can help you improve your strength and balance.

Understanding the structural components of footwear can help you choose the shoe that is best for you.

Individuals at risk of falls should select a shoe that provides them with a sense of stability and support. Unfortunately, perceptions about footwear, such as style or comfort, may lead someone to choose a shoe that is not the most appropriate or safest.



STRUCTURAL COMPONENTS OF A SHOE

The bottom of the shoe includes:

- Heel: The raised portion on the back of the shoe. Designed to hit the floor first when walking.
- Insole: Inner part of the bottom of the shoe, which provides comfort, support, and cushioning. Custom insoles can address specific medical conditions.
- Outsole: The bottom part of the shoe that hits the ground when walking. It provides traction/slip resistance and needs to be durable.

The upper part of the shoe consists of:

- The material (e.g., leather or fabric) that covers the foot.
- Counter: The back portion of the shoe that stabilizes the heel to prevent excessive movement
- Toe box: The front of the shoe, which allows toes to move freely.

FEATURES TO CONSIDER FOR PEOPLE AT RISK OF FALLS

Heel Height

The distance between the bottom of the heel, where it meets the ground, and the point where it connects to the shoe. Low heel height (1-3 cm) aids in balance and stability. Higher heel height is linked to a greater risk of falls.

Soles

- Avoid a thick, heavy sole, which may impair balance by hindering your ability to sense texture and variations in the walking surface, and can get caught on carpets, causing you to trip.
- Thick soles reduce sensory input and cause a delay in your muscles' reactions, such as to a rock on the sidewalk, which can lead to a fall.
- A flatter (less thick) sole decreases the risk of ankle instability and falls.
- Specialized insoles can enhance sensory feedback in the feet, thereby reducing the risk of falls.
- Non-slip soles provide additional traction, helping to prevent tripping and falling.

Toe box

- It should be wide enough to keep your

feet flat.

- Allows pressure to be distributed evenly. This aids in comfort, decreases pain, and promotes stability.
- Look for lightweight shoes, which reduce fatigue and make it easier to lift your feet, reducing your risk of tripping.
- Opt for a secure fit, such as lace-up shoes or those with Velcro closures, rather than slip-on shoes, which can cause the foot to move around inside the shoe and can increase the likelihood of falls.

CONVENTIONAL SHOES

Conventional shoes typically have a thick, cushioned sole with a raised heel and a narrow toe box, which can restrict natural foot movement. These features are often found in athletic shoes, dress shoes, and everyday footwear.

- More rigid with a thick, harder sole = heavier and bulkier
- Potentially limits sensory feedback
- May have a negative effect on gait and balance

DESTABILIZING SHOES

Don't let the name fool you. Destabilizing shoes are a type of footwear designed to intentionally challenge the wearer's balance and stability, potentially stimulating and strengthening the neuromuscular and somatosensory systems.

- Characterized by an anterior-to-posterior curve and cushioned sole.
- Designed to facilitate a rolling motion through the foot and decrease pressure on the forefoot.
- Features challenge balance and posture (in a good way).
- Potentially enhances proprioception (the ability to sense movement through the muscles in your feet), balance, and strength by stimulating the neuromuscular and somatosensory systems.
- Potentially improves gait patterns (i.e., the way you walk).

MINIMALIST SHOE

Minimalist shoes, also known as barefoot shoes, are designed to mimic the natural barefoot experience, emphasizing a minimal barrier between the foot and the ground. They prioritize a thin, flexible sole, minimal cushioning, and often a zero-drop platform (where the heel and forefoot are at the same level). This design promotes a more natural gait and enables greater foot and ankle movement.

- "Zero drop" means that the shoe is the same height from heel to toe.
- Spreads the body weight evenly across the foot.
- Can allow for increased mobility, strength, function, and improved balance.
- Contributes to comfort and stability.[1]
- Have been shown to improve strength after 6 months of use.[2]

IN THE HOME

Some people prefer to wear slippers, socks, or go barefoot in their homes. However, in a sample of 312 older persons, those who wore slippers had more foot pain and significantly greater fall risks compared to those who wore fastened shoes or no shoes at all. Numerous studies report that walking barefoot or wearing socks or slippers increased fall risk by up to 11 percent as compared to wearing athletic or canvas shoes.[3]

Many people assume that walking without shoes decreases their risk of falling because it improves their ability to feel the ground. However, this is not the case for older individuals with neuropathy (loss of nerve function in their feet).

Most falls occurred in people's homes (48%),

where slippers are commonly worn.[4] Since wearing slippers or socks can increase the risk of falls, it is recommended that you wear shoes even when inside your home. You may want to keep a specific pair of comfortable shoes for indoor use only if you are concerned about tracking dirt from outside. For individuals who must or prefer to wear slippers at home, it is best to choose slippers that are well-fitting, have a closed back, and a non-skid sole.

WHERE TO SHOP FOR SHOES

A local shoe store may have staff and technology to assess your specific needs. Don't hesitate to visit a running shoe store, which will offer options for walking shoes that optimize balance. Key brands include Asics, Altra, Brooks, Hoka, New Balance, Mephisto, Vionic, Orthofeet, Propet, SAS, and Ecco. If you are unsure where to look, consult your physical therapist, podiatrist, or another skilled healthcare professional.

In addition to proper footwear, a comprehensive fall prevention program, including strengthening and balance exercises, is crucial for keeping you safe from falls. Consult a physical therapist to design a personalized program tailored to your individual needs.

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