

Preventing Pensioners' Falls

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10% of all calls to the ambulance service are for fallers over 65. Falls account for 62% of all fatal injuries in the over 65s. 10% of fall deaths in the UK occur on stairs because, unlike the rest of Europe, 99% of toilets are at the top of the stairs. Over 60% of people in care homes fall each year. Startling statistics! (see references)

Each year about one-third of the over-65s will fall, and some will be disabled by the broken bones that can follow. Every three minutes, someone has an osteoporosis-related bone fracture at a cost of £5 million per day to the NHS. Although osteoporosis increases the risk of fracture, many fractures do occur in people without the disease. A 2003 study showed that the incidence of fracture attributable to fragile bones was modest, between 10% and 44%. Bone health depends on genetics, hormones, nutrition and exercise.

Drugs

If an elderly person is taking more than four types of medication per day, alarm bells should sound for the possibility of falls. Some of the common medications given - diuretics, thyroid drugs, cortico-steroids and anti-seizure drugs - can cause loss of bone substance. Diuretics can also lead to dehydration of the vestibular apparatus. Diseases like Cushing's syndrome, diabetes mellitus and hyperthyroidism also lead to hormonal imbalance and bone loss. Sedatives and blood pressure drugs can cause dizziness, lightheadedness or loss of balance. Other side-effects are diminished vision and hearing, muscle weakness and a lack of co-ordination.

Good vitamin D absorption helps reduce the incidence of falls as can be seen in sunny Mediterranean countries. Vitamin D is manufactured in the skin when the skin is exposed to sunlight and promotes the absorption of calcium from food. It is not so much the calcium supplement but the vitamin D and exercise that is important when there is bone loss and muscle weakness.

Exercise

Even a 95 year old can increase bone density and strength because much bone density loss is due to

lack of activity. Exercise in later life has an important role to play in the maintenance of functional ability and in the prevention of disability, immobility and isolation. Current evidence indicates that physical inactivity is a major health burden. There are also fewer heart problems with targeted exercise. Preventing falls is important at any age, but it is especially important for those who have osteoporosis because their bones are more fragile and easily broken.

Walking only does not help bone density or balance. Bone needs a variety of different exercises to prevent osteoporosis. It helps if some new type of exercise is included in an exercise programme every week. They should be tailored to suit the individual and challenging enough to increase strength and improve balance and gait. But not, though, be too challenging and so increase the risk of falls. It is important to motivate by giving information why the exercise is necessary. Preventing a fall may not feel as important to the patient as improving gait and walking. Patients who have severe cognitive impairment or are chair- or bed-bound are less likely to benefit from these exercises.

Dynamic Balance Exercises

1/ Heel-toe walking prompts the balance system to improve its control of posture. It reduces the width between the feet and therefore increases the work required by the ankles to stay upright. 3 or 4 minutes, twice a day if possible.

2/ Heel walking helps the toes to clear the floor when taking a step and the extension of the toe muscles helps prevent the body from swaying too far backwards. 3 or 4 minutes, twice a day if possible.

Resistance Training

This improves the strength and power of the muscle by using the principle of overload: the muscle must work under a greater load than it is normally used in order to get stronger. The greater load can be applied by using free weights (including improvised ones from tins of baked beans), gym machines, elastic bands or body 3

weight resistance. The most important muscles to exercise are those of the leg.

3/ Knee bends - with chair support if necessary. These quarter-squats - with or without the use of arms for support - involve moving body weight up and down over the feet while maintaining balance. 10 repetitions and 3 sets each day, ideally.

4/ Seated straight leg raises – With or without weight resistance on the legs for the quadriceps. Raise both legs 10 times

5/ Heel Raises - The patient rises up on toes and slowly returns to standing. Progress to Heel Raises standing on one foot only

6/ Weight bearing exercises – walking, dancing, jogging, stair-climbing.

7/ Endurance Training - All activities require an element of endurance. During a task, balance must be maintained, not once but many times, and the muscles must be able to contract with enough force to maintain balance. Endurance exercises include walking, cycling or walking on a treadmill.

References:

Otago Exercise Programme: video clip.

Improving Motor Control in the Elderly: An Exercise Approach - course given by Dr Dawn Skelton