

Physical Therapist's Guide to Ulnar Collateral Ligament Injury

Ulnar collateral ligament (UCL) injuries occur when repetitive stress damages the inside of the elbow. UCL injuries are becoming more common given the popularity of "overhead" sports such as volleyball and baseball. They are often referred to as "Tommy John" injuries, named after the famous baseball pitcher who underwent the first surgery for a UCL injury in 1974. A physical therapist can help improve your arm's strength and range of motion, and your body's overall stability and balance following a UCL injury.

What Are Ulnar Collateral Ligament Injuries?

The ulnar collateral ligament is a band of tissue that connects the inside of your upper arm (humerus) to the inside of your forearm (ulna). This ligament helps to support and stabilize your arm when you perform a motion such as throwing a ball. Over time and with repetitive stress or trauma, the UCL can become stretched and even tear. Surgery is not always necessary to heal a UCL injury, but it may be performed if the patient has pain or if the elbow feels unstable upon a return to sports.

Signs and Symptoms

With a UCL injury, you may experience:

- Pain when using your arm in an overhead position (eg, pitching, throwing)
- Soreness in the inside edge of your elbow
- Minor swelling along the inside of your arm
- Possible numbness and tingling in your arm
- Instability at your elbow joint (feels like your elbow might give out when you move it through a motion related to your sport)

How Is It Diagnosed?

Your physical therapist will conduct a thorough evaluation that includes taking your health history. Your therapist may ask you the following questions:

- When and how did this injury occur?
- How long have you had pain?
- Have you had any numbness and tingling in your arm?
- Did you feel a "pop" when throwing or performing an overhead activity?
- Have you experienced any instability (feeling of giving out) with throwing?
- What other sports or activities do you participate in?
- Have you had to stop playing your sport because of the injury to your elbow?

Your physical therapist may gently poke around your elbow joint to locate the specific area of pain. The therapist may slightly bend your arm while applying pressure along the outside of your elbow joint (*valgus stress test*), or ask you to mimic a throwing motion as he or she resists against it (*moving valgus stress test*).

To provide a definitive diagnosis, your therapist may collaborate with an orthopedic surgeon. The surgeon may order further tests, such as magnetic resonance imaging (MRI) or magnetic resonance arthrogram (MRA), to confirm the diagnosis and to rule out other possible damage.

How Can a Physical Therapist Help?

Your physical therapist can help improve your arm's strength and range of motion following a UCL injury, and help restore your stability, coordination, and balance. The therapist will also work with you before and after any necessary surgery, and can help identify other issues that may have contributed to your injury, such as range of motion and strength deficits, or improper throwing mechanics. Your therapist will help you to:

Boost Your Healing Process. Decreasing stress across the injured area is the best way to promote healing of a UCL injury, and your physical therapist will likely tell you to take some time off from your sport. The therapist may educate you on the RICE (*Rest, Ice, Compression, Elevation*) principle and may implement "cross-friction massage" to help the body supply nutrients to the ligament.

Strengthen Your Muscles. After your injury your arm may feel weaker. Strengthening the muscles of your shoulder, upper back, and shoulder blades, in addition to those of the forearm,

will help decrease the stress at the elbow joint. Additionally, addressing lower body balance or any weakness through your hips and trunk may help decrease stress across your elbow.

Improve Your Range of Motion. After your injury you may notice more difficulty straightening or bending your arm. Your therapist will work with you to improve your arm's range of motion, including possibly stretching your shoulder to help decrease stress on your elbow when performing overhead movements.

Correct Your Movements. While every sport requires different arm positions, certain positions may put the athlete at greater risk for injury to the elbow. Examining and modifying the movements you perform may help you safely return to your sport. Your physical therapist will help design a specific program to allow a gradual full return to activity.

Following Surgery:

If surgery is necessary, your physical therapist may measure your arm strength and range of motion prior to surgery to define a baseline goal to achieve following the procedure.

Immediately following surgery, your arm will likely be placed in a splint, brace, or sling to protect your elbow. Physical therapy will begin within the first week to 10 days following surgery, and address the following:

- *Improve how far you can move your shoulder and elbow.* Your physical therapist will help you gently bend and straighten your arm through different exercises and stretching techniques. The therapist will also gently stretch your shoulder to help decrease stress across the elbow.
- *Improve the strength of your arm.* Through a series of exercises, your physical therapist will work with you to improve your arm strength. Your hand grip and forearm strength will likely be the first things you will work on following surgery. As you progress, the exercises will begin to focus more on your shoulder blade and upper back muscles.
- *Improve the strength and coordination of the muscles involved in sport.* As you begin to heal and progress, your exercises will become more specific to your sport or activity.

Can this Injury or Condition be Prevented?

There are factors that may increase your chances of injuring the UCL. For instance, shoulder and elbow range-of-motion imbalances may play a role in creating too much stress at the elbow. Your therapist can help correct these imbalances. Balance and coordination deficits can also lead to improper movement during your sporting activity. Your therapist can design a program to correct these deficits.

Factors such as age, the sport played, and the number of games played all may affect overall arm fitness and health. Allowing your arm to recover between games is also very important.

Real Life Experiences

Jason is an 18-year-old college baseball player who injured his right UCL while pitching in the fifth inning of a recent game. He recalls that his right elbow began to feel tight and that he lost some control during the first 3 innings, but he continued to push through the tightness and pain because he didn't want to let down his team. During the middle of the fifth inning, when throwing a fast ball, he felt a "pop" and experienced immediate pain in his right elbow. He then felt numbness and tingling on the inside of his right forearm and was unable to continue pitching. Jason was referred to an orthopedic surgeon who specialized in UCL injuries in baseball players. After talking with his orthopedic surgeon and family, Jason decided to have surgery to reconstruct the UCL on his right elbow.

Immediately after surgery, Jason was placed in a custom splint that held his elbow at a 90° angle with a sling around his shoulder to support his arm.

Jason began his physical therapy 10 days after his surgery. His physical therapist gently removed his splint and helped him begin to move his right elbow and shoulder. He gave Jason a series of exercises to perform at home, to work on his posture, shoulder blade strength, and the overall range of motion of his elbow and shoulder.

A few weeks after surgery, and after working on his shoulder and elbow range of motion, single-leg balance exercises, core strengthening, and posture and shoulder-blade exercises, Jason learned new exercises to strengthen the muscles of his shoulder. His physical therapist measured his range of motion to ensure he was on track, and introduced more intense exercises at the shoulder and elbow. Jason then began a throwing program that gradually increased the stresses across his elbow as he moved from shorter- to longer-distance throws. His physical therapist instructed him to focus on his mechanics and be aware of the position of his arm, trunk, and legs when he threw.

Jason was able to return to the starting lineup for his college team when the new baseball season began. He pitched a complete season without any further problems, and set a personal record for number of wins and earned run average.

This story was based on a real-life case.

What Kind of Physical Therapist Do I Need?

Although all physical therapists are prepared through education and experience to treat UCL injuries, you may want to consider:

- A physical therapist who is experienced in treating people with UCL injuries. Some physical therapists have a specialized practice with a focus on sports and orthopedics, and more specifically, the upper extremity.

- A physical therapist who is a board-certified clinical specialist or who has completed a residency or fellowship in sports physical therapy. This physical therapist has advanced knowledge, experience, and skills that may apply to your condition.

You can find physical therapists that have these and other credentials by using [Find a PT](#), the online tool developed by the American Physical Therapy Association to help you search for physical therapists with specific clinical expertise in your geographic area.

General tips when you're looking for a physical therapist:

- Get recommendations from family and friends or from other health care providers.
- When you contact a physical therapy clinic for an appointment, ask about the physical therapists' experience in helping people who have UCL injuries
- During your first visit with the physical therapist, [be prepared](#) to describe your symptoms in as much detail as possible, and say what makes your symptoms worse

Further Reading

The American Physical Therapy Association (APTA) believes that consumers should have access to information that could help them make health care decisions and also prepare them for their visit with their health care provider.

The following articles provide some of the best scientific evidence related to physical therapy treatment of UCL injuries. The articles report recent research and give an overview of the standards of practice for treatment both in the United States and internationally. The article titles are listed by year and are linked either to a PubMed* abstract of the article or to free access of the full article, so that you can read it or print out a copy to bring with you to your health care provider.

Garrison JC, Cole MA, Conway JE, et al. Shoulder range of motion deficits in baseball players with an ulnar collateral ligament tear. *Am J Sports Med.* 2012;40(11):2597–2603. [Article Summary on PubMed.](#)

Shanley E, Rauh MJ, Michener LA, et al. Shoulder range of motion measures as risk factors for shoulder and elbow injuries in high school softball and baseball players. *Am J Sports Med.* 2011;39(9):1997–2006. [Article Summary on PubMed.](#)

Wilk KE, Macrina LC, Fleisig GS, et al. Correlation of glenohumeral internal rotation deficit and total rotational motion to shoulder injuries in professional baseball pitchers. *Am J Sports Med.* 2011;39(2):329–335. [Article Summary on PubMed.](#)

Fleisig GS, Andrews JR, Cutter GR, et al. Risk of serious injury for young baseball pitchers: a 10-year prospective study. *Am J Sports Med.* 2011;39(2):253–257. [Article Summary on PubMed.](#)

Hariri S, Safran MR. Ulnar collateral ligament injury in the overhead athlete. *Clin Sports Med.* 2010;29(4):619–644. [Article Summary on PubMed.](#)

Lin YC, Thompson A, Kung JT, et al. Functional isokinetic strength ratios in baseball players with injured elbows. *J Sport Rehabil.* 2010;19(1):21–29. [Article Summary on PubMed.](#)

Dines JS, Frank JB, Akerman M, Yocum LA. Glenohumeral internal rotation deficits in baseball players with ulnar collateral ligament insufficiency. Am J Sports Med. 2009;37(3):566–570. [Article Summary on PubMed.](#)

Reinold MM, Wilk KE, Macrina LC, et al. Changes in shoulder and elbow passive range of motion after pitching in professional baseball players. Am J Sports Med. 2008;36(3):523–527. [Article Summary on PubMed.](#)

Kibler WB, Sciascia AD, Uhl TL, et al. Electromyographic analysis of specific exercises for scapular control in early phases of shoulder rehabilitation. Am J Sports Med. 2008;36(9):1789–1798. [Article Summary on PubMed.](#)

*PubMed is a free online resource developed by the National Center for Biotechnology Information (NCBI). PubMed contains millions of citations to biomedical literature, including citations in the National Library of Medicine's MEDLINE database.

Authored by Craig Garrison, PT, PhD, ATC, SCS, and Joseph Hannon, PT, DPT, CSCS. Reviewed by the [MoveForwardPT.com editorial board.](#)