NON-OPERATIVE SHOULDER
REHABILITATION PROTOCOL
UNIVERSITY OF CALGARY SPORT MEDICINE CENTRE
NON-OPERATIVE SHOULDER REHABILITATION PROGRAM

PATIENTS

The following exercise guidelines were created to improve the quality of life for people who have shoulder pain, weakness and stiffness. If you have shoulder pain that makes it difficult to do daily activities, sleep comfortably, reach overhead and take part in regular work or recreation activities, an exercise program is the best place to start for recovery.

It is common for people with shoulder pain to use their arm less because of pain or the fear of doing more damage, however for the health of your shoulder, it is important to start reestablishing movement. Research demonstrates the majority of people who follow a program such as this can have success without waiting for tests, medications or even surgery. If surgery is required, often surgeons will recommend their patients begin with a shoulder rehabilitation program to improve shoulder function for a speedier recovery.

IF YOU HAVE SHOULDER PAIN FROM A TRAUMATIC INJURY SUCH AS A VEHICLE ACCIDENT OR A BAD FALL FROM AN ACTIVITY SUCH AS SKIING, PLEASE CONSULT A PHYSICIAN.

OVERVIEW OF THE PROGRAM STAGES

The program proceeds through three stages of exercises. You can proceed through each stage at your own pace, as your body allows.

STAGE 1

The first stage focuses on three steps beginning with pain control and increasing the range of motion until establishing safe movement patterns for the shoulder. You can begin with basic exercises and work through intermediate and into the advanced levels. When you reach 75 per cent of your normal range of motion (ROM), feel free to begin stage 2.

STAGE 2

The second stage builds on the principles from stage 1 by increasing the load on the shoulder joint by increasing the use of the surrounding muscles. Gently loading muscles and tendons can help improve the ability to use the arm and reduce pain levels. When you can perform these exercises easily and without pain, you may begin stage 3.

STAGE 3

The third stage focuses on improving overall upper body strength to support the long-term health of the shoulder joint.
OVERVIEW OF EXERCISE PROGRESSIONS

This table provides an overview of the exercise progressions. The timelines for each stage are a general guideline and it is important to adapt the progression based on each individual's presentation. Criteria for progression are presented at the end of each stage and it may be beneficial to continue with exercises from previous stages.

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**SCAPULAR CONTROL**
- Scapular Retraction
- Scapular Clock

**FLEXION**
- BASIC Shoulder Pendulum | Forward/Backward
- BASIC Shoulder Flexion PROM (Pulley)
- INTERMEDIATE Forward Arm Reach AAROM (Table)
- INTERMEDIATE Shoulder Flexion AAROM | Full Range (Stick)
- ADVANCED Shoulder Flexion AROM | Full Range
- Row | Bilateral + Neutral (Band)
- Shoulder Flexion Isometric | Elbow Bent
- Shoulder Extension Isometric | Elbow Bent

**ABDUCTION**
- BASIC Shoulder Abduction PROM (Pulley)
- INTERMEDIATE Shoulder Abduction AAROM (Stick)
- ADVANCED Shoulder Abduction AROM | Full Range
- Shoulder Abduction Isometric | Elbow Bent
- Shoulder Abduction Concentric | Early Range (Band)

**EXTERNAL ROTATION**
- BASIC Shoulder External Rotation PROM (Stick)
- INTERMEDIATE Shoulder External Rotation AAROM (Stick)
- ADVANCED Shoulder External Rotation AROM
- Shoulder External Rotation Isometric
- Shoulder External Rotation Concentric | Neutral (Band)
- Shoulder External Rotation Concentric | 90° Flexion (Band)
- Shoulder External Rotation Concentric | 45° Abduction (Band)
- Shoulder External Rotation Concentric | 90° Abduction (Band)

**INTERNAL ROTATION**
- BASIC Shoulder Pendulum | Circles
- INTERMEDIATE Shoulder Internal Rotation AAROM | Behind Back (Stick)
- ADVANCED Shoulder IR + ER AROM | Neutral Abduction
- Shoulder Internal Rotation Isometric
- Shoulder Internal Rotation Concentric | Neutral (Band)
- Shoulder Internal Rotation Concentric | 90° Flexion (Band)
- Shoulder Internal Rotation Concentric | 45° Abduction (Band)
- Shoulder Internal Rotation Concentric | 90° Abduction (Band)
OVERVIEW OF EXERCISE PROGRESSIONS (Cont’d)

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WHAT IS INVOLVED IN THE SHOULDER JOINT?

The shoulder is one of the largest and most complex joints in the body. It is a ball and socket joint formed by upper arm (humerus) and the shoulder blade (scapula).

The shoulder has a number of important structures including rotator cuff muscles and tendons, a bursa and cartilage. There are many reasons why a shoulder may become painful, weak, unstable, stiff and have a loss of function.
During stage I, it is important to keep pain under control while improving the available range of motion at the shoulder. You will begin with the basic level which is a passive range of motion (PROM), then proceed to intermediate which is the active assisted range of motion (AAROM), and then move to the advanced active range of motion (AROM) as comfort dictates.

**STAGE 1 GOALS**

- Reduce pain
- Relearn to move your shoulder blades
- Have 75% pain-free range of motion

**STAGE 1 PATIENT EDUCATION**

**LEVELS**

**BASIC** - Passive range of motion means you move the joint without the muscles contracting. To do this you will need assistance in one of the following ways:
- Using your unaffected arm
- Using an external device (Stick, table, pulley)

**INTERMEDIATE** - After passive range of motion, you will progress to active assisted range of motion (AAROM). AAROM means your affected arm will now be doing some of the work. The unaffected arm will continue to assist with the motion.

**ADVANCED** - Lastly, you will try to use only the affected arm to complete the motion. This is called active range of motion (AROM).

Flexibility and stretching exercises can be done throughout.

Once you can comfortably move your shoulder through 75% of the range of motion, you can move onto phase 2 of the program.

**PAIN MANAGEMENT**

Consider heat or ice to manage your symptoms. When deciding between heat or ice it is important to use whatever feels best for you.

**ICE:**
- Use a towel or pillowcase to protect area being treated
- Place ice or cold pack on sore area

**HEAT:**
- Use a towel or pillowcase to protect area being treated
- Place hot pack on sore area
STAGE 1 REHABILITATION EXERCISES

SCAPULAR CONTROL

SCAPULAR RETRACTION

Preparation:
• Stand tall, shoulders relaxed

Execution:
• Pull shoulder blades back and down
• Don’t hunch your shoulders

Sets: 3 | Reps: 10-15 | Frequency: 2-4x/day

SCAPULAR CLOCK

Preparation:
• Sit or stand with good posture

Execution:
• Keeping your arms relaxed, move your shoulder blades to different hours on the clock

Sets: 3 | Reps: 10 | Frequency: 2-4x/day
STAGE 1 REHABILITATION EXERCISES

FLEXION

BASIC Shoulder Pendulum | Forward/Backward

Preparation:
- Stand next to a counter or chair, using your strong arm to balance yourself
- Lean slightly forwards and let your weak arm dangle towards the floor

Execution:
- Sway your hips to get you arm moving forward and backward

Sets: 3 | Reps: 10-15 | Frequency: 2-4x/day

BASIC Shoulder Flexion PROM (Pulley)

Preparation:
- Stand with good posture in front of a pulley and rope
- Hold the ends of the rope and let your affected arm dangle at your side

Execution:
- Use your strong arm to pull your affected arm to shoulder height
- Gradually relax your strong arm, letting gravity pull your weak arm back to the start position

Sets: 3 | Reps: 10-15 | Frequency: 2-4x/day
STAGE 1 REHABILITATION EXERCISES

INTERMEDIATE FORWARD ARM REACH AAROM (TABLE)

Preparation:
- Sit “tall” with one arm on table top

Execution:
- Use one arm to help slide your hand forward along the table top

Sets: 3 | Reps: 10-15 | Frequency: 2-4x/day

INTERMEDIATE SHOULDER FLEXION AAROM | FULL RANGE (STICK)

Preparation:
- Stand with good posture
- Hold the stick/cane in front of your hips as shown

Execution:
- Use your strong arm to help raise your affected arm forward and up all the way over your head
- Return in a controlled manner to the original position

Sets: 3 | Reps: 10-15 | Frequency: 2-4x/day

ADVANCED SHOULDER FLEXION AROM | FULL RANGE

Preparation:
- Sit or stand with good posture

Execution:
- Raise your arm forward and up all the way above your head
- Move in pain free range of motion
- Slowly return to the start position

Sets: 3 | Reps: 10-15 | Frequency: 2-4x/day
ABDUCTION

BASIC SHOULDER ABDUCTION PROM (PULLEY)

Sets: 3 | Reps: 10-15 | Frequency: 2-4x/day

Preparation:
• Stand with good posture next to a pulley and rope as shown
• Hold the ends of the rope and let your weak arm dangle at your side

Execution:
• Use your strong arm to pull your weak arm out to the side as high as you can
• Gradually relax your strong arm, letting gravity pull your weak arm back to the start position

INTERMEDIATE SHOULDER ABDUCTION AAROM (STICK)

Sets: 3 | Reps: 10-15 | Frequency: 2-4x/day

Preparation:
• Stand with good posture
• Hold a stick or a cane, hands shoulder width apart

Execution:
• Pretend the stick is a paddle and your are paddling a canoe. Paddle as wide as you can.

ADVANCED SHOULDER ABDUCTION AROM | FULL RANGE

Sets: 3 | Reps: 10-15 | Frequency: 2-4x/day

Preparation:
• Stand with good posture

Execution:
• Raise arm up and out to the side.
• Raise all the way up overhead in pain free range of motion
• Return to the start position with control
EXTERNAL ROTATION (ER)

BASIC SHOULDER EXTERNAL ROTATION PROM (STICK)
Sets: 3 | Reps: 10-15 | Frequency: 2-4x/day

Preparation:
- Lie on your back with your arm by your side
- Wrap a belt around your arm and body to hold your arm firmly to your side
- Hold a stick in both hands in front of you as shown

Execution:
- Use the unaffected arm and stick to rotate your arm outwards

Start position
Rotate arm outward

INTERMEDIATE SHOULDER EXTERNAL ROTATION AAROM (STICK)
Sets: 3 | Reps: 10-15 | Frequency: 2-4x/day

Preparation:
- Lie on your back, sit or stand
- Hold a stick/cane as shown with elbows bent at 90 degrees

Execution:
- Use your strong arm to help rotate your weak arm away from your body
- Keep your elbows bent and close against your sides at all times
- Return to the start position in a controlled manner

Start position
Rotate arm - keep elbow tucked

ADVANCED SHOULDER EXTERNAL ROTATION AROM
Sets: 3 | Reps: 10-15 | Frequency: 2-4x/day

Preparation:
- Lie on side
- Hand on stomach

Execution:
- Rotate hand up toward the ceiling

Lie on side - hand on stomach
Rotate hand up toward the ceiling
Pause at top. Return to start
### INTERNAL ROTATION (IR)

#### BASIC: SHOULDER PENDULUM | CIRCLES

- **Preparation:**
  - Stand next to a counter or chair, using your strong arm to balance yourself.
  - Lean slightly forwards and let your weak arm dangle towards the floor.

- **Execution:**
  - Sway your hips to get your arm moving in small circles.

Sets: 3 | Reps: 10-15 | Frequency: 2-4x/day

#### INTERMEDIATE: SHOULDER INTERNAL ROTATION AAROM | BEHIND BACK (STICK)

- **Preparation:**
  - Stand with good posture.
  - Hold a stick/cane behind back as shown.

- **Execution:**
  - Use strong arm to draw affected arm across back.
  - Return in a controlled fashion to the start position.

- **IMPORTANT:**
  - Do not lift stick off low back.

Sets: 3 | Reps: 10-15 | Frequency: 2-4x/day

#### ADVANCED: SHOULDER IR + ER AROM | NEUTRAL ABDUCTION

- **Preparation:**
  - Lie on back.

- **Execution:**
  - Rotate hand away from body.
  - Keep elbow tucked.

- **Bring hand back to body**
- **Rotate out, elbow stays at your side**

Sets: 3 | Reps: 10-15 | Frequency: 2-4x/day
STRETCHING

**BASIC SHOULDER POSTERIOR CAPSULE STRETCH | 90° ABDUCTION**

**Preparation:**
- Lie on affected side, but not directly on shoulder
- Bring your arm away from your body to shoulder height, elbow at 90 degrees

**Execution:**
- Grasp your forearm with the opposite hand
- Turn your arm down toward the bed

Sets: 4 | Hold: 30 sec | Frequency: 2-4x/day

**BASIC POSTERIOR SHOULDER STRETCH**

**Preparation:**
- Sit or stand with good posture

**Execution:**
- Reach across your chest
- Use your other arm to pull a bit further

Sets: 4 | Hold: 30 sec | Frequency: 2-4x/day

**BASIC SHOULDER INTERNAL ROTATION STRETCH (TOWEL)**

**Preparation:**
- Sit or stand with good posture
- Hold a towel behind back with the arm to be stretched on the bottom

**Execution:**
- Use strong arm to pull bottom hand up back

Sets: 4 | Hold: 30 sec | Frequency: 2-4x/day
STAGE 1 REHABILITATION EXERCISES

BASIC SHOULDER CHEST STRETCH (DOOR FRAME)

**Preparation:**
- Place arms at shoulder level on either side of a doorframe

**Execution:**
- Step forward. You should feel a stretch across the front of your chest

**IMPORTANT:**
- Do not support your weight with your arms

Sets: 4 | Hold: 30 sec | Frequency: 2-4x/day

CRITERIA FOR PROGRESSION TO STAGE 2

75% of available and pain-free active range of motion as compared to the unaffected side
Stage 2 builds on the first stage by increasing the load on the shoulder joint and using the surrounding muscles. Perform all exercises in a pain-free range.

### STAGE 2 GOALS

- To activate shoulder stabilizers and create a postural platform for the exercises that follow.
- To initiate pain-free muscular contractions around the shoulder joint.

### SHOULDER EXTERNAL ROTATION ISOMETRIC

**Sets:** 3 | **Reps:** 10 | **Hold:** 5-10 sec | **Intensity:** ease into muscle contraction | **Frequency:** 1x/day

**Preparation:**
- Stand with good posture facing a wall or doorframe
- Hold your arm by your side, elbow at 90 degrees, palm facing away from wall or doorframe

**Execution:**
- Rotate your hand outwards into the wall or doorframe
- Keep your elbow at your side

### SHOULDER INTERNAL ROTATION ISOMETRIC

**Sets:** 3 | **Reps:** 10 | **Hold:** 5-10 sec | **Intensity:** ease into muscle contraction | **Frequency:** 1x/day

**Preparation:**
- Stand with good posture facing a wall or doorframe
- Hold your arm by your side, elbow at 90 degrees, palm facing wall or doorframe

**Execution:**
- Rotate your hand inwards into the wall or doorframe
- Keep your elbow at your side
STAGE 2  REHABILITATION EXERCISES

**SHOULDER FLEXION ISOMETRIC**  |  **ELBOW BENT**

**Preparation:**
- Stand in front of a wall or doorframe, elbow bent as shown

**Execution:**
- Push your fist against the wall

**TIP:**
- Use a pillow to avoid hurting your hand

Sets: 3  |  Reps: 10  |  Hold: 5-10 sec  |  Intensity: ease into muscle contraction  |  Frequency: 1x/day

**SHOULDER EXTENSION ISOMETRIC**  |  **ELBOW BENT**

**Preparation:**
- Stand in front of a wall or doorframe, elbow bent as shown

**Execution:**
- Push elbow backward, against the wall

**TIP:**
- Use a pillow to avoid hurting your elbow

Sets: 3  |  Reps: 10  |  Hold: 5-10 sec  |  Intensity: ease into muscle contraction  |  Frequency: 1x/day

**SHOULDER ABDUCTION ISOMETRIC**  |  **ELBOW BENT**

**Preparation:**
- Stand beside a wall or doorframe, elbow bent as shown

**Execution:**
- Push elbow outward, against the wall

**TIP:**
- Use a pillow to avoid hurting your elbow

Sets: 3  |  Reps: 10  |  Hold: 5-10 sec  |  Intensity: ease into muscle contraction  |  Frequency: 1x/day
STAGE 2 REHABILITATION EXERCISES

SHOULDER EXTERNAL ROTATION
CONCENTRIC | NEUTRAL (BAND)

Preparation:
• Standing, elbow at 90 degrees
• Tuck a folded towel between your body and your elbow

Execution:
• Gently pull shoulder blades together
• Keeping elbow close to body, slowly rotate hand outward
• Return to start position

Sets: 3 | Reps: 10 | Frequency: every 2nd day

Start position
Rotate hand outward

SHOULDER INTERNAL ROTATION
CONCENTRIC | NEUTRAL (BAND)

Preparation:
• Stand with good posture
• Tuck a folded towel between your body and your elbow as shown

Execution:
• Keeping elbow close to body, rotate hand inward, toward your stomach
• Return to start position

Sets: 3 | Reps: 10 | Frequency: every 2nd day

Start position
Rotate hand inward
STAGE 2  REHABILITATION EXERCISES

ROW | BILATERAL + NEUTRAL (BAND)

Preparation:
- Stand with good posture, feet shoulder-width apart, one foot slightly in front

Execution:
- Using the muscles between your shoulder blades, pull your shoulder blades back and down
- At the same time perform a rowing motion keeping your elbows close to your body
- Return to the start position in a slow and controlled fashion

Sets: 3 | Reps: 10 | Frequency: every 2nd day

Start position
Row against resistance

T ROW (BAND)

Preparation:
- Stand with hands in front of shoulders as shown

Execution:
- Pull band towards collarbone with control
- Bring shoulder blades together
- Keep elbows straight

Sets: 3 | Reps: 10 | Frequency: every 2nd day

Start position
Pull band towards collarbone with control to make a 'T'

W ROW (BAND)

Preparation:
- Stand tall, holding band

Execution:
- Row arms to the sides to make a 'W'
- Squeeze shoulder blades
- Do not lean backward

Sets: 3 | Reps: 10 | Frequency: every 2nd day

Start position
Row arms to the side make a 'W'
STAGE 2 REHABILITATION EXERCISES

BASIC: PUSH-UP WALL

Preparation:
- Stand arm-length in front of a wall
- Palms on the wall at shoulder level
- Engage core, squeeze buttocks

Execution:
- Imagine your body is a solid plank of wood
- Lean forward toward the wall, using your arms to control the movement.
- Touch nose to wall. Slowly return to the start position.

Important:
- Keep hips and back straight

INTERMEDIATE: PUSH-UP KNEES

Preparation:
- Lie on stomach
- Hands beside shoulders
- Engage core, squeeze buttocks

Execution:
- Imagine your body is a solid plank of wood
- Push-up onto knees without sagging
- Pause at the top of each push-up to push your shoulders slightly forward
- On the way back down, touch your nose to the floor

Important:
- Keep hips and back straight
- Keep chin tucked
CRITERIA FOR PROGRESSION TO STAGE 3

1. No pain during the exercises
2. Full range of motion with appropriate control
STAGE 3 STRENGTHENING

This phase focuses on improving upper body strength to support shoulder health. Perform all exercises in a pain-free range.

SHOULDER INTERNAL ROTATION
CONCENTRIC | 45° ABDUCTION (BAND)

Preparation:
• Stand with good posture
• Arm at 45 degrees, elbow bent
• Hold cable/tubing as shown

Execution:
• Keeping elbow stationary, slowly rotate arm against resistance, towards body
• Return to start

Sets: 3 | Reps: 10 | Rest: 30-60 sec | Tempo: Slow
Frequency: every 2nd day

SHOULDER EXTERNAL ROTATION
CONCENTRIC | 45° ABDUCTION (BAND)

Preparation:
• Stand with good posture
• Arm at 45 degrees, elbow bent
• Hold cable/tubing as shown

Execution:
• Keeping elbow stationary, slowly rotate arm against resistance, away from body
• Return to start position

Sets: 3 | Reps: 10 | Rest: 30-60 sec | Tempo: Slow
Frequency: every 2nd day
**STAGE 3  STRENGTHENING**

**SHOULDER INTERNAL ROTATION CONCENTRIC | 90° ABDUCTION (BAND)**

**Preparation:**
- Stand with good posture
- Raise arm up and out to the side at shoulder height, elbow at 90 degrees

**Execution:**
- Keeping your elbow stationary in the air, rotate your arm downward
- Raise your arm to the start position

**Sets:** 3 | **Reps:** 10 | **Rest:** 30-60 sec | **Tempo:** Slow

**Frequency:** every 2nd day

**SHOULDER EXTERNAL ROTATION CONCENTRIC | 90° ABDUCTION (BAND)**

**Preparation:**
- Stand with good posture
- Raise arm out to the side at shoulder height, elbow bent to 90 degrees

**Execution:**
- Keeping your elbow stationary in the air, rotate your arm upward
- Return to start position

**Sets:** 3 | **Reps:** 10 | **Rest:** 30-60 sec | **Tempo:** Slow

**Frequency:** every 2nd day

**SHOULDER ABDUCTION CONCENTRIC | EARLY RANGE (BAND)**

**Preparation:**
- Stand holding band in hand across your body

**Execution:**
- Keep elbow straight and shoulders relaxed
- Raise arm out to the side to 45 degrees

**Sets:** 3 | **Reps:** 10 | **Rest:** 30-60 sec | **Tempo:** Slow

**Frequency:** every 2nd day
STAGE 3  STRENGTHENING

Y ROW (BAND)

Preparation:
• Stand tall, holding band

Execution:
• Row arms to the sides to make a “Y”
• Squeeze shoulder blades
• Do not lean backward

Sets: 3 | Reps: 10 | Frequency: every 2nd day

ADVANCED: PUSH-UP TOES

Preparation:
• Lie on stomach
• Hands beside shoulders
• Engage core, squeeze buttocks

Execution:
• Press body away from floor
• Lower body down with control

Sets: 3 | Reps: 10 | Frequency: every 2nd day
When you are ready to start to return to an activity or sport, it is advised that you discuss your return with your healthcare provider to review guiding principles and create a sport specific rehabilitation plan.

Guiding principles for return to activity or sport will include having full, pain-free range of motion and pain-free strength that is at least 90% of the health side.

CRITERIA FOR PROGRESSION BACK TO ACTIVITY OR SPORT

1. Full pain-free range of motion
2. Pain-free strength that is equivalent to at least 90% of the unaffected side
NON-OPERATIVE SHOULDER REHABILITATION PROTOCOL

provided by the

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