



# A PATIENT'S GUIDE TO Shoulder Instability

**Overhand throwing places stress on the shoulder, specifically to the anatomy that keeps the shoulder stable. In throwing athletes, these high-stress repeated motions can lead to a wide range of overuse injuries.**

Although throwing injuries in the shoulder most commonly occur in baseball pitchers, they can be seen in any athlete who participates in sports that require repetitive overhand motions, like football, volleyball, tennis, and some track and field events.

## Anatomy

The shoulder is a ball-and-socket joint made up of three bones: humerus, scapula, clavicle. The head of your upper arm bone fits into a shallow rounded socket in the shoulder blade called the glenoid, which is surrounded by a rim of strong, fibrous tissue called the labrum. The shoulder capsule is the ligament system that keeps the head of the upper arm bone centered in the glenoid socket. This tissue covers the shoulder joint and attaches the upper end of the arm bone to the shoulder blade.

The shoulder also relies on strong tendons and muscles of the rotator cuff to keep your shoulder stable. This, along with tendons in the bicep muscles, and muscles in the upper back play an important role in keeping the shoulder stable.

## Cause

When athletes throw repeatedly at high speed, significant stress is placed on the anatomical structures that keep the humeral head centered in the glenoid socket.

The late-cocking and follow-through phases of throwing place the greatest forces on the shoulder.

### Late-cocking phase

To generate maximum pitch speed, the thrower brings the arm and hand up and behind the body. The extreme external rotation of this position helps the thrower put speed on the ball, but, it also forces the head of the humerus forward, placing significant stress on the ligaments in the front of the shoulder. Over time, the ligaments loosen, resulting in greater external rotation and greater pitching speed, but less shoulder stability.

### Follow-through phase

During acceleration, the arm rapidly rotates internally. Once the ball is released, follow-through begins and the ligaments and rotator cuff tendons at the back of the shoulder must handle significant stress to decelerate the arm and control the humeral head.

When one structure, such as the ligament system, becomes weakened due to repetitive stress, other structures must handle the overload. As a result, a wide range of shoulder injuries can occur in the throwing athlete.

## Some Common Throwing Injuries in the Shoulder

### Instability

Shoulder instability occurs when the head of the humerus partially slips out of the shoulder socket (subluxation). When the shoulder is loose and moves out of place repeatedly, it is called chronic shoulder instability.

In throwers, instability develops gradually over years from repetitive throwing that stretches the ligaments and creates increased looseness. If the rotator cuff structures are not able to control the laxity, then the shoulder will slip slightly off-center during the throwing motion.



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Only your surgeon can diagnose and help determine the best treatment for your shoulder instability or other injury. Talk to Orthopedic Surgeons Dr. Lex Kenerly, Dr. Matt Valosen, and Dr. Chris Swanson at the **Bone & Joint Institute of South Georgia** about the best treatment for your condition. BJISG provides the full range of orthopedic services, including surgical and non-surgical treatments, and the only open MRI in Jesup and Waycross. From a sprain to a severe injury requiring surgery, BJISG is your first choice for comprehensive, compassionate orthopedic care.

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Pain and loss of throwing velocity are initial symptoms. Some throwers may feel the arm "go dead." A common term for instability many years ago was "dead arm syndrome."

### SLAP Tears (Superior Labrum Anterior to Posterior)

In a SLAP injury, the top part of the labrum is injured when a tear occurs both in front and in back of this attachment point. Symptoms include a catching or locking sensation, pain with certain shoulder movements, and pain deep within the shoulder or with certain arm positions.

### Rotator Cuff Tendinitis and Tears

When a muscle or tendon is overworked, it can become inflamed. The rotator cuff is frequently irritated in throwers, resulting in tendinitis. Early symptoms include pain that radiates from the front of the shoulder to the side of the arm. Pain may be present during throwing, other activities, and at rest. As the problem progresses symptoms may also include loss of strength and motion.

## Diagnosis and Treatment

Your orthopedic surgeon will check the range of motion, strength, and stability of your shoulder, and may perform tests by placing your arm in different positions to reproduce your symptoms. Imaging tests, including X-ray, MRI, CT scan and Ultrasound, may be ordered to confirm your diagnosis and identify any associated problems.

In many cases, the initial treatment for a throwing injury in the shoulder is nonsurgical. Treatment options may include icing, change in activities, anti-inflammatory medication, physical therapy, or cortisone injection.

If symptoms are not relieved by non-surgical treatment, surgery may be required. They type of surgery may be based on your medical history, physical examination, and imaging studies, or if symptoms are not relieved by nonsurgical treatment.

Most throwing injuries can be treated with arthroscopic surgery. The surgeon inserts a small camera into the shoulder joint, displaying pictures on a TV screen, which the surgeon uses to guide small surgical instruments. Arthroscopy allows the surgeon to use very small incisions rather the large ones needed for standard, open surgery. A traditional open surgical incision is often required if the injury is large or complex.

## Prevention

Proper conditioning, technique, and recovery time can help prevent throwing injuries. Throwers should strive to maintain good shoulder girdle function with proper stretching and strengthening, and upper back and torso strengthening. In the case of younger athletes, pitching guidelines regarding number of pitches per game and per week, as well as the type of pitches thrown, have been developed to protect them from injury.