Exercise Therapy

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Falls Prevention in the Elderly

The proportion of Australians aged 65 & over is predicted to increase from 14% currently (3 million people) to 14% (8.1 million) by 2050 (2). Falls are the most common cause of injury in older people (1). One-third of people over 65 fall once or more annually (2). A person who suffers a fall is twice as likely to suffer a subsequent one within 12 months (1). Around a quarter of all falls result in medical attention being required (1). Falling results in a three-fold greater chance of hospital admission (2). As well as the risk of injury, falls lead to loss of confidence, with a direct effect being a reduction in activity levels. This results in further loss of strength, balance, and overall well-being.

There have been over 100 randomised trials into falls prevention, and clear evidence that prevention is possible with an exercise programme (2,3). In one study, an exercise group suffered 35% less falls than a control group (1). It is claimed up to 42% of falls can be prevented by a well-designed programme (2). Participants older than 80 years had the greatest improvements (1). Both group & home based approaches are effective (1,2,3), so the one selected for the individual should be the one they prefer & are most likely to continue with.

Types of Programmes

It appears that programmes are most successful if they include balance training and are conducted for at least 2 hours per week (2). While walking programmes are beneficial in general terms, they have not been found to be specifically effective in falls prevention (2). Brisk walking should be avoided by those at high risk (2).

Balance Training:

Balance is essentially the ability to maintain the projection of the body's centre of mass within manageable limits over the base of support (3). It is a key aspect of the performance of daily tasks.

Strength training:

Data from trials indicates that strength training may not be essential to a programme on falls reduction in the short-term (2). However, as reduced muscle strength is an important risk factor for falls, strength training may have longer-term benefits (2). It is recommended that programmes should target muscles essential for maintenance of upright postures (3). This includes muscles that help to lift us up, say from sitting to standing, and muscles that hold us upright (3).

Functional training:

An important component of any training programme is that it be specific to the task. A falls prevention programme should incorporate tasks relevant to the person's daily activities (3). For instance, strength training has been found to be more effective when performed in standing rather than sitting (3).

Tai Chi:

Studies conducted in 2007 & 1996 report benefits of group based Tai Chi in falls prevention (references quoted in 1,2).

Effects of Exercise Programmes

There are several mechanisms whereby falls prevention programmes are effective:

Effects on the nervous system

There is evidence that a large part of the benefit of exercise in preventing falls may be due to the effect

on ‘cognitive’ function (3). Improved balance after exercise is most likely a result of changes in the central & local nervous systems (3). It has long been recognized that any strength programme has both local muscle and central nervous system effects. Improvements are almost immediate, occurring well before any structural changes in muscle. Neurological adaptations are due to changes in coordination & learning that result in improved recruitment of the important muscles (3). There may also be a decrease in use of unnecessary muscle activation (3). Weights which are too light to have an effect on muscle size may still result in improved strength & coordination.

Improved strength & muscle mass:

The muscles of elderly patients are generally very responsive to training effects, as disuse muscle-wasting is significant & progressive with age.

Increased confidence & activity levels:

People who have suffered a fall are known to be hesitant to perform tasks which place them in positions of risk. Exercise programs can work to improve confidence, and reduce the person’s fear of falling (1). This leads to a greater ability to engage in physical activity.

Other factors in falls prevention

There are many factors which can potentially contribute to an increased risk of falling. A doctor or therapist can provide advice on such things as:

- Home hazard assessment & modification in those at risk of falling
- Change in medications
- Issues related to eyesight.
- The use of single lens rather than multifocal glasses when walking on uneven ground.

What we can do at Concord Sport & Spine

If you would like further advice on exercises for falls prevention, please speak to one of our physios. We can give you a programme to work on at home. Alternatively, you can join one of our group classes, where you will be guided through strength & balance exercises by our expert Pilates & Exercise Therapist. We recommend two one hour classes per week, or one class with us & a programme which you do at home in your own time.

References

1. Robertson, C et al (2002). Preventing injuries in older people by preventing falls: a meta-analysis of individual-level data. Journal of the American Geriatric Society, 50, 5, 905-911.
2. Sherrington, C et al (2011). Exercise to prevent falls in older adults: an updated meta-analysis & best practice recommendations. NSW Public Health Bulletin, 22, 78-83.
3. Sherrington, C & Henschke, N (2013). Why does exercise reduce falls in older people? Unrecognised contributions to motor control & cognition. British Journal of Sports Medicine, 47, 12, 730-731.

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