



## Non-Operative Shoulder Rehabilitation Protocol

This protocol serves as an outline for important steps in your recovery from your shoulder injury. Every injury is different and would benefit from consultation with a physiotherapist to tailor the program to your condition. Physiotherapy should focus on an active exercise program and self-management tools. It is recommended that physiotherapy sessions should be spaced at least 1-2 weeks apart to promote an active rehabilitation approach and ensure funding is available across the treatment course, which may be 3-6 months.

### THE SHOULDER

The shoulder is the most mobile joint in the human body. There are three bones that make up the shoulder: upper arm bone (humerus), shoulder blade (scapula) and collarbone (clavicle). We typically think of the shoulder as the ball and socket joint, however full motion of the shoulder also involves the acromioclavicular (AC) joint and movement of the shoulder blade on the rib cage.

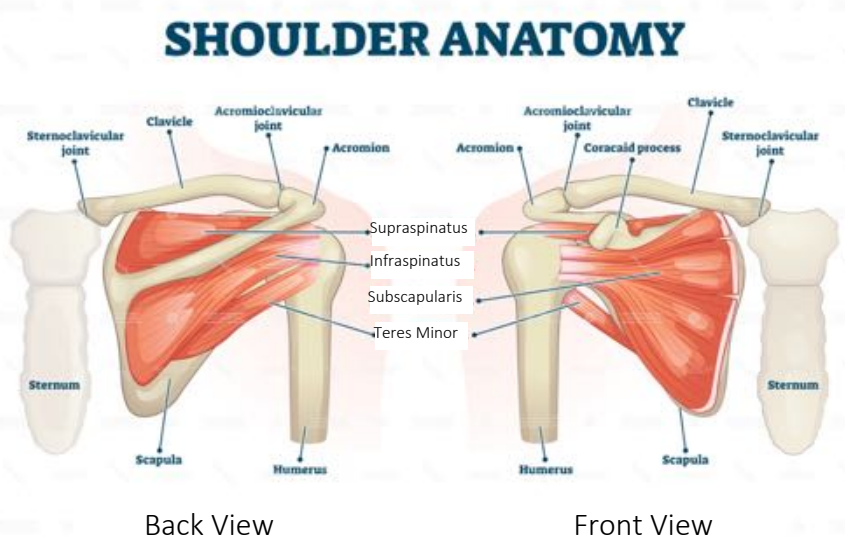
The rotator cuff is a group of 4 muscles that support the shoulder. It consists of the supraspinatus, infraspinatus, subscapularis and teres minor. These four muscles form a cuff around the joint with the tendons connecting the muscles to the bone. There are several other muscles that support the shoulder, including the pectorals, deltoid and trapezius.

There are a number of reasons why a shoulder may become painful, weak, stiff or unstable. In many cases, a course of non-operative treatment involving an active exercise program can help improve pain and function. Injections and pain management (topicals, anti-inflammatories, etc.) may also be recommended to augment your ability to do the exercises. A minimum of 12 weeks is generally required to see if this program will be of benefit.

### SELF MANAGEMENT STRATEGIES

**EXERCISE** - Exercises are one of the most important factors in improving your shoulder pain and function. Use this protocol as a guide for your rehabilitation and consider seeing a physiotherapist to further tailor the program specifically for you. Ensuring good posture and technique with the exercises is key in order to properly train the muscles to control your shoulder, which can be difficult to learn on your own.

As a general rule, **if it hurts don't do it**. Start with the exercises that you can do with good technique and control and progress gradually through the program. Try adjusting your posture or technique first as this can often improve your pain. It is okay to work into soreness or stiffness when doing exercises but sharp pain, pinching pain or catching is not. You should be stretching to a gentle stretch and not push into pain. Pushing to the appropriate limit will slowly tell the body where to heal and lengthen to improve mobility.



**PAIN MANAGEMENT** - There are a variety of options available to assist with your pain control and enable you to engage in the rehabilitation program. These can vary from over-the-counter medications, prescription medications, injections, and/or topical creams. Your care team at Access Orthopaedics and/or your family doctor can assist with this.

**HEAT/ICE** - If you've had a recent injury, applying ice to your shoulder for 10-20 minutes a couple times a day can be useful. For chronic injuries, heat may be helpful especially prior to stretching or physiotherapy exercises. Most importantly, use whatever feels best for short term pain relief. Be sure to monitor your skin as well while using heat or ice and keep a barrier such as a thin cloth to protect your skin from burns or frostbite.

**IMMOBILIZATION?** – A sling can be helpful when it is recommended by a healthcare professional, such as after surgery or an acute injury, such as a shoulder dislocation. However, in general it is important to keep your shoulder out of a sling and moving to prevent the development of a stiff or 'frozen' shoulder. Doing frequent, small bouts of gentle stretching exercises throughout the day can help prevent your shoulder from becoming stiff and reduce your pain (see Phase 1 exercises). Even when a sling is recommended, you will be taught to take off your sling and do gentle exercises throughout the day.

**POSITIONING** – You can help relieve your pain by using positions that reduce tension on the shoulder. Here are some ideas to try when sitting and lying down:

- **Sitting:** use an arm rest or pillow under your elbow to support your arm. Make sure you are not reaching down to the armrest or propping it too high, such that your shoulder is pushed up toward your ear. You may also feel more comfortable with support under your elbow while driving.
- **Lying on your back:** place a pillow or folded towel under your elbow and upper arm to keep it level or above the midline of your body. You may also find having the pillow placed under your arm and chest more comfortable.
- **Side Lying:** Many people find it very uncomfortable or painful to lie on the injured or painful side. When lying on your side with the affected arm on top, you may want to place a large pillow in front of you to "hug" and support the arm from dropping across the front of your body or place a pillow between your elbow and side.
  - Some patients have found 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.

**ACTIVITY MODIFICATIONS** - This varies significantly from person to person. It is important to monitor your symptoms while you participate in an activity as well as your pain at night time. If you find your pain increases during or after an activity, it is important to modify or reduce the demand on your shoulder. Here are some general recommendations for activity modifications to consider to help with your shoulder pain:

- Keep all arm and hand movement in front of your body. Do not reach behind you such as reaching into the back seat of your vehicle as this can aggravate your shoulder pain.
- Minimize prolonged repetitive positions and activities at or above shoulder height until your pain and function have improved.
- Avoid heavy lifting, pushing or pulling with the affected arm at home or at the gym.
- Avoid long lever lifting. Keep anything of weight or load close to your body. Think of the 'front burner of the stove' rule by bringing the objects you are lifting closer to you and not lifting with your arms extended.

**KEEP ACTIVE** – 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 to reduce overall inflammation in your body, improve your sleep and general mood and keep the rest of your body strong.

## PHASE 1 – Postural Control and Range of Motion Exercises

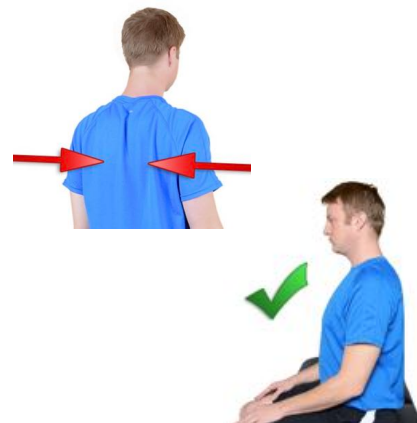
During Phase 1, the focus is on improving postural control and pain free range of motion of the shoulder. It is best to do these exercises often throughout the day in small sessions to help with your range of motion and pain. Ensure you push into a gentle stretch and use the self-management strategies listed in this booklet to help with your pain. If you have good range of motion, consider progressing to the next phases.

### EXERCISES

#### POSTURAL CONTROL

##### **Scapular Setting** *(Do 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.



##### **Postural Awareness/Correction**

Frequently throughout the day when sitting or standing, make sure to check your posture. 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 *(Recommended Parameters = 10-20 repetitions, 3-5 times/day unless specified)*

##### **Neck, Elbow, Wrist and Hand Range of Motion**

To maintain range of motion of the other joints, look up/down, turn to each side and bring ear to each shoulder, bend and straighten the elbow and wrist, make a fist and extend fingers. Can also do gentle ball squeezes/grip exercises.

##### **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. Exercise can also be performed by placing both hands on a large physio ball and using unaffected arm to move the ball forward. As you gain more motion, lean your body forwards until you feel a comfortable stretch in your shoulder. Return back to an upright sitting position.



## PHASE 1 EXERCISES continued...

### Pulleys

You can use a pulley system, which has a strap to go over the door. Sit or stand facing the door with good posture. Let the affected arm relax and use your unaffected arm to pull it up until a gentle stretch is felt. Lower slowly down and gently draw your shoulder blades together. As you get stronger, do what you can with the affected arm and use the other arm to assist.



### Soft Tissue Release with a Ball

Place a tennis or lacrosse ball in a pillowcase. Drape it over the back of your shoulder and use the ball to gently massage the muscles around the inner and outer border of your shoulder blade. If you find a tight or sore spot you can hold gentle pressure over that area until it relaxes. Can also do in the front of your shoulder in the pec muscle if it is sore and/or tight.



### CRITERIA FOR PROGRESSION TO PHASE 2

- Pain reasonably well controlled at rest
- Able to properly set scapula at rest and during range of motion exercises
- Improved range of motion of the shoulder with stretches (~75% of full)

## PHASE 2 – Active Range of Motion and Initial Strengthening

During Phase 2, the focus is on improving active movement of the shoulder and initial strengthening of the shoulder. Continue the exercises from Phase 1 to get full range of motion and to help with pain as required. As you progress into strengthening exercises, continue to monitor posture and shoulder blade position with the exercises.

### EXERCISES

#### **Press/Elevation Program** (do 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 same steps in inclined positions (i.e. 30° → 45° Inclined in Recliner Chair) to progress strength through elevation range.

Once you can move through the range when lying on your back and in reclined positions without a stick, progress to using a stick when standing to provide assistance when elevating the arm.

#### **Isometrics** (Hold each contraction for 5 seconds, repeat each direction 10 times, once per day))

This exercise is intended to 'wake up' the rotator cuff. Amount of force is low (~30% of max contraction) so ensure gentle pressure – as if pressing into a balloon.

Ensure you draw your shoulder blades together and maintain good posture. Do in each of the following directions:

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

#### **Neutral Shoulder Row**

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



### 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 – Progressive Shoulder Strengthening

During Phase 3, the focus is on progressive strengthening 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 strength improves. If you have pain with an exercise adjust your posture and/or lower the repetitions and weight.

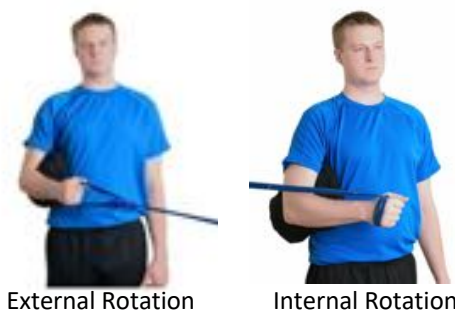
### EXERCISES

Unless specified, here are the recommended exercise parameters for the exercises in this phase:

- Start with 2-3 sets of 8-10 repetitions with a weight that you can perform the exercise with good technique, control and no pain. Muscle fatigue is acceptable.
- Once comfortable with 3 sets of 10 with that weight, progress to 3 sets of 15 repetitions.
- Once you are able to perform 3 sets of 15 with good technique and minimal fatigue, decrease to 2-3 sets of 10 repetitions but with an increase in weight or resistance by a small increment (i.e. 1-2 lbs when at smaller weight levels or by 5 lbs at higher weight levels). Gradually work your way through this cycle to progress to higher weights/resistance.

#### 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.



#### 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).



#### 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.



**Other Exercises to Consider in Phase 3**

- Early Weight Bearing Exercises
  - 4 Point Kneeling → 4 Pt + Arm Raise → 4 Pt + Leg Raise → Bird Dog
  - Wall Push Ups
- Gym Exercises
  - Bent Over Rows, Triceps Kickbacks, Seated Rows, Wide Arm Rows, Supine Chest Press (not below horizontal)
- Continued Core and Lower Extremity Strengthening Exercises
  - Bridges, Squats, Lunges, V-Sits, Leg Press, etc.

**CRITERIA FOR PROGRESSION TO PHASE 4**

- Demonstrates adequate endurance and correct technique with strengthening exercises (e.g. 4 sets of 15 reps with medium resistance)
- Able to perform activities of daily living and exercises with minimal pain and no compensatory patterns



## PHASE 4 – Advanced Strength and Gradual Return to Activity

The goals of this phase will be specific to each patient and will relate to the specific work and recreational activities that the patient is looking to return to as well as the surgical procedures performed on their shoulder. At this stage in your recovery, exercises should be performed as part of workout 3-4 times per week. All exercises should continue to be performed in pain-free range and with proper technique. Physiotherapists will be able to assist patients with appropriate exercise prescription and can provide guidance on return to occupational and recreational activities.

### WARM UP

It is important to warm up the rotator cuff and muscles around your shoulder blade before activity. Do some cardiovascular exercise and use the resisted external rotation and row exercises with a band to warm up your shoulder. Do 2-3 sets of 10-15 repetitions of each of these exercises.

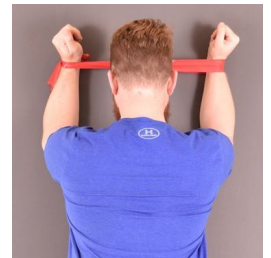
### LONG TERM MAINTENANCE

It is important to continue to do shoulder exercises at minimum 2-3 times per week to maintain the improvements in your pain and function and to prevent recurrence of your symptoms.

### EXERCISES

Exercises in this phase will vary depending on the specific functional demands for each patient. Here are some examples that can be incorporated into your program to help build further strength and endurance:

- **Progress Resisted External and Internal Rotation into 30°/45°/90° Scaption**
- **Resisted PNF Patterns**
- **Resisted Flexion with Band on Wall**
  - Standing with good posture and band around back, move arms up into flexion with ulnar side of hand into the wall and encouraging scapular upward rotation. Can progress to using band in a loop around wrists, keeping forearms parallel while moving up into flexion.
- **Progressive Weightbearing Exercises (e.g. Planks, Push Ups)**
  - Knees → Toes → Bosu
- **Proprioceptive Exercises (e.g. Body Blade, Ball Toss/Catch)**
- **Functional/Sport Specific Drills/Gym Routines**
  - It is important for patients to practice the specific drills and functional tasks they will need to perform prior to returning to game play, occupational activities, heavier ADL tasks, etc. These will be unique to each patient and can include skills such as throwing, stick/puck handling or lifting mechanics. Patients can also begin to return to the gym with low load exercises with slow progression of weights.
  - Caution is advised for military press, triceps dips and long lever exercises (such as front and lateral raises) as they place a lot of stress on the shoulder. There are good alternatives to these exercises that place less stress on the shoulder.
  - It is also advised to be careful with bringing the elbows below the level of the chest with bench and incline bench press.



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