

Wrist Fractures

A wrist fracture is a break in one of the bones of the wrist. Wrist fractures are common and account for up to one-sixth of all fractures seen in emergency rooms. These fractures are most commonly seen in children aged six to ten and in post-menopausal women.

Symptoms

- Pain, bruising and swelling
- Deformity

Causes

- Falling on an outstretched arm or using a hand to break a fall
- Direct trauma or a strong force such as that occurring in contact sports

Diagnosis

A wrist fracture is diagnosed after a review of the history, a physical examination of the wrist and an x-ray. The x-ray is required to confirm the presence of a fracture and to determine the severity of the injury.



Before (Pre-Operative)

Fractures that break through the skin are called open or compound fractures. Those shattering the bone into many small pieces are comminuted fractures. The severity of the fracture will determine the type of treatment required.

Treatment

Treatment options include: casting alone if the bone is in a good position; manipulation, or “reduction” (aligning the broken bone), along with casting; manipulation with placement of pins; manipulation with an external fixator; and manipulation with internal plates and screws.



After (Post-Operative)

Generally, patients that are treated without surgery will need to be immobilized for 6-8 weeks followed by a period of rehabilitation to regain range of motion and strength. Fractures requiring surgery will sometimes need to be immobilized for a time. Other surgical repairs (especially those requiring a plate and screws) can start rehabilitation 1-2 weeks following surgery. In general, the more severe the fracture the longer the period of immobilization and rehabilitation.

Post-menopausal women should have regular Bone Mineral Density (BMD) scans to evaluate them for osteopenia or osteoporosis which may require treatment. If you are post-menopausal and have not been screened, please ask Dr. Rosen to order a BMD scan for you. ^{KSF}

Triangular Fibrocartilage Complex (TFC)

The Triangular Fibrocartilage Complex (TFC) is a structure consisting of cartilage and ligaments found between the bones of the forearm and the wrist on the ulnar (pinkie finger) side of the wrist. The TFC acts as a shock absorber transferring forces through the wrist into the forearm. A TFC injury occurs when the cartilage and/or ligaments become torn or damaged.

Symptoms

- Pain with weight bearing activities such as push-ups or using your arm when pushing up from a chair
- Tenderness along the ulnar side of the wrist
- Popping or clicking with wrist motion which may be painful

Causes

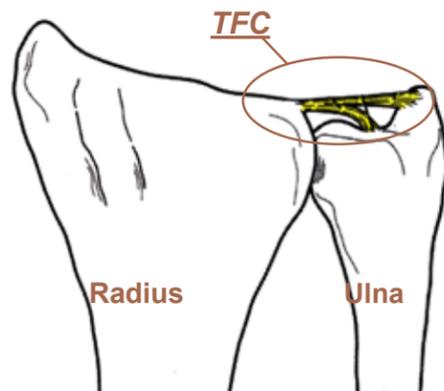
- Trauma such as falling directly onto an outstretched hand
- Wear and tear resulting from repetitive stress such as with sporting activities
- Natural wear that occurs with aging

Diagnosis and Treatment

A TFC tear is diagnosed by performing a thorough examination of the wrist. The diagnosis may be confirmed with an MRI scan.

Treatment options include:

- splinting
- anti-inflammatory medication
- steroid injections
- Arthroscopic surgery to repair or trim the cartilage
- Hand therapy will be needed post-operatively to regain range of motion and strength ^{KSF}



Scaphoid Fracture & Non-Union

The Scaphoid (sometimes called the Navicular) is the most important bone in the wrist. It is located just below the thumb and is one of the most commonly fractured (broken) bones in the wrist.

Symptoms

Pain, bruising and swelling following trauma may indicate a scaphoid fracture. The pain may be severe when moving your thumb or wrist, or when trying to grip something. Unless your wrist is deformed, it might not be obvious that the scaphoid bone is broken. In some cases, pain is not severe, and may be mistaken for a sprain (torn ligament).

Causes

A scaphoid fracture is usually caused by a fall on an outstretched hand. Fractures of the scaphoid occur in people of all ages, but are most common in men aged 20 to 30 years.

Diagnosis

A history and physical exam will be performed. X-rays show if the bone is broken and whether there is displacement (a gap between broken bones). Sometimes, a fractured scaphoid cannot be seen immediately on an x-ray. In that case, Dr. Rosen may put your wrist in a splint for 1-2 weeks. A repeat x-ray is then done to see if the fracture is visible. The splint should be worn at all times during this waiting period and heavy lifting should be avoided. If you remain symptomatic and the new x-ray does not show a fracture it may be necessary to get a magnetic resonance image (MRI) scan for a more detailed evaluation of the wrist.

Treatment

Treatment of scaphoid fractures depends on the location of the break and whether or not there is displacement of the bone. Dr. Rosen will discuss treatment options which may include a cast or surgery to place a screw across the fracture site.

Often, Dr. Rosen can perform the surgery through a very small incision, usually, less than a half inch in length. This procedure is done using a special x-ray machine to guide the placement of a screw into the scaphoid. You will remain splinted after surgery until the fracture has healed. Fracture healing time is variable. Dr. Rosen will monitor healing with periodic x-rays or a computed tomography (CT) scan to see if the bone has healed.

Non-Union

If the scaphoid has not healed within 3 months, it is called a non-union. This condition is common in the scaphoid because the blood supply is often disrupted when the bone is broken. If the scaphoid does not heal, Dr. Rosen may prescribe a bone growth stimulator (a device worn for about 30 minutes per day) or surgery. Surgery may involve taking bone graft from the hip and placing it at the non-union site.

Arthritis

Non-union of the scaphoid can lead to arthritis of the wrist. Symptoms of arthritis in the wrist include swelling, stiffness and pain. An x-ray will confirm the diagnosis. Treatment will depend on x-ray findings and the severity of your symptoms. At first, this may include taking anti-inflammatory medication and wearing a splint. Sometimes, Dr. Rosen may inject cortisone into the wrist to decrease swelling and pain. If this is unsuccessful, surgery may be recommended. The type of surgery will depend on the extent and severity of the arthritis. ^{KSF}

Before (Pre-Operative)



After (Post-Operative)

Green Stick (Torus) Fractures

A Green Stick Fracture is a break in a bone that is immature and not fully calcified. Imagine bending a green branch – it deforms but does not snap. These fractures occur in children whose bones are not fully mature and calcified.

Symptoms

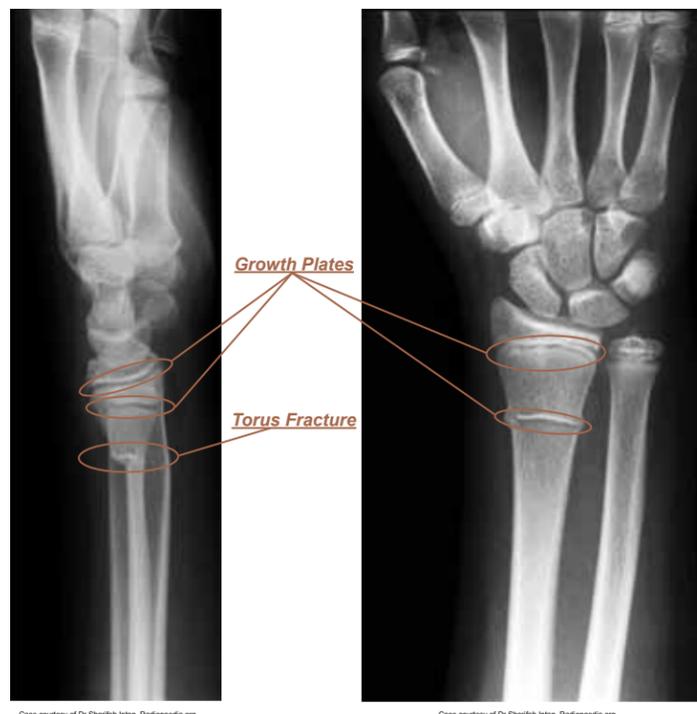
- Pain and swelling
- Deformity

Causes

- Falling on an outstretched arm or using a hand to break a fall
- Direct trauma or a strong force such as in contact sports

A torus fracture is diagnosed after a review of the history, a physical examination of the wrist, and an x-ray. The x-ray is required to confirm the presence of a fracture and to determine the most appropriate treatment.

Most torus fractures can be treated with splinting followed by casting. A splint is used for the first 10-14 days to allow for swelling. Most of these fractures heal within 4-6 weeks. The younger the child, the faster the bone heals. It is also possible to accept more bony deformity in children than in adults due to the fact that young bone remodels. In younger children more bony angulation is acceptable, due to a greater capacity to remodel. ^{KSF}



Hand Fractures

A fracture is a crack or break in a bone. Fractures occur in the fingers (phalanges) or the hand (metacarpals). They can result from a twisting injury, a fall, a crush injury, or direct trauma.

Symptoms

- Tenderness, swelling, deformity
- Inability to move the finger
- Shortened finger
- Mal-alignment of finger when making a fist
- Depressed knuckle

A Boxer's fracture is a fracture of the 5th metacarpal – the hand bone just below the small finger. It most often occurs when an object is struck with a closed fist.

Diagnosis

A history and physical examination is performed to assess the appearance and alignment of the fingers and the condition of the skin. The examination may include range of motion tests and an assessment of sensation in the fingers. This determines if there is any damage to the tendons or nerves. X-rays will identify the location and severity of the fracture.

Nonsurgical Treatment

Fractures are often treated with a splint or a cast. Occasionally, the bone can be realigned using local anesthesia in the office. A splint or cast is applied to maintain the position of the broken bone and to prevent displacement. Additional x-rays will be needed every few weeks to ensure that the fracture is healing in the proper position. A splint or cast is worn for 6-8 weeks.

Surgical Treatment

With severe displacement, rotation, or instability at the fracture site, surgery may be required to stabilize and realign the fractured bones. Dr. Rosen may use pins, screws, and/or plates to hold the pieces in place. After the bone has healed, Dr. Rosen may remove the stabilizing hardware or leave it in place.

Hand Therapy

Hand therapists will make a custom post-operative splint. Once the fracture is stable they will also begin range of motion and strengthening exercises. ^{KSF}