



**TWIN CITIES ORTHOPEDICS**

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## **ULNAR COLLATERAL LIGAMENT INJURIES**

### **Background**

The elbow is a true hinge joint formed by the lower end of the arm bone (humerus) and the upper portions of the two forearm bones (ulna and radius). When the elbow is near full extension (straight), most of the stability of the joint is provided by the bone structures themselves. However, with the elbow flexed, several tough soft tissue structures called ligaments, which are connections between the bones, are important in providing normal stability. In athletes involved in repetitive overhead activities, such as throwing a baseball or football, or serving a tennis ball or volleyball, one of these ligaments (ulnar collateral) can become stretched and/or torn over time. This often leads to pain and an inability to throw the ball with normal velocity.

The ulnar collateral ligament itself is located on the inner (medial) aspect of the elbow. It is a broad structure which consists of two distinct thickened portions (bands), one toward the front of the elbow (anterior), and one more toward the back of the elbow (posterior). The anterior band is the one most critical to normal function; when it becomes stretched or torn, dysfunction with the overhead motion may occur, as a result of subtle instability in the elbow joint itself. Pain typically occurs at or near the moment the throwing or serving motion is initiated from the overhead position. Pain on the inner portion of the elbow and a decrease in achievable throwing or serving velocity are common complaints. Occasionally, pain may radiate down the forearm or even hand. This is usually the result of irritation of one of the nerves of the forearm, the ulnar nerve, which is located in close proximity to the ligament.

In addition, the instability of the elbow due to the ligament injury may result in degeneration (damage) to the joint cartilage on the inner portion of the elbow joint itself. This can also be a source of discomfort or limitation of motion.

More unusually, the ligament can be injured suddenly if a significant force is applied to the elbow. This typically occurs in contact sports such as wrestling or football. In these cases, the ligament is pulled away from the bone, rather than being gradually stretched or weakened over time.

### **Evaluation**

The evaluation of a possible UCL injury requires a specific physical examination of the elbow, including range of motion, strength, and stability. As well, plain xrays of the affected side (and sometimes the other elbow, for comparison) are obtained. Finally, further imaging with MRI often aids in making the diagnosis.

### **Treatment**

#### **Nonsurgical**

The initial management of ulnar collateral ligament injuries is almost always nonsurgical. The exception may be a sudden ligament tear or injury in a contact athlete. In throwers or repetitive overhead athletes, a period of rest, anti-inflammatory medication (NSAIDs),

and alternating ice and heat is recommended. This is usually done for up to 3 months, before instituting a gradual return to sport or throwing program. This is also repeated, if necessary, prior to considering more invasive treatment. Efforts to rehabilitate with forearm muscle strengthening have not been predictably successful in treating UCL injuries.

### **Surgical**

There are two surgical treatment options for UCL injuries. The method selected depends on the type of injury. This type of surgery, in which the ligament is either repaired or reconstructed, has commonly been referred to as “Tommy John surgery”. The term refers to the well-known Los Angeles Dodgers pitcher, who was one of the first athletes to successfully recover from the procedure.

In patients with sudden injuries where the ligament is torn from its normal insertion point into the bone, the ligament may be *repaired*. This is done by reinserting the ligament into the bone, typically with suture material.

In patients with overuse type injuries (the more typical scenario), the ligament is usually *reconstructed*. This is done using a “free tendon” graft taken from another location in your body. Most often a small tendon in the same forearm (the palmaris longus tendon) is used. However, not all patients have this tendon, so some patients require the use of either a small hamstring tendon (knee) or a portion of the Achilles tendon (ankle) to perform the surgery.

### **Outcome**

UCL reconstruction or repair has been successful in returning the majority of overhead athletes to their previous level of participation. In general, the rate of return to sport has averaged between 60 and 70% in most series of patients. The success rate depends upon the amount of associated injury to the elbow and the type of activity desired after surgery. Baseball pitchers tend to have slightly lower rates of return to sport than other position players.

Occasionally, patients require subsequent treatment, including surgery, to control inflammation or scarring after the initial surgery. Obviously, the ability to return to sport may be adversely affected if this becomes necessary.

The ability to return to sport requires that the patient closely follow instructions during the recovery period. The recovery process is gradual, and includes a very specific program focused on control of inflammation, protection of the reconstructed ligament, muscle strengthening, and eventually a graduated sport-specific exercise program. Most patients return to unrestricted athletic competition between 12 and 18 months following surgery.

*\* The information provided in this handout was adapted from the chapter “Diagnosis and Treatment of Ulnar Collateral Ligament Injuries in Athletes” by Frank W. Jobe, MD and Neal S. Elattrache, MD, found in Morrey’s textbook on Elbow Disorders.*