

Shoulder Separations and Acromioclavicular Joint Reconstruction

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“Separation” of the shoulder is the common term used for a sprain of the AC or Acromioclavicular Joint. A fall directly on the shoulder can cause the joint to “separate.” This injury occurs most frequently in contact sports, particularly football. The main cause of a shoulder separation or AC joint dislocation is a fall on the outer upper corner of the shoulder, as may occur in a tackle or a fall onto an outstretched hand. A fall from a height, and other high energy injuries, are also major causes of AC joint separations. They also can occur skiing, snowboarding, slipping on ice, at work (a fall off a ladder or unprotected height), and in motor vehicle accidents.

Shoulder separations are different than shoulder dislocations where the ball comes out of the socket, and they are often confused with dislocations. Shoulder separations involve the small joint that connects the collar bone to the small bone above the ball and socket of the shoulder the acromion (see Figures 1 and 2). The joint can be felt as a prominent bump or ridge on the top of your shoulder. The joint is held together by strong ligaments called the coracoclavicular ligaments and the AC joint capsule. They range from minor, or grade 1 separations, that can be treated with rest, ice and an anti-inflammatory to minor displacements, or Grade 2 injuries, that can be treated the same way, to complete displacements. In the higher energy injuries, the AC joint can dislocate just like ball and socket of shoulder. In the more severe types, all of the ligaments holding the collar bone in place are torn. These higher grade injuries (grades 4, 5 and 6) are associated with a clear deformity and instability of the AC joint on examination. These high grade injuries can tent the skin and be irreducible.

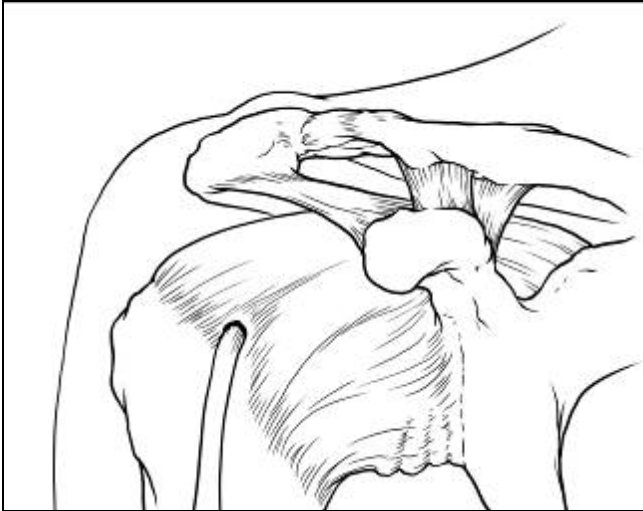


Figure 1: Shoulder anatomy

The diagnosis is made by history, physical examination and X-rays. The injury causes pain and difficulty moving the arm. The ligament injury allows muscles attached to the clavicle to pull it away from the shoulder and, depending upon the severity may produce a very prominent bump on the top of the shoulder. Special X-rays with and without weights can help define the relative instability of the AC joint in borderline cases. An MRI is not needed or helpful in the diagnosis and treatment in this injury.



Figure 2 A-C Joint Separation:

Note that the collar bone is significantly higher than the acromion, making this a more significant separation. In this case, the bone tip is tenting the skin.

Again, in simple cases, there is only a sprain and the clavicle does not move too much out of place. Treatment may consist of rest, immobilization with a sling, ice and use of an anti-inflammatory medication. Certain exercises done under the supervision of a physical therapist may also be useful.

If the ligaments holding it in position are completely ruptured, then the clavicle moves upwards and backwards (see X-ray above in figure 2). Patients may complain of popping, catching or pain with overhead activities. The deformity may be very visible and disconcerting. The deformity itself is not the true indication for surgical repair. There are several clear indications for repair. They include:

1. Significant tenting of the skin: in these cases the muscle may be trapped below the bone and the bone edge is directly under the skin or the bone may be “button holed’ or stuck in the muscle causing pain with motion.
2. There are nerve symptoms, shooting pains or numbness, in the hand or arm with any motion.
3. There is significant loss of use of the dominant arm or in many cases, the non-dominant arm.
4. Continued pain and instability of the end of the collar bone after failing non-surgical treatment.

If there is a significant deformity and or symptoms with activities of daily living, surgery may be required to bring the clavicle back into its normal position. The goal is to restore stability and function to the shoulder. Surgery is not indicated for small separations, minimal deformity or for only cosmetic reasons.



Healed incision for the repair



Full elevation at eight weeks post op.



X-ray showing reduced AC Joint and bone tunnels.

The vast majority of the time the reconstructive surgery is very successful. Remember, as with any surgery, there is always a risk of complications including, but not limited to, infection or failure of the repair. Having AC joint ligament reconstruction surgery in cases with minor or weak indications is not worth even the limited risks of surgery and is discouraged. In some of those minor cases, a less invasive approach, like an arthroscopic

Mumford procedure or resection of the prominent tip of the distal collar bone, or even no surgery at all, may be a better choice.

Procedure and Instructions

If surgical repair is needed, the ligament reconstruction involves a special incision being made over the front and the top of the AC joint. The collar bone is then reduced into position and the torn tendons replaced with a tendon graft and small biocompatible screws supplemented with heavy duty sutures (Fiberwire™ and Ethibond™).

Dr. Reznik performs this surgery under a light general anesthesia with Marcaine and Lidocaine for post op pain relief on an out-patient basis. You should expect to have some post op soreness and you will be given oral pain medications for home to provide extra comfort. (To learn more see the photos from a real surgical repair performed by Dr. Reznik on this web site.)

Your physical therapy will begin 3-4 days after surgery. The physical therapist will guide you in your shoulder rehabilitation program. It is very important for you to start therapy when recommended.

To avoid complications, postoperative follow up appointments with your physician are also required to monitor your progress.

A-C Joint Reconstruction Recovery Plan and Post-Op instructions:

Day 1 Post Op: arriving home from the surgery center: Maintain dressing, adding 4x4 bandages if needed for drainage through dressing. Use ice pack for 20 minute periods throughout today. (Do not place ice directly on skin to avoid frostbite.) Keep pillow sling on at all times. Move fingers and wrist often. Expect some swelling, if you have any change in skin color or sensation in arm, notify our office. When sleeping, most patients find sleeping in a semi-upright position is more comfortable for the first few weeks after shoulder surgery. Begin Hand Squeezing and Wrist range of motion exercises at home after surgery. (See exercise list) The arm sling with its pillow must remain on at all other times, including bedtime.

Day 2: The Day after Surgery: Same as Day 1

Day 3: (usually about 48 hours after surgery): Continue same activities, including using ice for 20 minute periods as needed. You should remove your dressing. You may remove the sling to shower today, supporting the affected arm with the opposite hand. You may wash the skin around the incisions as long as you keep the white Steri strips dry. When washing the under arm, do not use a large amount of soap. It may dry out the skin and cause a rash. After a short shower, dry the shoulder well and place Band-aids over incisions.

Day 3- 4: Start Therapy with a physical therapist. This is to help avoid a frozen shoulder. The range of motion will be limited at first. The goal is to start motion while protecting the repair.

Diet: You may resume a regular diet when you return home. Most patients start with tea or broth adding crackers or toast, then a non-spicy sandwich. If your stomach feels acidic, try Tums, Zantac or Pepcid AC to settle it and drink some clear liquids.

Lungs: After surgery you are encouraged to deep breathe and cough frequently (at least 3-4 times per day). This will reduce mucous from building up in your lungs, and will reduce the risk of developing a post anesthetic pneumonia.

Pain Control: Take medication as prescribed by Dr Reznik. Please call our office with any questions regarding your medication. Use Ice pack for 20 minutes periods throughout the first 24 hours after surgery and then as needed.

Dressing: The dressing is to remain clean and dry. After 48 hours you may remove the dressings. Keep any white “steri-strips” in place. They will be removed along with any sutures at your 1st postop visit with Dr Reznik. You may shower today and after gently patting the incision dry, replace the dressing with Band-Aids.

Sling: Patients are to wear the pillow sling at all times (including while sleeping) for the first 3 weeks. Move fingers and wrist often. Expect some swelling. Patients should then wear the sling with the pillow removed when going out and in public places for the next 3 weeks. The sling will help to alert others to avoid the affected arm during this healing period.

Driving: Patient cannot drive until they are off all pain medications, completely out of the sling, and can easily place hands at 12:00 position on the steering wheel and can move hands freely from the 9:00 – 3:00 position.

Airline Flights: Only if necessary, patients may fly 2-3 weeks after surgery on short flights (up to 2 hours) but should in general wait 6-8 weeks for longer flights. If you must fly, you should get up and walk frequently to avoid blood clots and take an aspirin a day (unless allergic) for the week before and six weeks after the flight.

Returning to Work: A patient with low demand work can usually return to work within 3 weeks. They will still have restrictions on lifting and overhead use. Patients with higher demand jobs or repetitive arm use need at least 6 weeks. Heavy labor work with overhead lifting can take at least 4-6 months.

Blood Clots: Patients at high risk for blood clots include: Those with long car or train commutes, may be overweight* BMI>30, have a history of having cancer, females on birth control pills and males over the age of 40. These patients should be taking 1 aspirin per day for 6 weeks after surgery unless allergic to aspirin. Patients with more than two

risk factors or prior history of clots should ask their primary physician if a blood thinner is required.

*BMI or Body Mass index is a number calculated from a person's weight and height. BMI provides a reliable indicator of body composition. A muscle/fat ratio if you will. The index is used to screen for weight categories that may lead to health problems.

Call the physician or go to the ER if:

- You develop excessive, prolonged nausea or vomiting;
- You develop a fever above 101.
- You develop any type of rash;
- You experience calf pain.

Dental Work:

***YOU CANNOT HAVE ANY ROUTINE DENTAL WORK (INCLUDING CLEANING) FOR AT LEAST 3 MONTHS AFTER YOUR SURGERY OR YOU RISK INFECTING THE SUTURES, SCREWS AND MOST IMPORTANTLY THE TENDON GRAFT. AN INFECTED GRAFT MAY NEED TO BE REMOVED IF THE INFECTION DOES NOT RESPOND TO QUICK TREATMENT.

AFTER 3 MONTHS YOU MAY SEE THE DENTIST BUT YOU WILL NEED TO TAKE ANTIBIOTICS BEFORE AND AFTER DENTAL WORK FOR ONE YEAR FROM DATE OF SURGERY, DR. REZNIK WILL GIVE YOU A PRESCRIPTION***

Physical Therapy:

It is vital to your recovery of good shoulder function is a graduated activity and exercise program to increase muscle strength and motion. You will begin simple exercises AT HOME the day of surgery. Wrist range of motion, gripping the squeeze ball supplied with the sling and simple elbow motion to reduce pain and swelling. They should be done every day for at least the first 3 weeks post-op, to maintain blood flow and help prevent blood clots.

Post Operative Exercises: Do three times each day as directed

Starting Day 1: Hand Squeezes or Grip Strengthening: Using a small soft rubber ball or soft sponge, squeeze your hand. When in the shower, you can use a sponge filled with water. Do this for 3-5 sets of 10-20 repetitions each day. If this is too easy, later in the rehab course you can use a grip strengthener. **Wrist Range of Motion:** Roll your wrist in circles for 30 seconds after each round of grip exercises.

Day 3 add: Elbow Range of Motion: Turning your palm inward, towards your stomach, flex and extend the elbow as comfort allows. This rubbing you belly motion will decrease pain and prevent elbow stiffness. Physical therapy usually begins today. It is a key part of your post op care. The physical therapist will guide you in your rehabilitation program.

Day 7 add: Pendulum Exercise: Holding the side of a table with your good arm, bend over at the waist, and let the affected arm hang down. Swing the arm back and forth like a pendulum. Then swing in small circles and slowly make them larger. Do this for a minute or two at a time, rest, then repeat for a total of 5 minutes, 3 times per day

Biceps Curls: Curl the arm up and down 12 times; rest for one minute and repeat for a total of 3 sets of 12. When comfortable try it holding a very small can to start, in a few days you can increase can size only as comfort allows. This exercise should not be painful. If painful, you should decrease or eliminate the weight.

Not before Day 10 add: Wall Walking: Stand facing a blank wall with your feet about 12 inches away. “Walk” the fingers of the affected hand up the wall as high as comfort allows. Mark the spot and try to go higher next time. Do at least 10 repetitions, 3 times per day. When more comfortable and stronger (not before three weeks) do these exercise sideways, with the affected side facing the wall. Do not let the hand drop down from the wall- walk your fingers down as well as up. Dropping the arm will strain the repair and be painful. If having weakness on the way down, feel free to use the other arm to help.