

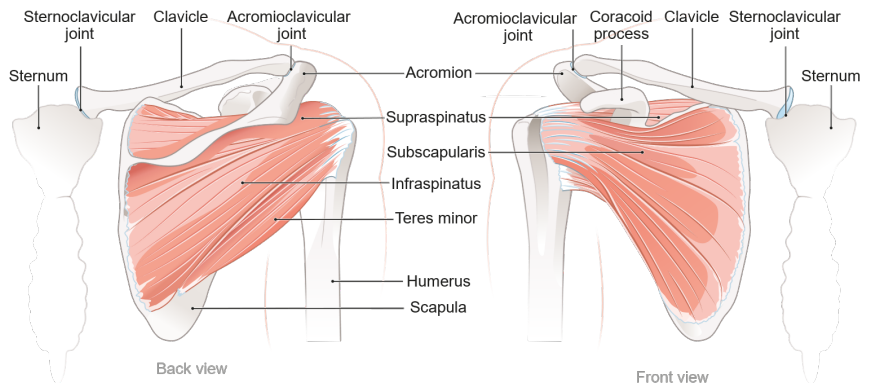
# Rotator Cuff Related Pain

This document provides you with essential information to support you in your journey with shoulder pain. It covers the anatomy of the shoulder; how your shoulder is assessed; the role of imaging; available treatment options; and what exercises you can do to help improve your shoulder pain and function.

## Shoulder Anatomy

The shoulder joint is made up of three bones: the humerus (upper arm), scapula (shoulder blade), and clavicle (collarbone).

The rotator cuff is a group of muscles and tendons that surround the shoulder joint. It stabilizes the ball and socket joint (glenohumeral joint) and moves your shoulder together with other muscles that connected to your rib cage and spine.



Most of the shoulder movement happens at the ball and socket joint. However, movement of the shoulder blade on the rib cage is also important to freely move your shoulder.

## Assessment and Imaging

A detailed assessment is important to identify the cause of your shoulder pain and determine the best treatment plan. Your healthcare professional will ask about your symptoms and perform a physical examination. Depending on your presentation, they will determine if any imaging is necessary, although this is usually not needed before starting treatment.

## Rotator Cuff Related Pain

There are many structures in the shoulder that can cause pain, including the rotator cuff. Rotator cuff related pain can be the result of an injury or, more commonly, can develop over time. Pain is often worse at night and can be aggravated by activities involving the arm. The pain may be present at rest and can also radiate into the arm, shoulder blade and neck. It can be difficult to lift the arm due to pain and weakness, making everyday activities more challenging. It has been shown that in most cases (75%), rotator cuff related pain improves with a course of treatment focusing on active rehabilitation, education and pain management<sup>1</sup>.

## Exercise Based Rehabilitation (Physiotherapy)

Exercise based rehabilitation and self-management strategies are the most important components to improve your pain and function and should be the main focus of your treatment. The exercises at the end of this document serve as a guide for your rehabilitation. Consider seeing a physiotherapist to tailor your exercise program to your specific needs and functional goals. Physiotherapy sessions should be spaced 1-2 weeks apart to allow you time to work on exercises in between. The sessions should focus on education, self-management strategies and exercises. Dry needling, acupuncture and heat / ice can be helpful as an adjunct to help you with your exercises. Modalities like ultrasound, TENS and IFC provide short term relief but should not be the focus of your treatment.

<sup>1</sup> Boorman et al. J Shoulder Elbow Surg. 2018. 27(3):444-448.

Generally, a minimum of 12 weeks is required to see if this treatment will be helpful. It is important to work on the exercises daily on your own. Here are a few key points to keep in mind:

### **Good Posture and Technique**

Ensuring good posture and technique with the exercises is key to train the muscles to effectively control your shoulder. Adjusting your posture and how you move can often improve your pain.

### **Movement is Important**

Start with the exercises that you can do with good technique and gradually progress through the program. It is okay to work into light soreness or stiffness when doing your exercises. Move often throughout the day to help with the healing process and avoid developing stiffness. Avoid pushing into sharp or pinching pain.

## **Pain Management**

There are a variety of options available to assist with your pain and allow you to better engage in a rehabilitation program.

### **Heat / Ice**

You can apply ice or heat to your shoulder - choose whatever feels best! Be sure to monitor your skin while using heat or ice and use a barrier such as a thin cloth to protect your skin from burns or frostbite.

### **General Exercise**

Staying active with activities that don't increase your shoulder pain can be helpful in your recovery. Go for a walk, ride a stationary bike, or work on lower body and core strengthening exercises. Doing this can help reduce inflammation in your body, improve your sleep and general mood, and keep the rest of your body strong.

### **Positioning and Sleeping**

You can help relieve your pain by using positions that reduce shoulder tension. Night pain is common and sleep is important for your shoulder recovery and general health. Some patients find it helpful to sleep in a more upright position such as in a recliner or propped up on pillows in a slightly reclined position. Make sure to support behind your elbow so that it doesn't fall back behind the midline of your body. Here are some positioning options to try for sleeping:



When sitting during the day, you can place a pillow under your arm to support it and help alleviate pain in your shoulder.

### **Activity Modifications**

If you find your pain increases during activity, it is important to modify or reduce the demand on your shoulder. Pain after activity is ok if it settles down by the next day. These recommendations may be helpful to reduce your pain:

- Avoid reaching behind you, such as reaching into the back seat of your car
- Avoid prolonged / repeated activities at or above shoulder height until your pain and function improves
- Avoid heavy lifting, pushing or pulling with the affected arm if it is painful
- Avoid lifting with extended arms (long lever positions) by bringing objects closer to you when lifting

### **Pain Medications**

These can vary from over-the-counter oral medications, prescription medications and/or topical creams. Opioid medications are not recommended for your shoulder pain. This should be discussed with your physician, or pharmacist.

### **Injections**

Cortisone / steroid injections can be used to help with short term pain control. They are used to decrease pain so you can participate in exercises or physical therapy to improve long-term outcomes. Injections should be spaced at least three months apart and should not be used as a stand-alone treatment. Multiple shoulder injections are generally not recommended and should be discussed with your physician.

### **Sling / Immobilization**

A sling is not required to manage your shoulder pain. Keeping your shoulder moving is important to prevent a stiff or 'frozen' shoulder. Doing small bouts of gentle stretching exercises throughout the day can help keep your shoulder moving and reduce your pain.

### **Manual Therapy / Modalities**

Manual therapy, dry needling, or acupuncture can offer additional pain relief when used alongside exercise therapy, particularly in the short term. Treatment options (modalities) such as inferential current, ultrasound, TENS, or shockwave therapy should not be the primary treatment focus.

## **Classification of Rotator Cuff Related Pain**

Depending on how your shoulder pain starts, your pain may be classified as:

### **Degenerative or Chronic**

Degenerative or chronic rotator cuff tears are a normal age-related change and are more likely to occur as you get older.<sup>2</sup> Not all rotator cuff tears are painful and they may not affect your shoulder function. Indeed, most people with rotator cuff related pain have similar tears on their non-painful side as well.<sup>3</sup>

### **Traumatic**

Traumatic rotator cuff tears occur during a specific incident (e.g. lifting something heavy, fall). They can also occur with a fracture or dislocation.

### **Acute on Chronic**

Acute on chronic injury happens when the rotator cuff was previously weakened through chronic degenerative processes and is then injured with a traumatic injury.

<sup>2</sup> Hinsley et al. BMJ Open. 2022. 12(9):e059175.

<sup>3</sup> Barreto et al. J Shoulder Elbow Surg. 2019. 28(9):1699-1706.

## Types of Rotator Cuff Injuries

Imaging is generally not required, however, if ordered the report may discuss one of the following terms:

### **Tendinopathy / Tendinosis**

A change in the quality of the tendon tissue. This is a normal age-related change to tissue quality.

### **Rotator Cuff Tears**

Rotator cuff tears are usually described by how deep and wide the tear is. Your doctor may distinguish between tears along the thickness and/or the width of the tendon. A partial tendon tear goes only part of the way into the tendon – a portion of the tendon is still attached to the bone and the rotator cuff is still functioning. A full thickness tear goes all the way through the tendon. The size of a full thickness tear depends on the length of the gap between the end of the tendon and where it detached from the bone.

## Surgical Management

Surgical repair of the rotator cuff is generally recommended only when non-surgical treatment has been unable to provide relief of your pain. The majority of shoulder injuries improve with 3-6 months of physiotherapy and home exercises. Rotator cuff repair is generally not performed in patients over the age of 65-70 or in those with shoulder arthritis.

Rehabilitation after a Rotator Cuff Repair Surgery typically involves a period of 4-6 weeks in a sling and a total of 10-12 months of rehabilitation with progressive range of motion and strengthening exercises.

### **Degenerative or Chronic**

Tears related to degenerative or chronic changes in the rotator cuff are typically difficult to repair surgically as the tissue quality degrades with time. Exercise based rehabilitation, combined with injections when needed for pain, is an effective way to improve pain and function in the majority of these tears.

### **Acute on Chronic**

These injuries typically improve with exercise-based rehabilitation but may benefit from surgical intervention if there is persistent pain after a period of appropriate rehabilitation.

### **Traumatic**

Individuals under the age of 60 with traumatic rotator cuff tears may benefit from earlier surgical intervention. It is still important to start with exercises while waiting for a consultation and surgery.

### **Smoking / Diabetes**

Smoking and uncontrolled diabetes negatively impact the ability of the rotator cuff to heal. Smoking cessation prior to surgery is crucial to support a good surgical outcome. Speak with your family doctor for assistance with smoking cessation and management of chronic health conditions to optimize your outcome.

# Exercise Based Shoulder Rehabilitation

## PHASE 1

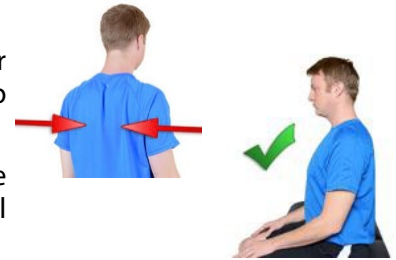
The focus of Phase 1 is on improving shoulder postural control and range of motion. It is best to do these exercises often throughout the day in short sessions. Combine these exercises with gentle stretches and self-management strategies to help with your pain. If you have good range of motion, consider progressing to the next phase.

### SHOULDER BLADE RECRUITMENT

**Shoulder Blade Setting** – 15-20 repetitions, 3 times per day, 5 second hold

Sit with your arms relaxed on your lap or in standing with your hands on your stomach. Gently draw your shoulder blades together towards your spine. Keep your arms relaxed and don't let your elbows move back.

Frequently throughout the day when sitting or standing, make sure to change your position. Imagine a string pulling at the top of the head to ensure a tall erect posture, bring shoulder blades back together and tuck chin down gently.



**RANGE OF MOTION** – 10-20 repetitions, 3-5 times/day unless specified

#### Pendulum

Bend at the waist so your arm is dangling down. You may want to hold onto a table or chair for support. Gently rock your body weight in a circular motion to move your arm in a circular pattern about the size of a dinner plate or forward/backward and side/side.



#### External Rotation Range of Motion

Sitting or standing, hold a pole with elbows bent to 90° and elbows tucked to your side. Gently push the affected arm out to the side while maintaining good upright posture and elbow tucked into the side. Stop once a gentle stretch or pain is felt.



#### Passive Table Slides

Sitting on a stool or chair, with your arm(s) supported on a level surface such as a table or counter. While keeping arm(s) relaxed, slowly inch away from the table/counter until a comfortable stretch is felt in the shoulder.

This exercise can also be performed by placing both hands on a large physio ball and using unaffected arm to move the ball forward going to a comfortable stretch. Return back to starting position.



**Press Program** – 2-3 sets of 10-15 repetitions, repeat 1-2x/day

Hold a stick while lying on your back with arms in a bent arm position, press up to the ceiling and then bring arms overhead. Gradually increase the amount of work the affected arm is doing until it can be done without assistance from the stick. Repeat this exercise with a varied distance between your hands.



### Criteria for Progression to Phase 2

- Pain reasonably well controlled at rest
- Able to properly set shoulder blade at rest and during range of motion exercises
- Improved range of motion of the shoulder with stretches

## PHASE 2

During Phase 2, the focus is on gradually increasing the load on the shoulder. Continue the exercises from Phase 1 to get full range of motion and to help with pain as required. Continue to monitor posture and shoulder blade position with the exercises.

### Active Range with Stick

Progress shoulder range of motion into standing positions by using a stick to provide assistance when elevating the arm.



**Isometrics** – For each exercise, 1 set of 10 repetitions, hold for 5 seconds, 1x/day

This exercise is intended to 'wake up' the rotator cuff. Amount of force is low (~30% of max contraction) so ensure gentle pressure (i.e. pressing into a balloon). Ensure you draw your shoulder blades together and maintain good posture. Do the following:

- Flexion (Push forward into wall)
- Abduction (Outside of forearm pushes against wall)
- Extension (Back of elbow pushes into wall)
- Internal Rotation (Palm of hand pushes against wall)
- External Rotation (Back of hand pushes against wall)



### RESISTED EXERCISES

Start with light resistance and do fewer repetitions and sets (2 sets of 8-10). Then, slowly increase the number of reps and sets while keeping the same resistance. When you can comfortably do 3 sets of 15 with no discomfort or fatigue, it's time to raise the weight or resistance. Begin with fewer reps and sets again and gradually build up.

#### Neutral Shoulder Row

Place band around a railing or door handle at belly button height. Ensure correct shoulder blade positioning prior to rowing motion and maintain this while moving arms forward and back in a rowing motion. Don't bring arms behind midline of the body. Start with light resistance (yellow or red) and progress as tolerated to green / blue.



## Shoulder Press

Lying on your back, press a weight straight up towards the ceiling, keeping the dumbbell aligned over your shoulder. Use a weight that you can control (i.e. 1-5lb) and increase as you get stronger. You can also progress the exercise by doing this on an incline.



## Alphabet in Press Position

In the press position without a weight, draw 3-5 letters of the alphabet in the air. Make the letters bigger and add a small weight as you get stronger.

## Biceps / Triceps Strengthening

Start strengthening of biceps (with dumbbell) and triceps (with band) in a neutral shoulder position. Maintain good posture and shoulder blade positioning.



## Wall Slide

Stand facing a wall with good posture. Place the pinky side of your hands on the wall at shoulder level.

(a) Slide your arms up the wall until your elbows are straight and in a V formation. As you do this keep your head and body still and do not shrug your shoulders up toward your ears. Slide your arms back down to the start position.

(b) Progression: In the V position, keep your elbows straight and lift your arms away from the wall without moving your head or body. Hold 3-5 seconds and return to the wall. Slide your arms back down to the start position.



## Criteria for Progression to Phase 3

- Full range of motion (or close to) with good control and shoulder blade positioning
- Minimal pain and good technique with Phase 2 Exercises

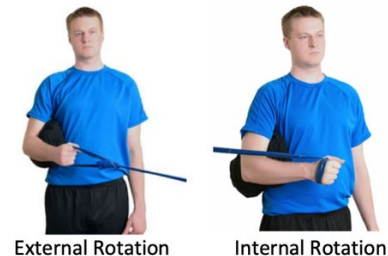
## PHASE 3

During Phase 3, the focus is on improving the function of the shoulder and muscles around the shoulder blade. You can start by working on a lower number of reps and smaller range of motion and gradually increase as your function improves. If you have pain with an exercise adjust your posture and/or lower the repetitions and weight.

When doing your resisted exercises you should go to the onset of fatigue or discomfort: typically 2-3 sets of 8-15 repetitions with 2-3 minutes in between sets. The goal is to progressively increase your tolerance and performance of these exercises over time.

### Resisted Internal and External Rotation

Rotate the arm outwards (for external rotation) and inwards (for internal rotation) against the resistance band. Keep your elbow close to your side or add a pillow/rolled up towel between your elbow and body. Ensure you maintain good posture and your shoulder blades back together while doing this exercise. Initially perform to neutral then progress into full range of motion as tolerated.



If you are having difficulty with this exercise, you can try it with your arms supported on a table.

### Side Lying External Rotation

In side lying, bring elbow to your side with a towel between your elbow and your side. Draw your shoulder blade back towards your spine and maintain this position throughout. Rotate the arm up to neutral (straight out in front of your) or into full range of motion as tolerated. Start without a weight and progress to a light weight as able (soup can → 1lb → 2lb, etc).



**NOTE:** Further rehabilitation is best guided by a physiotherapist. Exercises should target the activities you want to get back to.

## Acknowledgements

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