Gait disturbances in old people or compensatory mechanisms for falls prevention

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Abstract

Approximately 25 to 35% of people aged 65 years or older have experienced falls each year. The epidemiology of falls shows that more than 50% occur during some form of locomotion. Falls are a major public health concerning particularly the elderly.

One feature of walking that has been used to identify people who are at risk for falling is gait unsteadiness. An unsteady gait pattern will be characterized with greater kinematics variability. Decreasing variability of walking patterns may help to prevent falls by achieving a more stable gait pattern, thus improving the control of the whole-body position and by reducing the mediolateral momentum of the centre of mass.

Walking more slowly, with a higher STF and shorter STL, may help to stabilize the gait pattern and allow greater adjustment and flexibility to changes in walking conditions (increasing or decreasing walking speed), especially in patients with history of falls.

Compared with the elderly with no history of falls, elderly people who are at risk for falls will have the following characteristics of gait: decreased ankle plantar flexion and hip extension during push-off, increased hip flexion during the swing phase, reduced mediolateral sway and decreased reaction time.

Keywords: healthy elderly, gait analysis, walking difficulties.