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# Distal Radius Fracture

The radius is the larger of the two bones of the forearm. The end toward the wrist is called the distal end. A fracture of the distal radius occurs when the area of the radius near the wrist breaks.

Bones of the forearm include the radius and the ulna.

## Cause

Distal radius fractures are very common. In fact, the radius is the most commonly broken bone in the arm. The break usually happens when a fall causes someone to land on their outstretched hands. It can also happen in a car accident, a bike accident, a skiing accident, and similar situations.

Sometimes, the other bone of the forearm (the ulna) is also broken. When this happens, it is called a distal ulna fracture.

This fracture was first described by an Irish surgeon and anatomist, Abraham Colles, in 1814; hence the name, "Colles " fracture.

## Symptoms

A broken wrist usually causes immediate (acute) pain, tenderness, bruising, and swelling. Frequently, the wrist hangs in an odd or bent way (deformity).

## Diagnosis

The doctor will take an X-ray of the wrist. This is important to understand the extent of the injury.

The fracture almost always occurs about 1 inch from the end of the bone. The break (fracture) can occur in many different ways, however.

A fracture that extends into the joint, it is called an intra-articular fracture.

A fracture that does not extend into the joint is called an extra-articular fracture. ("Articular" means "joint.")

When a fractured bone breaks the skin, it is called an open fracture.

When a bone is broken into more than two pieces, it is called a comminuted fracture.

It is important to classify the type of fracture, because some fractures are more difficult to treat than others. Intra-articular fractures (fractures within the joints), open fractures (fractures that break through the skin), and comminuted fractures (fracture that shatter the bone into a lot of small pieces) are more difficult to treat, for example.

## Risk Factors

Osteoporosis (decreased density of the bones) can make a relatively minor fall result in a broken wrist. Many distal radius fractures in people older than 60 years of age are caused by a fall from a standing position.

A broken wrist can happen even in healthy bones, if the force of the trauma is severe enough. For example, a car accident or a fall off a bike may generate enough force to break a wrist.

Good bone health remains an important prevention option. Wrist guards may help to prevent some fractures, but they will not prevent them all.

## Treatment

### *Immediate Treatment*

If the injury is not very painful and the wrist is not deformed, it may be possible to wait until the next day. The wrist may be protected with a splint. An ice pack can be applied to the wrist and the wrist can be elevated until the doctor is able to examine it.

If the injury is very painful, if the wrist is deformed or numb or the fingers are not pink, it is necessary to go to the emergency room.

### *Nonsurgical Treatment*

There are many treatment choices. The choice depends on many factors, such as the nature of the fracture, age and activity level, and surgeon's personal preferences. The following is a general discussion of the possible options.

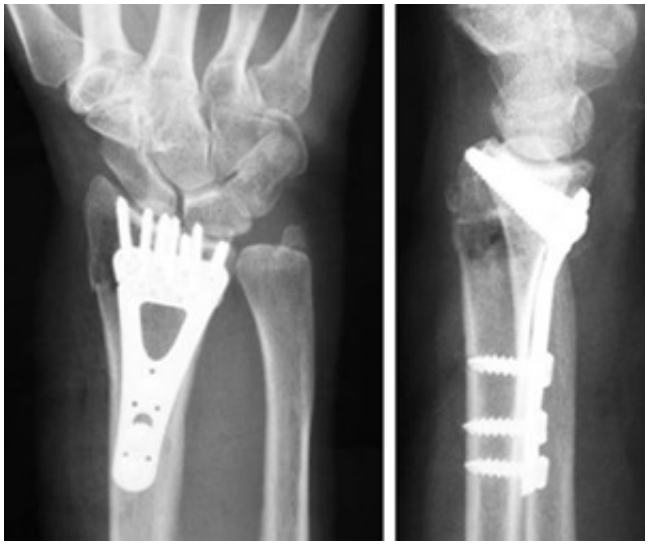
**Casting:** If the broken bone is in a good position, a plaster cast may be applied until the bone heals.

If the position (alignment) of your bone is not good and likely to limit the future use of the arm, it may be necessary to correct the deformity. The bone would be re-aligned (reduced).

If the bone is straightened (reduced) without having to open the skin (incision), this is called a closed reduction.

After the bone is properly aligned, a splint or cast may be placed on your arm. A splint is usually used for the first few days, to allow for a small amount of normal swelling. A cast is usually added a few days to a week or so later, after the swelling goes down. The cast is changed two or three weeks later as the swelling goes down more, causing the cast to loosen.

X-rays may be taken, depending on the nature of the fracture. X-rays may be taken at weekly intervals for three weeks and then at six weeks if the fracture was reduced or thought to be unstable. X-rays may be taken less often if the fracture was not reduced and thought to be stable.



The cast is removed about six weeks after the fracture happened. At that point, physical therapy is often started to help improve the motion and function of the injured wrist.

### *Surgical Treatment*

Sometimes, the position of the bone is so much out of place that it cannot be corrected or kept corrected in a cast. This has the potential of interfering with the future functioning of your arm. In this case, surgery may be required.

There are many ways of performing surgery. Even if the fracture is treated in the operating room, it may be possible to re-align (reduce) the fracture without making an incision (closed reduction). In other cases, it will be necessary to make an incision (open reduction) to directly access the broken bones to improve alignment.

Depending on the fracture, there are a number of options for holding the bone in the correct position, including a cast, metal pins (usually stainless steel or titanium), a plate and screws, an external fixator (a device for which most of the hardware remains outside of the body), or any combination of these techniques.

## After Surgery

### *What can I expect while my bone is healing?*

The kinds of distal radius fractures are so varied and the treatment options are so broad that it is hard to generalize what to expect.

Most fractures hurt moderately for a few days to a couple of weeks. Many patients find that using ice, elevation (holding their arm up above their heart), and simple, non-prescription medications for pain relief are all that are needed.

One combination is ibuprofen plus acetaminophen ("non-aspirin pain reliever"). The combination of both ibuprofen plus acetaminophen is much more effective than either one alone. If pain is severe, patients may need to take a prescription strength medication, often a narcotic, for a few days.

Casts and splints must be kept dry. A plastic bag over the arm while showering should help. If the cast does become wet, it will not dry very easily. A hair dryer on the cool setting may be helpful.

Most surgical incisions must be kept clean and dry for five days or until the sutures (stitches) are removed, whichever occurs later.

### *What can I expect after my bone has healed?*

Most patients do return to all their former activities. The nature of the injury, the kind of treatment received, and the body's response to the treatment all have an impact, so the answer is different for each individual.

Some generalizations can be made.

- The cast is usually removed at about six weeks.
- Most patients will start physical therapy, if their doctor feels it is needed, within a few days to weeks after surgery, or right after the last cast is taken off.
- Most patients will be able to resume light activities, such as swimming or exercising the lower body in the gym, within a month or two after the cast is taken off or after within a month or two after surgery.
- Most patients can resume vigorous physical activities, such as skiing or football, between three and six months after the injury.
- Almost all patients will have some stiffness in the wrist, which will generally lessen in the month or two after the cast is taken off or after surgery. Improvement will continue for at least two years.
- Recovery should be expected to take at least a year. Some pain with vigorous activities may be expected for about that long. Some residual stiffness or ache is to be expected for two years or possibly permanently, especially for high-energy injuries (such as motorcycle crashes, etc), in patients older than 50 years of age, or in patients who have some osteoarthritis. However, the stiffness is usually minor and may not affect the overall function of the arm.

Remember, these are general guidelines and may not apply to you and your fracture. Ask your doctor for specifics in your case. Your doctor knows that returning to activities is important to you.

Finally, osteoporosis is a factor in as many as 250,000 wrist fractures. It has been suggested that people who suffer a wrist fracture may need to be screened for osteoporosis, especially if they have other risk factors. Ask your doctor if you need to be screened or treated for osteoporosis.

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