

## **BICEPS TENDON RUPTURES AT THE ELBOW**

### **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). Active movement of the elbow and forearm is provided by a number of muscles and tendons. The biceps (biceps brachii) muscle is unique in that it crosses two joints in the body, the shoulder and the elbow. It functions to both flex the forearm (bend at the elbow) and rotate the forearm such that the palm faces upward (supination). Like all muscles, it works by contracting (or shortening). At both the upper end (the shoulder) and the lower end (the elbow), the muscle connects to the bones via tendons. The lower (or distal) end of the biceps tendon inserts onto the radius at a bony prominence called the radial tuberosity. Over time, the tendon at this location often undergoes degeneration that may weaken it and make it more prone to injury.

The tendon may be injured (or ruptured) suddenly if the elbow is rapidly straightened (as in a fall), or when attempting to bend the elbow against significant resistance (i.e., with weight lifting or lifting a heavy box). If the tendon ruptures, you may feel a pop or tearing sensation deep in the elbow. In many cases, swelling and bruising develop, and you may notice a change in the contour or appearance of your biceps muscle.

Depending upon how soon you seek evaluation, you may have a varying level of pain, or inability or difficulty bending the elbow or rotating the forearm.

### **Evaluation**

The evaluation of a possible biceps tendon 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 may be needed to confirm the diagnosis.

### **Treatment**

#### **Nonsurgical**

Nonsurgical treatment of distal biceps ruptures is generally reserved for partial ruptures, or in patients with significant medical problems or very light activity levels. If you are treated without surgery, the main limitations you can expect are less elbow flexion strength and forearm supination strength.

## 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.*