

# A Patients guide to Triangular Fibrocartilage (TFC or TFCC) Injuries and Synovitis

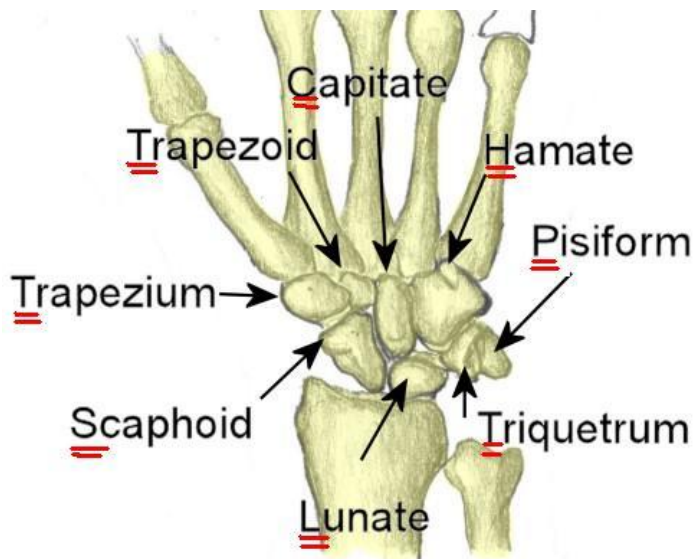
## Introduction

Ligaments are fibrous bands of connective tissue that link or hinge bones. They provide stability and support to the joints. The Triangular Fibrocartilage Complex (TFCC or TFC) is a cushioning structure within the wrist. A fall on an outstretched hand can tear ligaments, the TFCC, or both. The result is pain with movement or a clicking sensation. During arthroscopic surgery, the surgeon can repair the tears.

More commonly, ulnar sided wrist pain may occur without any history of trauma — inflammation which may be associated with the TFCC and cause of chronic wrist pain. The inflammation may be associated with a degenerative tear of the TFC or with synovitis of the complex. Often, there may be areas of inflammation, cartilage damage, or other findings after a wrist injury. Nonoperative management is typically successful in the vast majority of cases. In some cases, after the diagnosis is made, the condition can be treated arthroscopically as well.

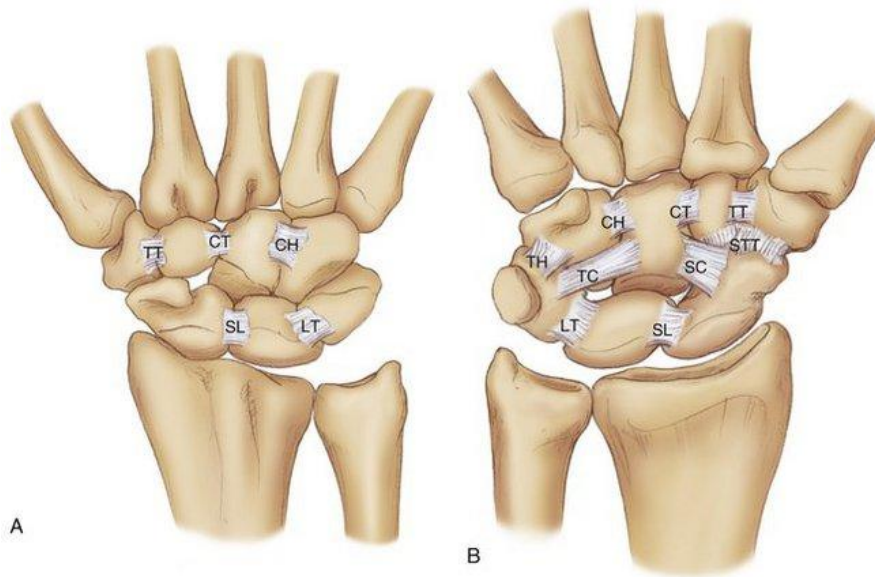
## Anatomy

The ligaments of the wrist are external to the wrist and internal to the wrist. The wrist is made up of eight carpal bones connecting the forearm to the hand.



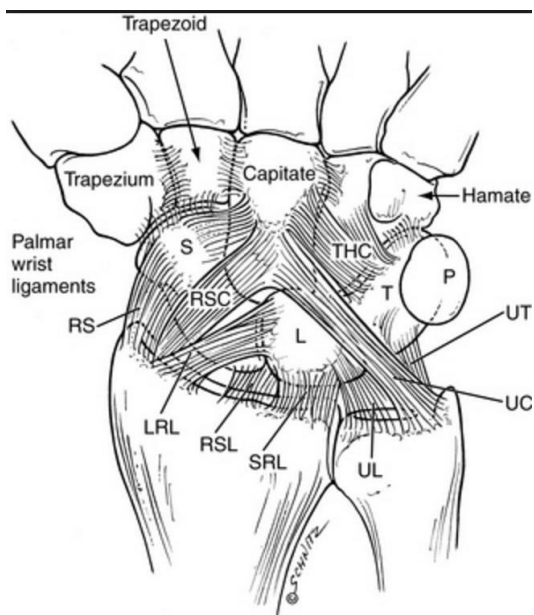
The eight bones of the right wrist (carpus) viewed from the front.

These bones are interconnected with a series of ligaments. Since these ligaments are inside the wrist—they are called intrinsic ligaments.



The intrinsic ligaments of the wrist from the top right A and bottom B. The most important intrinsic ligaments are the SL (scapholunate) and LT (lunotriquetral)

The next layer of ligaments lying more superficial than the intrinsic ligaments are the extrinsic ligaments. These ligaments are not as dense or as strong as the intrinsic ligaments.



The extrinsic ligaments, note these ligaments may span 2 or more joints.

## Diagnosis

### Symptoms

Patients with a wrist sprain typically complain of pain, bruising, and swelling. These symptoms are worse on the lateral (ulnar) side of the wrist. These symptoms may be associated with a traumatic event—like a fall or occur without any history of trauma.

### Hand Surgeon Examination

After taking note of the symptoms, the surgeon inquires regarding any pertinent family or medical history. A physical exam centers on the injured limb. Although unlikely, injuries to the adjacent shoulder and elbow are determined via checking for pain and motion.

An examination of the sensation to the hand is performed. Sometimes patients with wrist sprains may have injured the nerves associated with the hand. The most common nerve injured is the median nerve, resulting in numbness in the radial three digits of the hand.

The blood flow to the digits is checked. Swelling from the sprains may cause compression of vascular structures leading to changes in blood supply to the hand. Any deformity of the hand or wrist is also noted.

Patients with TFC injury will be tender over the distal ulna and may show pain with specific hand surgery maneuvers (ulnar abutment, grind or shuck test).



In patients with TFC pain, ulnar deviation of the wrist may result in pain at the TFC complex resulting in a positive ulnar abutment test

### Imaging

X-rays of the wrist are obtained and if there is suspicion of injury to the hand, elbow or shoulder these may be obtained as well. Although x-rays do not image soft tissues, such as ligaments, they are the first line evaluation in looking for fractures of the limb. X-rays help delineate the type of fracture, displacement and if the fracture extends within a joint. Typically routine x-rays are sufficient, although they may be taken from many angles. At times, enhanced imaging including CT scans or MRI is a helpful adjuvant.

MRI imaging can be helpful as it can image soft tissues and detect tears of both intrinsic and extrinsic ligaments. MRI can also uncover occult fractures of wrist bones—particularly the scaphoid.



A right wrist frontal image showing a tear of the scapholunate intrinsic ligament (bold white arrow) and tear of the central portion of the triangular fibrocartilage complex (narrow arrow).

## Treatment

### Nonoperative

Most injuries of the TFC can be treated without surgery. It has been estimated that approximately 33% of adults over age 40 have a degenerative tear of the triangular fibrocartilage complex (TFC). These degenerative tears are not symptomatic in the vast majority of individuals.

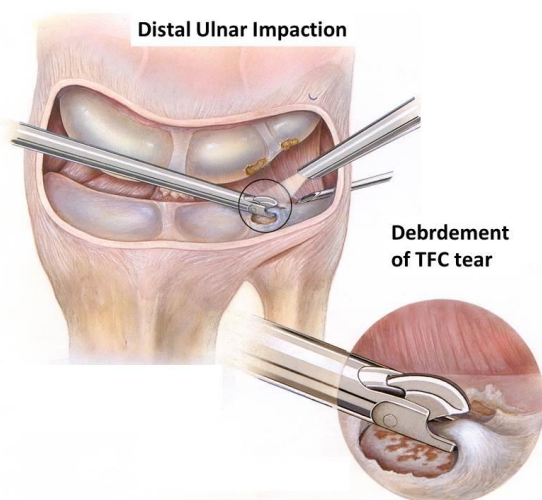
Initial treatments for TFC injury may include bracing, anti-inflammatory medications (e.g. ibuprofen, naproxen), and nonnarcotic pain medications. Often a steroid injection into the TFC complex is performed in the same setting and the wrist is allowed to rest for period of time.

For non-traumatic tears, approximately 90% of patients will improve with conservative treatment. Once the initial symptoms have lessened, the patient begins a program of strengthening which may be accomplished at home or under the guidance of a hand therapist. The patient is then weaned from the brace while the wrist is strengthened.

### Operative

For patients who do not respond to conservative treatment or have other traumatic injuries—arthroscopic wrist surgery may be indicated. Usually, arthroscopic surgery requires only that the hand and arm are numbed (regional anesthesia). A sedative may be given to further relax the patient.

Two or more small incisions (portals) are made on the back of the wrist. The arthroscope and instruments are inserted through those portals and the joint is observed through the camera on the end of the arthroscope. Central degenerative tears typically require debridement, while peripheral TFC tears may require repair. Ulnar positive wrists may benefit from ulnar shortening either arthroscopically, open or as an osteotomy.



Debridement of a central TFC tear

After the surgery, the incisions are closed with a small stitch and a dressing is applied. Sometimes a splint is used and may be transitioned to a brace postoperatively. Hand therapy or home therapy for range of motion and strength is initiated and length of recovery depends upon the surgical procedure undertaken.

For most patients, blood loss is minimal and unless there are medical indications—prophylaxis for deep vein thrombosis is not necessary. Other risks of surgery are small and include infection, bone healing, tendon rupture, and stiffness.



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