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## SHOULDER DISLOCATION/SUBLUXATION

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The following information is designed to present an overview of Shoulder dislocation/subluxation so that you might better understand what is wrong with your shoulder, what your treatment options are and what the anticipated benefits are with surgery.

### DEFINITIONS

The shoulder joint has been compared to a golf ball sitting on a tee. The “ball” is the humeral head, which is round, and the glenoid is a shallow cup or socket. A shoulder that **dislocates** is one in which the ball portion comes completely out of the socket. Significant trauma is usually required to cause a shoulder to dislocate. The usual direction of dislocation is the front or anterior. It can go out the bottom, or inferior, or a combination of anterior and inferior. Very rarely does it go out the back, or posterior. Anterior dislocations often occur when the arm is outstretched and is forced backwards; for example, as when arm tackling in football. It is usually quite painful, and there may be partial numbness of the shoulder, arm and hand. Most of the time, a physician has to put it back in place (reduce the dislocation).

A shoulder that **subluxes** is one in which comes only part of the way out of the joint, but not all the way. It then goes back into place, usually on its own, or when the patient wiggles his arm or changes position of the arm. This occurs with significantly less trauma than a dislocation. Subluxation, like dislocation, often occurs when the arm is outstretched, as in throwing a football or baseball. It typically occurs in throwers after years of repetitive activity. It is painful, and often the arm feels weak, numb, or tingling. The first time a shoulder subluxes, it is usually rather painful, and may remain sore for several days.

### RECURRENCE

The main significance of subluxation and dislocation is after the first time, recurrence is very likely, especially in younger patients. The recurrence rate in patients under 20 years old is close to 95%. The recurrence rate goes down as age advances. In patients over age 40, there is only a 40 to 50% recurrence. Backward or posterior dislocation of the shoulder is rare and usually associated with a seizure disorder or high velocity trauma. Backward or posterior subluxation is also relatively rare, and is most often seen in football players, specifically offensive lineman.

Due to the high recurrence rates, the goal of any treatment is to reduce the possibility of recurrence. The minimal treatment for the first time dislocation should be immobilization in a sling and physical therapy for 3-6 weeks. In spite of this treatment, the recurrence rate of dislocation and subluxation is still fairly high. If the shoulder is not immobilized after a dislocation, the chances of redislocation are extremely high with unrestricted activity in the first 1-2 weeks.

Once a shoulder dislocates a second time, it will almost always continue to redislocate with the arm in certain positions and often with less and less trauma.

It is my opinion that once a shoulder subluxes, it will probably continue to do so, even if it is immobilized. If, however, treatment is sought for the first time subluxation, immobilization should be done for 3-6 weeks to take advantage of the off-chance that it will reduce the recurrence rate.

**ANATOMY**

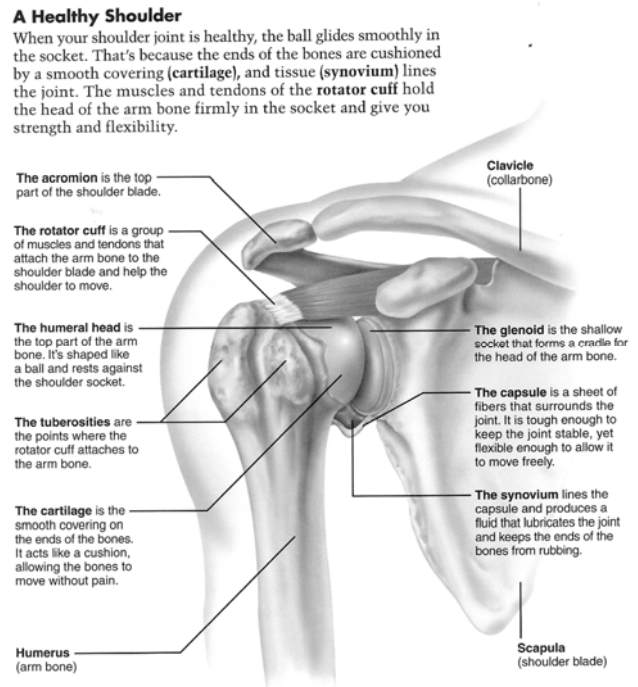
Further discussion of treatment options requires some basic knowledge of the anatomy of the shoulder joint.

The shoulder is not a true ball and socket joint like the hip. The illustration here will give you a general idea of how the joint is shaped to help you visualize the anatomy. One side is round, and the other side is flat. The round side is called the humeral head, and the flat side is the glenoid. This comprises the shoulder joint. The bones that form the shoulder joint, because of their shape, do not provide much, if any, built in stability. The joint is often likened to a golf ball sitting on a tee.

The structures that do provide stability are the ligaments which surround the joint and are attached to the glenoid on one side and the humerus on the other side. These ligaments are most prominent in the front, underneath, and in the back of the joint. They are called the glenohumeral ligaments. There is also a thickened rim of cartilage which surrounds the bony glenoid and acts to deepen the surface to more of a saucer. This cartilage is called the glenoid labrum.

On the top of the shoulder, there is a group of tendons attached to muscles which are called the rotator cuff. These tendons that make up the rotator cuff are not generally involved in a shoulder that dislocates, except in older individuals. Overuse of the shoulder, such as with pitching, can lead to irritation of the rotator cuff muscles and tendons as well as weakness. Some athletes that do a lot of throwing or participate in overhead racquet sports develop subluxation or instability secondary to these activities. They develop a tendonitis of the rotator cuff as it tries to compensate for the instability of the shoulder. In this group of patients, the initial treatment should be to strengthen the rotator cuff musculature, to use nonsteroidal anti-inflammatory drugs, and to rest. Failure to improve and to respond positively to this treatment may lead to surgical recommendation to correct the instability.

For those of you who are interested in the anatomy of the shoulder, the names of the muscles and tendons that comprise the rotator cuff are the subscapularis in the front or anterior, the biceps tendon in the front and top of the shoulder, the supraspinatus which is more or less on top, and the infraspinatus and teres minor which comprises the posterior or back. The ligaments which provide stability to the joint are actually underneath the cuff tendons. These muscles and tendons do support the shoulder, but their main function is to move the arm and shoulder. Again, the ligaments, anterior (front), inferior (bottom), and posterior (back), give the joint stability.



## UOC—Shoulder Dislocation/Subluxation

A shoulder which dislocates or subluxes injures the ligaments and labrum in one of two different ways. In shoulders which sublux, the ligaments become torn and then heal in a stretched or elongated position. In shoulders which dislocate, the ligaments and glenoid labrum are torn from the glenoid (the flat bone socket of the shoulder joint). This detachment of the labrum usually heals in a position off the front of the bone and thereby allows greater motion and less restraint for the humeral head.

Some patients have what is called multi-directional instability (MDI). These patients have loose ligaments all around the shoulder. The patient can sublux in any direction, anterior, inferior and posterior, but usually and most commonly anterior and inferior.

### **TREATMENT OPTIONS**

In order to arrive at a precise treatment, it is necessary to establish an exact diagnosis as to which direction the shoulder is going out of place. This can sometimes be done on the basis of your history (your account of your injury and the symptoms which you have described to me), as well as by examination and plain x-rays.

Occasionally, a test called an MRI (Magnetic Resonance Imaging) is used to help establish a diagnosis. This is a test done in a special machine as an outpatient procedure which does not involve the use of x-rays, but rather uses a magnetic field. It gives us a fairly accurate picture of the status of rotator cuff tendons, ligaments, and other structures in and around the shoulder. Often, to establish with precision the exact direction of the dislocation or subluxation and other problems, it is necessary to examine the patient under anesthesia and arthroscope the shoulder. An arthroscope is a small telescope inserted through a small incision which allows us to see inside the joint.

I have mentioned earlier the initial treatment for the first-time dislocator or subluxor. In addition to immobilization, appropriate strengthening exercises are recommended after removal of the immobilization. Resumption of athletic activities can be taken up on an individual basis, but 6-8 weeks after injury is minimum and 3 months is probably a safer time course.

Some high school and collegiate athletes may want to consider surgical reconstruction of the shoulder after the first dislocation because of the high incidence of redislocation. A second reason to consider is if the athlete is going to continue athletic participation, then often the second dislocation can occur during an event and risk further injury. A second dislocation necessitates more time out of athletics. This matter can be discussed further with those of you who wish to consider this on an individual basis.

As mentioned previously, after a second dislocation or subluxation, recurrence is even more likely. Exercises to strengthen the muscles are important in the overall rehabilitation of the shoulder. Unfortunately, strong muscles will not prevent a recurrent dislocation or subluxation. This is due to the earlier discussion regarding the role of the ligaments in furnishing stability to the joint. The muscles and tendons do not have this as their primary responsibility.

The symptoms of recurrent dislocation or subluxation can be controlled to some degree by activity modification. This means avoiding certain arm positions and athletic activities which require the arm to be placed in these positions. Some football players, such as offensive linemen, can wear a device called a 'chain and cuff' which limits motion in order to continue participation. Other positions on the football team generally do not lend themselves to use of this device. It is not applicable in other sports such as basketball and baseball.

## **SURGERY**

For most patients with recurrent dislocation or subluxation, surgery is necessary to control the symptoms. After I have taken your history, examined you and reviewed your x-rays, I will probably have a good idea as to whether your diagnosis is subluxation or dislocation. I will also generally have a reasonably good idea of the direction of the instability. Once a surgical decision is elected, I begin with an examination under anesthesia of the shoulder which will reveal more precise information as to the nature of your problem.

Following this, at arthroscopy, it is usually possible to tell whether the ligaments have been stretched, torn from the bone or both, as well as the direction of dislocation or subluxation.

For the patient with recurrent dislocation or subluxation who has torn the ligaments and cartilage (labrum) away from the bone, [this is called a Bankart lesion], the ligament and cartilage is reattached to the bone with sutures or stitches.

If the dislocation or subluxation is secondary to stretched ligaments, the ligaments are tightened, and then secured with stitches or sutures. Sometimes patients have some of both problems, that is stretched ligaments and also torn away from the bone, in which case both of the above could be carried out. Tightening the ligaments in medical terms, is called a capsulorrhaphy or a capsular shift. For the purposes of this discussion, capsule and ligaments mean the same thing. For patients with MDI or multi-directional instability, a capsular shift is necessary. For patients with a pure posterior or backward dislocation/subluxation, incision on the back of the shoulder is usually carried out and the ligaments tightened from the back. In most patients with an MDI, however, the prominent instability pattern is an anterior and inferior one and what posterior instability is present can generally be corrected from the front.

Most patients will go home the day of surgery and will wear a sling for comfort.

## **POST-OPERATIVE CARE**

I will see you 2-4 days after the surgery. A clear, plastic dressing will be applied on that visit so that you can shower. A physical therapy visit 2-4 days post operative is desirable. The sling is usually removed at that time and is rarely recommended for more than 3 weeks.

You will be instructed before the surgery and after the surgery on appropriate rehabilitative exercises. Physical therapy is for you to regain your motion and to strengthen the muscles about the shoulder. Some of you will need more supervised physical therapy than others.

It takes about 2-3 months to regain most of your motion and strength.

Time out of school will vary from 3-4 days to 7 days. Work activities involving full strength and motion will require about 3 months. I ask all patients to stay out of athletic activities for six (6) months after surgery. We have found that the recurrence rate after surgery is much higher if you return to athletics at less than six months.

What you can expect from the surgery is to significantly reduce the likelihood of redislocation or resubluxation. Without surgery, the chances of recurrence are at least 90 to 100%. With surgery, the chances of recurrence for all patients overall are about 5%. As a group, football players have a slightly higher recurrence, but this is generally less than 10%. Because of the nature of the sport of football, some recurrences after surgery may have occurred with a normal shoulder.

## **COMPLICATIONS**

As far as complications are concerned, recurrence of dislocation and subluxation is the most common. Fortunately, that is rare. Another complication which can occur is significant loss of motion, but can be avoided with diligent attention to rehab and exercise. Small degrees of loss of motion are not uncommon and usually not a problem. Loss of motion can be a problem in the dominant shoulder with pitchers or other athletes involved in overhead throwing or racquet sports. I will discuss this matter individually with those of you in those categories.

Surgical complications such as blood clots, and infection, can occur but are extremely rare in my experience. Infection, if it occurs, can be very serious and can result in loss of motion and arthritis. None of my patients have had an infection following this type of surgery. Important nerves and blood vessels are close to the surgical area, and there have been reports of injury to these structures. This obviously is a very serious complication. If it happens, it could result in serious impairment to the arm or even loss of the extremity. This has not occurred in my experience. Small skin nerves are, however, cut in the process of making the incisions, either the incision to reconstruct the shoulder or to do the arthroscopy. This will result in some numbness around the surgical site which should not be a problem other than a minor annoyance that cannot be avoided.

Anesthetic complications can occur and will be discussed with you by the anesthesiologist on the day of your operation. You will either have a general anesthetic or have some local anesthetic injected in the base of your neck to numb the arm and shoulder. In that case, you would remain awake but sedated during the procedure. The decision as to the type of anesthesia will be up to you and the anesthesiologist.

Some of you will probably have some questions about a pure arthroscopic repair or reconstruction. At the time of this writing, the results of arthroscopic reconstructions are good but not as good as open reconstructions and repairs. Reported recurrence rate after arthroscopic reconstruction ranges from 8% to as high as 30%. These results are from the hands of accomplished, select arthroscopic surgeons. The only advantage of arthroscopic reconstruction is a smaller incision and less pain immediately after the surgery. In general, the length of immobilization/rehabilitation is longer with arthroscopic reconstructions than with open or conventional surgery described above. There are a few patients that I think are suitable candidates for an arthroscopic reconstruction, and I will discuss that with you if you are in that category. As time passes and our experience grows with this technique, I feel that the results will improve and arthroscopic reconstruction will be recommended more often.



The information contained in this patient education packet is intended to help you and your families/caretakers better understand a particular diagnosis and/or the treatment options available. If you have any questions after reading this, please don't hesitate to contact Dr. Longobardi's office at 201.343.1717 for a further explanation or you can also go to [www.universityorthopaedic.com](http://www.universityorthopaedic.com) and click on Patient Education to gather more information. Thank you.