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## Why do people fall?

### ➔ Key points

The chances of falling increase with:

- ◆ increasing age
- ◆ medications that affect balance and alertness
- ◆ increasing sensory loss—vision, body sensation, vestibular sensation
- ◆ disability
- ◆ diseases, particularly stroke and Parkinson’s disease
- ◆ memory loss and dementia.

35 per cent of people over 65 years old and 50 per cent of those over 80 fall each year.

Falls are usually due to more than one factor.

There is commonly a combination of:

- ◆ **intrinsic factors**—a susceptibility to falling
- ◆ **extrinsic factors**—situations or events in which balance is challenged.

Dogs rarely fall. A dog has a leg at each corner and a low centre of gravity. It takes considerable effort to push a dog over. It is intrinsically stable.

People have a high centre of gravity; they have to balance on two legs, and maintaining stability is much more difficult. During the process of evolution



## Falls - the facts

from a four-legged to a two-legged animal, we have had to develop a complex system that enables us to balance and to walk on two legs.

This system has to be robust enough to withstand a variety of threats to balance. Not falling in response to such a threat depends upon knowing where the body is in space, understanding how its balance has been perturbed, and then making the right responses to restore balance in time to prevent a fall.

Of the three types of sensation reaching the brain, body sensation (proprioception) seems to be the most important in maintaining balance. Balance can usually be maintained if vision is lost or the inner ear is damaged, as long as proprioception remains intact.

### Why do older people fall over more often?

Older people fall because the balance system as a whole is less sensitive, less rapid, less accurate, and weaker.

There are numerous causes. Diminished sensory input is a major factor. Degeneration of the nerves of body sensation with age or illness has been considered the main problem, but the degeneration of connections within the brain (cerebral small vessel disease) may be more important. In addition, those parts that carry out the movements (muscles and joints) may be weak, damaged, or painful.

Many factors can affect the brain's ability to process sensory information properly. In older people, the most common, and possibly the most important, is small vessel disease affecting the brain (see Chapter 13). This poorly understood condition is so common as to be almost normal with increasing age. Deeper areas of the brain have some damage to their blood supply, leading to small areas of cell death and disruption to pathways carrying impulses from one part of the brain to another. Some authorities consider this to be the main reason for the increase in falls with age.

Other neurological diseases, such as Parkinson's disease and stroke contribute to an increased risk of falls through a variety of effects (see Chapter 13).

An example of impaired processing of information by the brain often seen in younger people is too much alcohol. While excessive drinking is probably less common in older people, they are much more likely to be taking medications that will affect balance, such as sleeping tablets and antidepressants. The effect is very similar.



Commonly, older people also take medications that affect the blood supply to the brain by causing a reduction in blood pressure. Their reduced reserves make them more susceptible than the young to the side effects of medicines.

Even when the brain is supplied with good quality sensory information and is functioning normally, so that this information is processed correctly, there may still be reasons why someone may have a tendency to fall. If the muscles are weak, or if they have to work around joints that are painful because of arthritis, or if there is damage to the nerves that send impulses down the muscles, there will be some impairment of balance and an increased likelihood of falling.

Not concentrating on balance can also lead to falls. This may be simple carelessness, but anxiety, depression, or confusion may prevent someone from concentrating sufficiently on what they are doing. Occasionally, patients simply seem unconcerned by the need to focus on where they are placing their feet, and fall as a result.

There are numerous other factors which may come into play that can make someone less able to withstand threats to their balance. These may be simple things such as an infection, or any other illness that makes the patient feel unwell. It is well recognized that falling can be a manifestation of any illness in an older person. Disability from other illnesses may also affect balance.

Causes of falls are divided into two groups.

**Intrinsic factors** are things to do with the person: a bad knee that gives way, an illness, a previous stroke, side effects of medication, etc.

**Extrinsic factors** are those in the environment: something to trip over, a slippery floor, being pushed, the bus moving off suddenly, etc.

As we grow older, all the mechanisms for maintaining balance work less well. As a result the rate of falling increases with increasing age. Research has shown that about 35 per cent of people over the age of 65 fall each year, and for people over the age of 80 the chance of a fall is 50 per cent in any given year.

With additional problems, the chances of falling rise further still. Studies have shown that people with Parkinson's disease have a 38–53 per cent chance of falling in a year. Frail older people are two or three times more likely to fall than those who are vigorous. Those who have already had a fall are much more likely to have further falls: 57 per cent will have a fall in the year after their first fall, and 31 per cent will have two or more falls.

## Falls · the facts

There are several well-recognized circumstances associated with falling.

- ◆ Collisions in the dark, usually on getting out of bed at night, are one of the most common.
- ◆ Forgetting about temporary hazards around the home—something left out of place, or something new that they are not used to.
- ◆ Slipping or catching a toe on a carpet is very common,
- ◆ Simple carelessness about the house.

There is usually a mixture of extrinsic factors such as these, which combine with things that cause an intrinsic tendency to have falls, such as impaired vision, poor balance, giddiness, or the effects of medicines.

People who manage to live on their own at home are less likely to fall than those who live in retirement communities. Those who live in residential homes are at the highest risk of falling. In part, this is because recurrent falls are one of the main reasons why people give up living alone at home and move into a care home. Their risk of falling is especially high in the first few weeks when their new surroundings are unfamiliar.

Once patients are no longer able to walk or stand, their risk of falling naturally reduces, but they may continue to have falls while attempting to transfer from bed or chair to the toilet, and may fall out of bed.