

Tai Chi Principles for Falls Prevention in Older People

The following notes are suggestions for incorporation into a Tai Chi program specifically targeting falls prevention in older people.

BALANCE – the key element to preventing a fall

Balance has been shown to decrease with age; however, some aspects of balance can be enhanced through training.

Key elements to incorporate into a Tai Chi program

Relaxation → relaxes muscles → lowers center of gravity

Lowered center of gravity → increases load on lower limbs → over time increases sensation and awareness of lower limb movement.

- **Transfer of weight**

Shifting body weight from leg to leg through incremental movements. Start with a small range of movement and gradually build up to a wide, square base stance.

- **Muscle strength**

Muscle bulk and therefore strength decrease with age. A bent knee stance and movement works to strengthen lower limb muscle (particularly the quadriceps muscles) (however, always work to an individual's limitations. If a bent knee stance is too difficult, then do the movement without bent knees).

- **Instability**

This involves issues such as increased body sway, low mobility, and postural instability. Increasing age is also associated with reduced sensation in lower limbs and is consequently associated with a loss of righting reflexes and an increase in body sway, which can lead to falls.

- **Gait:** decreased stepping height and decreased stride length.

Women tend to have a narrow walking and standing base, closer foot placement, erect posture → difficult to step down from stools/benches.

Men tend to have a small-stepped gait, wider walking and standing base, and stooped posture.

Tai Chi addresses gait problems by teaching “correct” movement of lower limbs. This is done by lifting lower limbs from the knee rather than the foot; lifting lower limbs without misaligning the pelvis; and teaching to place heel down first when moving forward (toes first when moving back). Also, teaching movement with appropriate weight transfer, posture, and slightly bent knees improves stride length

- **Posture:** Tai Chi also teaches participants to maintain a relaxed posture with an elongated spine.

- **Coordination/Mobility:** Tai Chi consists of a moving from one stance to another in a slow, coordinated, and smooth way. This trains students in improved mobility and increased body awareness.

Guidelines for Instructors Working with Older People

- Important to maintain an upright (straight) posture at all times.
- Incremental movement is needed in teaching older people.
- Instructors need to be well aware of an individual's comfort level and not go beyond that.
- In bent knee stance, must remember to introduce bent knee gradually throughout the 16-week period while staying within comfort levels of individuals.
- Remember to keep the center line of gravity as perpendicular as possible and center within the base stance.
- Tai Chi leaders also have to be mindful of any medical or physical conditions students might have that would interfere with standard Tai Chi movements. For example, if a practitioner has had a hip replacement then the range of movements involving hips may be limited.