# Hand Fracture (General Information)

## What is a fracture ?

A fracture (break) can occur in any of the bones in the hand. Each bone is named (See diagram). The fracture can be simple (two fragments) or comminuted (many fragments). The fracture can be closed (no break in the skin) or open (compound) where there is a break in the skin over the fracture. Fractures can be complicated by the involvement of the joints at either end of the bone (Intra-articular fracture). Fractures may occur as part of a more complex injury where there has been damage to other tissues such as tendons, nerves and blood vessels.

## What is the cause ?

Fractures occur because a force is applied to the bone which is strong enough to break it. The site and pattern (shape) of the fracture depends on how that force has been generated and applied. So how the injury happened is important information and your doctor will ask you about this. Some people may be embarassed by what happened to them but it is important to be truthful as treatment can be influenced by how the injury occurred.

The majority of the causes can be categorised into one of the following groups:

1. **Falls**
2. **Sporting incidents**
3. **Crushing**
4. **Road accidents**
5. **Violence (Fighting)**

## What are the symptoms ?

Most patients will have pain, swelling, bruising and loss of movement. There may be numbness or pins and needles. There may be an obvious deformity of the fingers or thumb. In an open fracture there will be a wound.

## What should you do ?

If you suspect you or someone you are with may have a fracture in the hand you should:

**Remove any rings or jewellery**

**Elevate the hand**

**Cover any wound**

**Attend for further medical care either at a hospital A&E department or your own GP.**

## What is the treatment ?

The aim of treatment is to restore function to the hand as quickly as possible. There may be a number of people involved in your care as part of the Hand Surgery team. This includes doctors, nurses and hand therapists.

When you are first seen an assessment will be made of the injury. This includes a physical examination and x-rays. Treatment will depend on the nature of the fracture sustained this includes assessment of which bone is involved, the site of the fracture in the bone, the amount of any deformity, whether more than one bone has been broken and any other associated injuries that may have occurred. The treating doctor will also take other factors (handedness, occupation, medical conditions) into account when discussing the best form of treatment for each patient. Your treating surgeon will discuss the options for treatment and advise on the most appropriate for you. Other investigations, such as a CT scan, ultrasound or MRI scan, may be required before a definitve plan of treatment is made.

The initial treatment is likely to be given in an accident and emergency department. The hand will be rested which may require the hand to be immobilised in a plaster of paris splint and elevated using a sling. It is important to elevate the hand to help reduce the swelling. Rings on any of the fingers of the injured hand should be removed.

Many fractures can be treated without an operation. The simplest treatment may be to move the fingers straight away. A splint may be needed for a period of time. It is likely that a programme of exercises will be given for you to follow.

Some fractures will be treated by an operation. The details of the operation will be provided by your surgeon, this includes whether the procedure will be performed under local, regional or general anaesthetic.

The operations can be grouped into two methods: (See diagram)

In the first method the fracture is reduced into a satisfactory position by manipulation and the hand is then either splinted or thin pins (k-wires) inserted through the skin and across the fracture to hold it in the right position. Occasionally a special splint is made to produce traction of the fracture.

In the second method the fracture is exposed by an incision through the skin. The fracture is reduced by direct vision and then held in place with either pins (k-wires), screws, and plates.

In an open fracture and occasionally in a closed fracture an external fixator may be used to hold the bones. An external fixator is a frame on the outside of the skin connected to the bones by pins (k-wires) inserted through the skin.

There are many different ways implants can be used and this will depend on the configuration of the fracture and any associated soft tissue injuries. Your surgeon will explain which method has been used and why. Pins are usually removed. This is done either in the clinic or, if they are left under the skin, by a second small operation. Screws and plates may need removing and your surgeon will be able to advise you in regard to this.

Following any operation you are likely to be in a plaster of paris or splint. You will receive instruction on any exercises to do. The rehabilitation will be carried out by a Hand Therapist.

## What is the outcome?

The outcome following any fracture depends on many factors including how you and your hand responds to the injury. The outcome will generally be worse in those injuries which involve joints and if other structures such as tendons and nerves have been damaged. You should ask the team treating you to explain what the expected outcome may be and how long it may take to get there. The final outcome may not be easy to predict as there are so many variables that can affect the end result and the surgeon's and therapist's view may change during the treatment.

As a general rule fractures in the hand take 6-8 weeks to unite. The strength in the hand takes approximately 3-4 months to return to near normal levels. The fingers and thumb

will often be quite stiff to begin with, after a fracture, but with exercise and use this problem gradually settles.

Many patients notice symptoms of aching associated with cold damp conditions, with heavy use and if the injured area is accidentally knocked or jarred. These symptoms usually improve with time and do not interfere with normal use of the hand. Some fractures may result, in the long term, in arthritis; this particularly applies to fractures involving the joint surface. Your surgeon or therapist will be able to advise on whether you have such a risk.