

the use of an anaesthetic, painkillers or both of these, and is known as reducing the fracture.

- Immobilising the broken bone. Plaster casts, splints or slings may be used. Some fractures require surgery, and the use of metal screws, wires, pins or plates to hold the broken pieces of bone together. This may be necessary where the broken ends of bone cannot easily be brought back together or kept close enough to allow them to knit together.

Recovery

The repair of a fracture by the body is a gradual, continuous process. The time it takes for the broken ends of the bone to knit back together (unite) varies depending on the type of fracture and where the fracture is. As a general rule, fractures need to be immobilised for between two and eight weeks. After this

it is important to begin gentle movement and exercise as this helps to build up strength in the healing bone over the following months. Physiotherapy may be needed to promote healing and a return to mobility of the affected bone.

Complications

Occasionally there can be complications with fractures. Very serious fractures can heal with some limitations - such as pain or stiffness - in the use of the limb or joint involved.

Some fractured bones do not knit back together well and can lead to a slow recovery, with surgery needed to help the bones to unite.

Infection can also complicate and delay the healing of fractures. This is more common if the fracture was open or if surgery has been required to fix the bone.

Fractures

A broken bone is known as a fracture. This can simply be a crack or buckle in the structure of the bone, or a complete break, producing two or more fragments.

How do fractures happen?

Bone has tough structure and is normally able to tolerate strong forces, but bones can be fractured if they suffer direct impact or if they are exposed to strong twisting or bending. This can happen as a result of a fall or collision.

Elderly people are at increased risk of fractures because they tend to be more prone to falls and have reduced bone strength. Children are also more likely to have falls and accidents, which can result in a fracture, partly because they are less aware of hazards.

The structure of bone

Bone is a living tissue, made up of cells that produce a hard, crystalline compound of mineral salts, mainly calcium phosphate. This gives the bone its strength and hardness. Increasing amounts of these minerals are deposited in bone during childhood

and puberty, progressively increasing the density of bone. Maximum bone density is reached when a person is in their 30's.

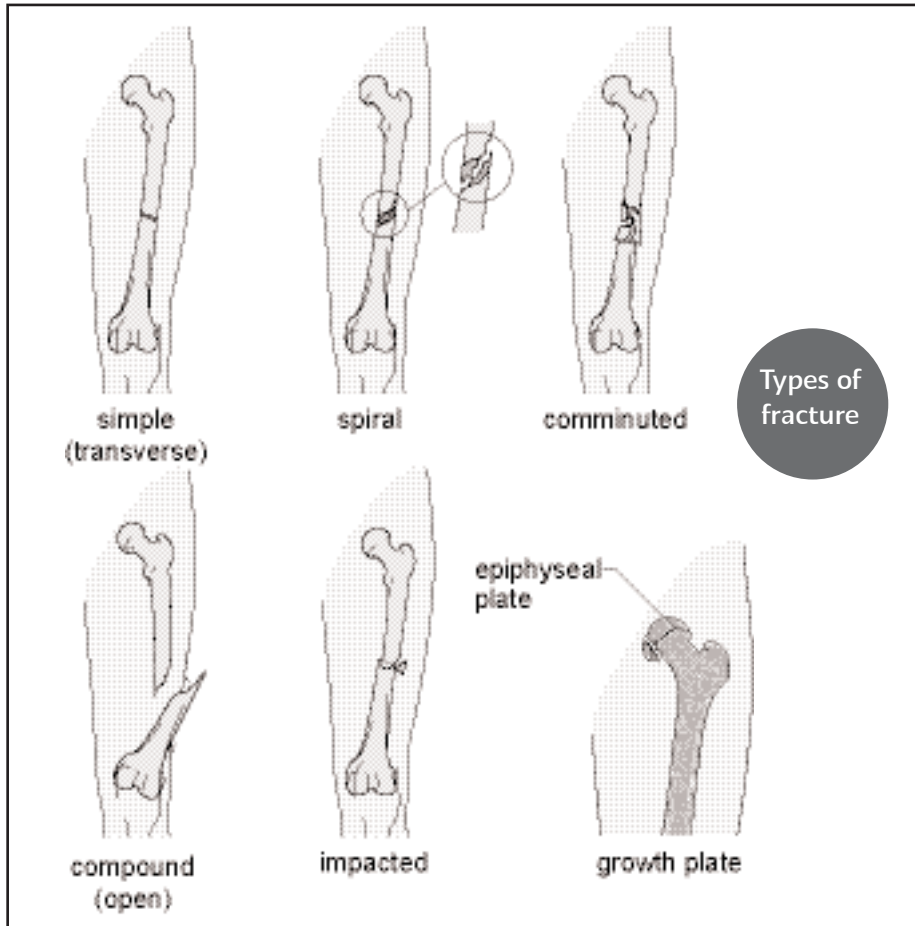
Bone also has a nerve and blood supply. This explains why fractured bones are painful, and result in bruising.

Types of fracture

Bones can fracture in a number of different ways. Usually, an injury results in a single fracture, and is known as a simple fracture. There may be a simple crack across the shaft of a bone - known as a transverse fracture. In long bones, such as the femur (thigh bone) a more complex, spiral fracture is more common. This leaves surfaces that are less likely to reunite easily.

Sometimes, especially in more serious accidents, a bone can fracture in a way that produces several fragments. This is called a comminuted fracture.

This factsheet is based on reputable sources of medical evidence and has been reviewed by BUPA doctors. For more details of references and sources, please see our website. The content is intended for general information only and does not replace the need for personal advice from a qualified health professional.



After a fracture, the broken fragments of bone usually separate to some degree. Sometimes, the one fragment of bone is driven into another. This is called an impacted fracture.

Bones can also fracture as a result of exposure to repeated small stresses and strains. This is known as a stress fracture and is most often seen in the lower leg or foot bones, especially in athletes.

Sometimes the broken end of a bone causes a break in the skin, or protrudes through the skin. This is known as a compound (open) fracture and it can lead to infection.

Osteoporosis

From about middle-age onwards, the bones start to become less dense and more liable to fracture. Osteoporosis is a condition of brittle bones where this process is accelerated. It particularly

affects women after the menopause. See the separate BUPA factsheet on osteoporosis.

Broken bones in children

Fractures in children tend to be different to those in adults because the bone is softer and more able to bend. When fractures occur, the bone is not always broken completely. The bone can buckle and split and result in what is known as a greenstick fracture (like snapping a young, green twig).

Another type of fracture common in children is a growth plate fracture, called an epiphyseal plate fracture. Bone grows in length from special areas near the ends of longer bones, known as the growth plates (epiphyseal plates). Fractures can sometimes involve these areas and interfere with future growth of the bone.

Symptoms of a fracture

The most obvious symptom of a fractured bone is pain, especially on movement. There is often swelling and bruising at the site of the fracture. The fractured bone may have an abnormal bent appearance and this may be obvious. It may be impossible to move a fractured part of the body, either as a direct result of the fracture or because of the pain it causes.

Someone who has fractured a bone may be pale and clammy and experience nausea or light-headedness. This may be due to pain. When large

bones, such as the pelvis or femur are fractured, there will be internal bleeding from the bone and this can cause similar symptoms.

First aid for broken bones

For someone who is breathing and conscious, and does not have open wounds, the most important aspect of first aid treatment is to minimise movement of the fractured bone. This helps minimise pain and can also prevent further injuries caused by movement of the sharp ends of broken bone. How a fracture is immobilised depends on where the fracture is. It may be necessary to use a sling or splint. These techniques can be learnt from first aid courses and manuals.

It's important that anyone with a suspected broken bone seeks medical advice.

At the hospital

Most fractures can be clearly diagnosed by X-ray, although some types, such as a fracture of the base of the thumb, or a stress fracture, do not show up reliably.

After serious accidents, medical attention is first given to circulation or breathing problems, or other serious injury that affects these essential processes. Fractures are then generally treated as follows:

- Re-aligning the broken bone, if necessary. This needs to be done with