Distal radius (wrist) fracture

What is a distal radius (wrist) fracture?

The radius is one of two bones (radius and ulna) that comprise the forearm. These 2 bones meet (articulate) with the carpus to form the wrist joint. Most commonly the term “broken wrist” is used to describe a fracture of the distal radius (end of the radius). This fracture can occur alone or together with a fracture of the distal ulna. Many terms are commonly used to describe a fracture of the distal radius and include: Colles fractures, Smith fracture, and Barton fracture.

What causes a distal radius (wrist) fracture?

Distal radius (wrist) fractures occur in both men and women of all ages. Distal radius fractures in young healthy individuals are usually the result of a high energy injury such as car or motorcycle crash or a fall from a height. In older individuals with weaker bone (often due to osteoporosis) they occur after a simple fall onto an outstretched hand. The position of the hand during the fall is an important factor which determines the type of wrist fracture. As with any fragility fracture (due to osteoporosis), the risk factors for an older individual sustaining a distal radius fracture after a fall include:

- Female sex
- White race
- A family history of osteoporosis and broken bones
- Having poor eating habits with not enough intake of calcium and vitamin D
- Inactivity
- Smoking and excessive alcohol intake
- Poor medical health
- Taking certain medicines which result in bone loss (such as steroids)

What are the symptoms of a distal radius (wrist) fracture?

Most people who have had a distal radius fracture complain of wrist pain. There may be an obvious wrist deformity and any attempt to move the limb is painful. However, some distal radius fractures can have much less obvious signs and symptoms, particularly if the fracture is nondisplaced (hairline fracture); however, the area of fracture will be tender to touch (palpation).

How is a distal radius (wrist) fracture diagnosed?

The diagnosis of a distal radius (wrist) fracture is made based on x-rays. The broken bone is usually apparent on standard x-rays but occasionally (particularly with hairline and stress fractures) other studies are needed to diagnose the fracture. These studies include a CT and MRI scan.
How is a distal radius (wrist) fracture treated?

Normally, distal radius (wrist) fractures are first seen in the emergency department. After thorough examination of the injury, including surrounding nerves and blood vessels, x-rays are taken to confirm the diagnosis. If there are no complications, proper alignment is attempted and a splint is applied. Arrangements are then made to follow up with an Orthopaedist. The choice of definitive treatment after distal radius fracture is controversial with no clear agreement among doctors or patients about which is best. The treatments fit into two categories: non-surgical and surgical. Nonsurgical treatment involves manipulation of the broken bones into acceptable alignment and placement of the limb into a splint or cast (either above or below the elbow) for 6 weeks with frequent x-rays to make sure that the broken bone has not shifted out of position. Surgical treatment can involve placement of pins or wires through the bone which stick out of the skin (percutaneous or external fixation) or making an incision and placing plate and screws to hold the bone in position while it heals (internal fixation). The type of treatment for each fracture is individualized and is based on both patient factors (age, activity level, preferences for treatment) and fracture characteristics (whether or not the fracture involves the joint surface, number of fracture pieces, and whether or not the treating physician feels that he will be able to obtain and maintain a satisfactory position through manipulation and casting).

Rehabilitation after distal radius (wrist) fracture

Regardless of treatment (nonsurgical or surgical), it is very important to keep the wrist and hand elevated above the heart (to reduce the amount of swelling) and start moving one’s fingers right away to prevent finger stiffness. One should try to make a full fist and can work to bend each finger individually into the palm using the good hand. One can also squeeze a sponge or soft ball (nerf or rubber ball) to help reduce the amount of hand and finger swelling. The physician will determine when wrist and forearm motion can start; this decision is based on several factors such as the type of injury and treatment received. Many patients require formal physical or occupational hand therapy to help achieve an optimal result; the decision to visit a hand therapist is based on several factors including the severity of the fracture and how the patient’s function is progressing over time.