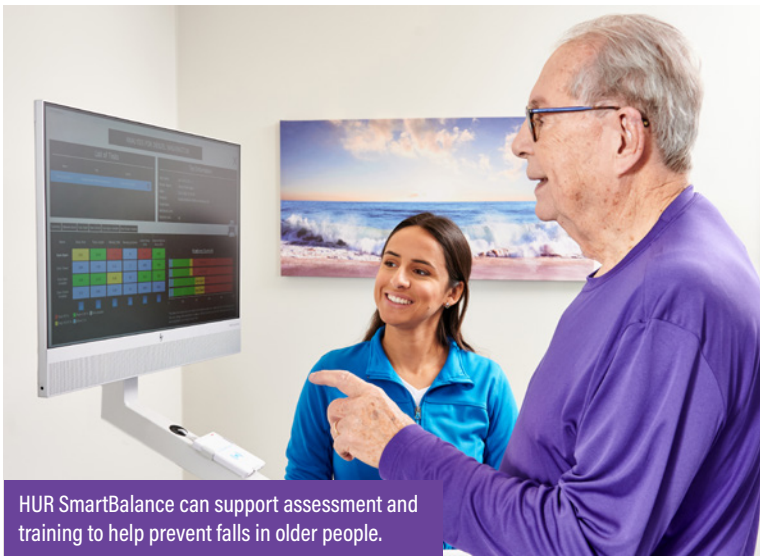
Let's talk about balance

The key to falls prevention



HUR SmartBalance can support assessment and training to help prevent falls in older people.

Balance can be defined as a physical ability to keep the centre of gravity within the base of support by the regulation of postural reactions as required, allowing for body movement and function. Balance is a key component in human ambulation, therefore balance exercises are essential in an exercise routine together with strength, aerobic and flexibility exercises.

Balance control relies on our body's ability to control posture and the required reactive movements, responding to sensory messages from vision, vestibular and proprioceptive systems, informing us of changes in our surroundings. Poor balance reflects a decreased ability to process this information from these sensory organs, including the slowing down of reaction time and motor responses, as well as decrease of muscle strength.

Physiological ageing is apparent in many ways, including decrease of muscle strength, reaction time and cognition, leading to an impaired balance, and consequently increasing the risk of falling. Indeed, a third of people aged 65 years and more, and half of people aged 80 and over, will experience on average one fall per year.

Appropriate exercise programs are a key aspect of falls prevention. Studies have shown that programs specifically focusing on balance can reduce falls causing injuries by 37 per cent, falls leading to serious injuries by 43 per cent, and broken bones by 61 per cent.

The Sunbeam protocol (2018) – a progressive strength and balance program that provides evidence-based exercise for falls prevention in older people, now being adopted in many residential aged care homes – has been shown to result in a 55 per cent reduction in falls.

The goals of balance training commonly are to improve standing balance and posture, as well as improve postural control during mobility, leading to improvement in physical function, and consequently improved self-efficacy in balance control, feeling of safety and ease of activities of daily living, thus decreasing fear of falling and improving quality of life.

Balance training aims to challenge the balance organs, eyes, muscles, joints and vestibular system. It includes both static (eg. standing on flat and unstable surfaces, standing in different postures and positions while doing tasks) and dynamic (eg. stepping and reaction, changes in the base of support) balance exercises. All exercises should progress in difficulty, and challenge cognition by adding multi-tasking activities.

A research team from the Department of Physiotherapy at Monash University has developed a world first interval rating of balance exercise intensity, the Balance Intensity Scale (BIS). Balance intensity is defined as 'the degree of challenge to the balance control system relative to the capacity of the individual to maintain balance'.

The purpose of the BIS is to allow people to assess and train with appropriate intensity, creating an environment where training can be monitored and progressed in a safe, yet progressive manner, allowing both the trainer and the exerciser to rate the intensity.

Monash University, together with lead researcher Dr Mel Farlie, has developed free education and training materials, to promote awareness of the BIS scale and appropriate training. Providers are encouraged to visit their website, where they will find training videos, BIS score sheets and exerciser sheets, which can be accessed here: www.monash.edu/medicine/balance-intensity-scale

Balance assessment and training efficiency can be objectively monitored by using a force plate, or similar, that records the body's postural reactions by mapping the trajectory of centre of pressure during standing.

HUR SmartBalance (www.huraustralia.com.au/balance-testing) is an example of a functional platform that allows for both assessment and training in one piece of equipment. The data collected allows for objective analysis of postural sway during testing and monitored progression of exercises.

The importance of balance training is well established in Australia with the support of many world-leading research groups. They are implemented independently, and as part of comprehensive exercise programs. The next step is to focus on the intensity of the balance training, to reach the level where challenge and safety meet appropriately, to allow for required progression, also including multi-tasking, leading to better function and confidence in everyday life.

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