



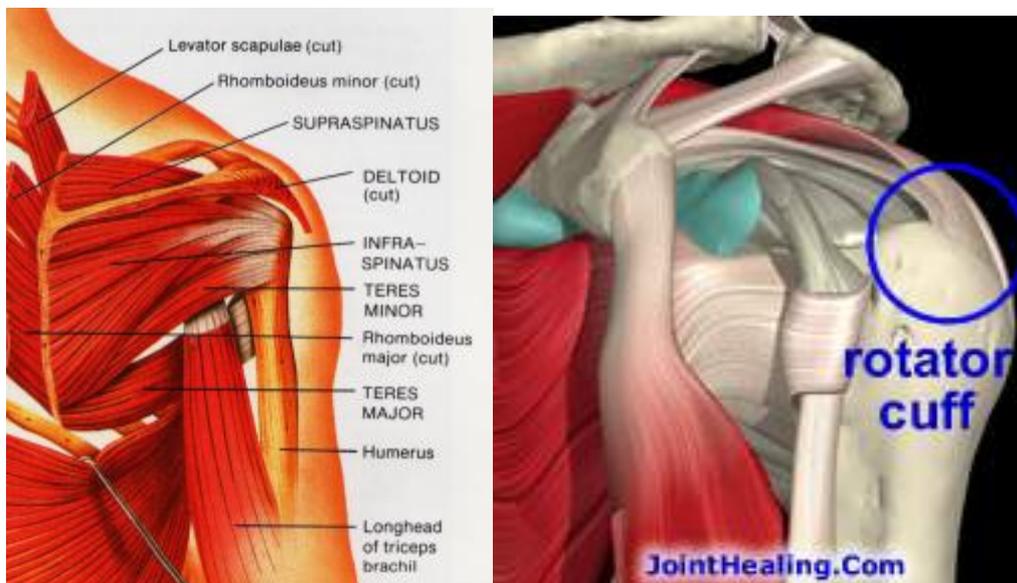
Philip Bayliss

St Albans Osteopathy

43 Thames Street, St Albans, Christchurch 8013

Phone: (03) 356 1353. Website: philip-bayliss.com

Rotator Cuff Injury and Shoulder Tendonitis



The rotator cuff is a group of four muscles that helps to lift your arm up over your head and also rotate it toward and away from your body. Unfortunately, it is also a group of muscles that is frequently injured by tears, tendonitis, impingement, bursitis, and strains. The major muscle that is usually involved is called the *supraspinatus muscle*. The other rotator cuff muscles are: *subscapularis*, *infraspinatus*, and *teres minor*

Rotator cuff problems are usually broken up into the following categories listed below. If you're not sure which one of these you have, start with rotator cuff tendonitis.

Rotator cuff tendonitis

This is also known as *impingement syndrome* or *shoulder bursitis*. Usually this occurs in people 30-80 years of age, and usually the weakness in the shoulder is only mild to moderate. Rotator cuff tendonitis, also known as "bursitis" or "impingement syndrome" occurs when the rotator cuff gets irritated on the under surface of the acromion. The reason this begins in the first place is a source of some debate. Some people are born with a "hooked" acromion that will predispose them to this problem. Others have rotator cuff weakness that causes the humerus to ride up and pinch the cuff. This means that the bursa – a water-balloon type structure that acts as a cushion between the rotator cuff and acromion/humerus – gets inflamed.

Common symptoms of rotator cuff tendonitis include:

- **Pain**
Pain located primarily on top and in the front of your shoulder. Sometimes you can have pain at the side of your shoulder. Usually is worse with any overhead activity (reaching up above the level of your shoulder).
- **Weakness**
Mild to moderate weakness, especially worse with overhead activity.
- **Popping**
Sometimes bursitis that occurs with rotator cuff tendonitis can cause a mild popping or crackling sensation in the shoulder.
- **Unable to Sleep on Shoulder**
Most patients complain of difficulty sleeping on the shoulder at night.

How is impingement syndrome diagnosed?

Often, the diagnosis is suggested by your symptoms. Your osteopath or orthopaedic surgeon or primary care physician can have you perform various manoeuvres to detect this problem. This physical examination is designed to test your motion, strength, and certain positions of pain. In addition, plain x-rays can show a spur on the under surface of the acromion. An MRI is occasionally ordered if a rotator cuff tear is suspected.

How do we treat rotator cuff tendonitis?

Just about all orthopaedic surgeons agree that this problem should be initially treated conservatively (i.e., without surgery). What are the steps to healing?

- Stop any activities that can aggravate your symptoms. For example, if you're painting the ceiling in your garage and it's making your shoulder feel worse, stop doing it!
- Do not ignore your body. It is telling you (with pain) that something is wrong.
- Take medications, if necessary, to make you comfortable and decrease your pain.
- Consider using cryotherapy (cold therapy) to get your pain under control.
- STRENGTHEN your rotator cuff!

Why does strengthening the rotator cuff muscles work?

When you have this tendonitis you get into a "vicious cycle":

1. First your rotator cuff is irritated for various reasons (e.g., overuse, injury, etc.).
2. Then it doesn't work as well, and that causes increased pressure under the acromion bone.
3. The only way the acromion can react to that is to make new bone (a bone spur!).
4. That bone spur then presses on the rotator cuff.
5. So the rotator cuff gets MORE irritated, and then more weak, and so on (go back to step 1).

Strengthening your rotator cuff is the scientifically proven way to break this vicious cycle. Osteopaths agree that exercise for the rotator cuff muscles (e.g., stretching and strengthening) is the most important first step in treating impingement syndrome/rotator cuff tendonitis/bursitis.

Rotator cuff tears

These occur usually in people who have had tendonitis for a while and are starting to experience more weakness. It can also happen in someone who tries to lift something too heavy and feels a pop in the shoulder.

A rotator cuff tear occurs when the tendonitis in the rotator cuff gets so bad that it wears a hole through the rotator cuff tendon. Since the tendon is what connects the rotator cuff muscle to your humerus bone, when the tendon is torn, you have weakness in the shoulder. Usually these tears occur in people who have had shoulder pain for some time (called a "chronic rotator cuff tear"). This is, by far, the most common type of rotator cuff tear. However, tears sometimes happen in people who do not have a history of shoulder problems. These people try to lift something that is too heavy and feel a pop in their shoulder, usually with immediate pain (this is called an "acute rotator cuff tear").

Usually the diagnosis is made with an examination by your doctor. He or she can do special tests to determine how weak your rotator cuff muscles are. In addition, the doctor can check your motion to see if stiffness has developed. X-rays can show bone spurs in people with rotator cuff tears. Often these bone spurs helped to create the tear. Sometimes an MRI is ordered. This can show the doctor with great detail the rotator cuff tendon and where it is torn. If your doctor suspects a partial thickness tear (the tendon is not torn all the way through, just part of the way), an MR-arthrogram may be ordered. This involves an injection into your shoulder before the regular MRI.

Treating the torn rotator cuff usually involves the following:

- **Control your pain.** Over-the-counter medicines or prescription medication is given to help to relieve pain. In addition, cold therapy (cryotherapy) can help to decrease the pain and local swelling. Avoid activities that can worsen your pain, particularly overhead activities, repetitive motions, and heavy lifting. Do not put your arm in one position for a long time, keep it mobile. Your physician may give you a steroid injection into your shoulder area to also help improve the pain. Most orthopaedic surgeons recommend that you get **no more than one or two** of these a year, as they do have the potential to weaken your tendons (every person is different, however, and you should check with your doctor).
- **Regain motion.** It is critical to regain the motion lost as a consequence of having this tear of the cuff muscle/tendon. **Strengthen** the other muscles of the rotator cuff that are not torn. These muscles can help to compensate for the torn muscle. Because there are four muscles in the rotator cuff, and usually only one is torn, sometimes strengthening the others is all you need to return to pain-free function.
- Sometimes, if all this fails to relieve your pain, rotator cuff repair surgery might be needed to re-attach the torn tendon. There are lots of pros and cons to surgery, and different people need surgery for different reasons; be sure to discuss this with your doctor. The bottom line is that many people recover from a rotator cuff tear without surgery.

Instability impingement

Mainly occurs in younger patients, typically 15-30 years old. The rotator cuff is irritated because the shoulder is loose in the socket. This often happens in baseball pitchers, swimmers, and other throwing athletes.

The pain of both of these types of bursitis is usually better with rest or even using some heat over the areas of pain. This is the most common type of bursitis. An infection to the

bursa usually has redness associated with this swelling and the pain is constant. If you think you may have an infection, please seek medical treatment immediately.

Shoulder instability can be classified into two different types, dislocations and subluxations.

- **Dislocations**

This happens when the head of the humerus completely pops out of the socket. The first few times this happens, it is usually with significant trauma (although some people can have these without any injury at all). After that, it can get easier and easier for the joint to dislocate. Most shoulder dislocations are anterior. This means that the ball pops out the front of the socket.

- **Subluxations**

This is the feeling that the shoulder slips slightly out of socket, then immediately comes back in place. This often happens without any major trauma. Sometimes it happens in people who are very "loose-jointed". Sometimes these happen in just one direction (like out the front, or *anterior*), and other times they happen out multiple directions (e.g., front, anterior and back, posterior). This is called "multidirectional instability".

Most often, a diagnosis of recurrent shoulder dislocations can be made by simply listening to the patient's symptoms. These patients will come in stating that their shoulder pops out of socket, and either goes back in by itself, or has to be put back in by someone else. Sometimes, the tricky part is knowing which way the shoulder is coming out of the socket. It can come out the front ("anterior") or the back ("posterior") or both ("multidirectional"). Your osteopath may order x-rays, and sometimes an MRI, to get a better idea of what is causing your dislocations (e.g., a torn cartilage, loose ligaments, etc.).

Diagnosing subluxations can be more tricky. There are physical examination manoeuvres that your osteopath can perform to get a better idea if your shoulder is loose. Sometimes, however, it is not always clear; people with subluxations may not know their shoulder is subluxating, they may simply experience pain. An MRI can occasionally be helpful in this diagnosis.

Shoulder Instability Treatment

Most orthopaedic surgeons will agree that treatment of most shoulder dislocations and subluxations should initially be conservative, that is, without surgery. If this was your first dislocation, especially if you had an anterior shoulder dislocation, your osteopath will

usually recommend that you wear a shoulder sling for up to three weeks (depending on how old you are; be sure to follow your doctor's direction). Controlling your pain will be important. Cryotherapy can help in relieving pain and swelling.

Next, you need to regain motion if you have gotten stiff. Be sure to follow your doctor's instructions on when and how to do this. Our deluxe shoulder therapy kit is a great device to help you get your motion back.

Now comes the most important step: Strengthening your shoulder to prevent recurrent dislocations or subluxations: Strengthening the rotator cuff muscles is the scientifically proven way to help reduce your chance of re-dislocating or subluxating your shoulder. Because the rotator cuff muscles surround your shoulder, by strengthening them you help to improve the stability of the shoulder. Indeed, the muscles can sense when your shoulder is about to come out of socket and activate to try to prevent it. Strengthening your shoulder is more than just going to the gym and doing military presses. Most exercises that body-builders perform do not strengthen the rotator cuff. If all this fails, then surgery to correct the dislocating shoulder may be an option.

Exercises

The major objectives of rehabilitation from a rotator cuff injury are to increase flexibility, obtain pain-free range of motion, and strengthen the muscles of the shoulders, upper back, front chest, and upper arms. In severe cases, you should avoid activity that causes shoulder pain altogether. In these cases, you can still maintain cardiovascular fitness by cycling, unless otherwise prescribed by your doctor.

Stretching and strengthening of the 4 shoulder rotator cuff muscles (*subscapularis*, *infraspinatus*, *supraspinatus* and *teres minor* - for diagram, see link I've given to Marc's post. There he gives a good website outlining the basic anatomy of the shoulder musculature), as already mentioned the foundation of rehabilitation of rotator cuff injuries. Initially, soon after injury, after the pain has died down a little, it is best to start performing shoulder exercises to maintain the range of motion in the shoulder and prevent scarring from the inflammation. This is best performed initially by isolating each muscle group and selectively training that muscle (known as Isometrics) - with no weights.

Phase 1 - Isometric exercises.

The **subscapularis** is the anterior stabilizer of the rotator cuff and responsible for internally rotating the shoulder. It is best strengthened by holding your arm in front of the

body, with the arm flexed to 90 degrees, and rotating the hand to touch the belt. The exercise can be performed while lying on your back with the elbow close to your side and flexed ninety degrees. Lift the weight until it is pointing toward the ceiling and then lower it slowly. Add small amounts of weight as you progress, making sure you are in minimal pain at all times. If it gets too painful, stop and rest.

The **supraspinatus** is strengthened by holding out your arm straight in front of the body, with the thumbs pointed toward the floor. Slowly elevate the weight to above the head. Stop if pain is produced in any portion of this motion, as the rotator cuff is under maximal stress in this position. As you feel better, you can slowly introduce small amounts of weight to continue strengthening of the muscles.

The **infraspinatus** is strengthened by holding your arm (and later on, a weight) in the position of the ski pole just prior to planting the pole. By rotating the arm from the neutral straight ahead position, to the externally rotated (out to the side) position, the infraspinatus and **teres minor** are strengthened. Again, this exercise can also be performed while lying on your side with the elbow close to your hip, and flexed ninety degrees. Rotate the weight until it is pointing toward the ceiling. Shoulder exercises are best performed with relatively light weights and multiple repetitions.

The logic behind stretching and strengthening the inflamed rotator cuff in order to speed healing and functional performance is as follows: the inflamed tissue is characterized by increased fluid between the cells, increased numbers of new blood vessels and inflammatory type cells. As a result of this inflammatory reaction, new collagen tissue is laid down in an effort by the body to heal the injured tissue. If the shoulder is immobilized during this time, the new collagen is laid down in a disorganized fashion, creating scar. The goal of gentle stretching, strengthening and anti-inflammatory medication, is to stimulate the cells to lay down collagen along the lines of stress, forming normal strong tendons. The combination of a good warm up, gentle stretching, strengthening below the limits of pain, icing after working out and anti-inflammatory medication has been consistently shown to speed recovery time in the strongest possible fashion.

After you are comfortable with these stretches and have minimal pain and good/fair range of motion in your shoulder, you can move onto resistance exercises. These usually start with what is known as tubing exercises. The 'tubing' is also known as a theraband, which is just a big rubber elastic band that you tie, at one end, to something and you hold the other end and pull the band thereby stretching it and providing resistance for your shoulder.

Phase 2 - Tubing exercises

External rotation: Stand resting the hand of your injured side against your stomach. With that hand grasp tubing that is connected to a doorknob or other object at waist level. Keeping your elbow in at your side, rotate your arm outward and away from your waist. Make sure you keep your elbow bent 90 degrees and your forearm parallel to the floor. Repeat 10 times. Build up to 3 sets of 10.

Internal rotation: Using tubing connected to a door knob or other object at waist level, keep your elbow in at your side and rotate your arm inward across your body. Make sure you keep your forearm parallel to the floor. Do 3 sets of 10.

Extension: Same principles as the other two. Keep the arm parallel. 3 sets of 10. See attached picture

As you feel more confident and you find your strength increasing, you can add more resistance - either in terms of shortening the length of the theraband so you need more resistance to stretch it or by increasing hand held weights *in small increments*.

Of course, these aren't the only exercises for shoulder rehabilitation. There are many more. I've listed a few more below that I've found from a good website:

Overhead stretch

Lie on your back with your arms at your sides. Lift one arm straight up and over your head. Grab your elbow with your other arm and exert gentle pressure to stretch the arm as far as you can.

Cross-body reach

Stand and lift one arm straight out to the side. Keeping the arm at the same height, bring it to the front and across your body. As it passes the front of your body, grab the elbow with your other arm and exert gentle pressure to stretch the shoulder.

Towel stretch

Drape a towel over the opposite shoulder, and grab it with your hand behind your back. Gently pull the towel upward with your other hand. You should feel the stretch in your shoulder and upper arm.

Shrugs

Stand with hands at sides with no weight in either hand. Raise shoulders to the point of pain and hold for five seconds. Relax for five seconds. Perform this sequence 10 times, 3 times daily. As pain permits, hold dumbbells of equal weight in each hand while performing this exercise. Add weight by using hand-held dumbbells as pain permits.

Bicep curls

Stand with arms fully extended at sides while grasping 2- to 5-pound weights in each hand, held palm forward. Flex the arms at the elbow to approximately 100 degrees, or to the point of pain, whichever comes first. Hold this position for 5 to 10 seconds. Return to the start position. Rest for 5 seconds. Repeat this exercise 10 times. You can increase the weight as pain allows and strength develops.

Triceps curls

Stand with elbows directed upward over the shoulders and with arms relaxed. Extend arms at the elbow so that the hands proceed upward to the point of pain. Hold this position for five seconds. Return to the starting position and relax for five seconds. Perform this sequence 10 times, 3 times daily. As pain permits, add weight by using hand-held dumbbells.

Chest raises

Lie on belly with hands extended along sides of the body. Raise the upper chest from the floor to the point of pain and hold this position for 5 seconds. Return to the start position and relax for 10 seconds. Repeat this sequence 10 times, 3 times daily.

Saws

Reach out and place the unaffected side hand on a corner of a table. Bend at the waist. Flex the injured side arm at the elbow and pull the injured side arm backward and upward as if sawing wood. Slowly bring the shoulder blades as close together as pain will permit. Slowly bring the injured side arm down to its beginning position. Repeat this sequence 10 times, at least three times daily.

Pendulum swings

Stand with the hand of the unaffected arm resting on the corner of a table and supporting some of the body weight. Slightly bend the knee on the unaffected side and extend the other leg sideways. Allow the injured arm to hang loosely over the unaffected side foot. By shifting the body weight, cause the relaxed injured arm to swing in circles to the fullest extent possible as limited by pain. Perform 25 swings in a clockwise direction.

Allow the injured arm to cease swinging. Perform 25 swings of the injured arm in a counter clockwise direction. Repeat this sequence at least three times daily.

Flexed elbow pull

Bend and raise the injured side elbow to shoulder height. Grasp the injured side elbow with the uninjured side hand. Gently pull the injured side elbow toward the opposite shoulder until limited by first significant pain. Hold this position for 10 seconds. Relax for 10 seconds. Repeat this sequence 10 times at least three times daily.

I'm sure there are other exercises that I haven't mentioned.

Now people often say, when can I start weight training again? Or when can I return to sport? There is no definite answer for that. It depends on the degree of your injury, how dedicated you are to your rehab and the rate at which your body heals. Some people with minor tears can return to full contact sports in as short as 4 weeks. Other with larger tears has to have surgery and can be out for a year.

My advice to you is, don't rush it. Let your body take its time to heal. Be religious in doing your exercises and the results will come with time. Impatience is one of the biggest causes of re-injury.

And most importantly, always consult your osteopath for advice. While I can help you on these downloads and point you in a right direction, nothing can replace a one-on-one physical examination and a good chat with your osteopath. This is essential.

