CANADIAN SURGERY SOLUTIONS

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Post-Operative Rotator Cuff Repair Rehabilitation Protocol

PATIENTS

This protocol should be used as a guide during your rehabilitation after surgery. A physiotherapist should be consulted throughout to teach and individually modify the exercises. Your surgeon will advise when you should start physiotherapy at your first follow-up appointment.

PHYSIOTHERAPISTS

Please use this protocol and the information below to guide this patient's rehabilitation. It is also recommended to consult the operative report for further information on the surgical procedure.

Patient Name: _____ **Surgery Date:** _____

Surgeon: ☐ Dr. Boorman ☐ Dr. Lo
☐ Dr. Stewart ☐ Dr. Leblanc
☐ _____

Tendons Repaired: ☐ Supraspinatus ☐ Infraspinatus ☐ Subscapularis ☐ Teres Minor

Tear Size: ☐ Full thickness ☐ Partial thickness

Biceps: ☐ Tenodesis ☐ Tenotomy

Additional Surgical Procedures: _____

Movement Restrictions:

Wear sling for _____weeks

Protection of biceps required?

☐ YES, no active elbow flexion for 4-6 weeks, no elbow flexion strengthening for_____weeks
☐ NO, this is not required

Start passive range of motion exercises at _____ weeks
Flexion ROM restrict to _____ degrees until _____ weeks
restrict to _____ degrees until _____ weeks
External ROM restrict to _____ degrees until _____ weeks
restrict to _____ degrees until _____ weeks
Start active assisted/active range of motion exercises at _____ weeks
No resisted rotator cuff strengthening exercises until _____ weeks

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This table provides an overview of the **exercise progressions** included in this protocol. The timelines for each phase 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 phase and it may be beneficial to have patients continue with exercises from previous phases. The timelines are as follows:

- **PHASE 1** = 0 to 4-6 weeks (sling discharge)
- **PHASE 2** = 4-6 to 12 weeks
- **PHASE 3** = 12-20 weeks (all resisted rotator cuff exercises restricted until >12 weeks, see cover page)
- **PHASE 4** = 20+ weeks

Range of Motion	Phase 1	Phase 2	Phase 3	Phase 4
Neck, Hand and Wrist Range of Motion	☐			
Elbow Range of Motion (**see restrictions on cover page)	☐			
Pendulum (Passive sway of arm; +/- exercise ball, +/- scapular setting)	☐			
Passive Supine ROM (Elevation and ER, **see restrictions on cover page)	☐	☐		
Passive Table Slides (**see restrictions on cover page)	☐	☐		
Seated Thoracic Extension (on Towel/Ball)	☐	☐		
Active Assisted and Active Shoulder ROM & Elevation/Press Program		☐		
Flexion Stretch on Table/Wall		☐	☐	
Pulleys (Flexion, Scaption)		☐	☐	
Internal Rotation Range of Motion (Assisted → Towel Stretch)		☐	☐	
AROM PNF Patterns			☐	
Muscle Strength & Endurance				
Scapular Setting/Postural Awareness	☐			
Ball on Table with Scapular Setting		☐		
Isometrics (Flex/Ext/Abd/ER/IR)		☐		
Prone Scapular Retraction		☐		
Scapular Rows with Resistance		☐		
Biceps/Triceps Strength (Shoulder in neutral, **see cover page)		☐		
Active Assisted Upper Bike Ergometer		☐		
Side Lying ER (No weight → progress weight slowly, +/- EStim)		☐	☐	
Resisted Shoulder Strengthening with Bands (ER, IR)			☐	
Foam Roller Y on Wall			☐	
Ball on Wall			☐	
Tennis Ball on Plate			☐	
Flexion/Scaption with Weight			☐	
Alphabet with Band/Weight			☐	☐
Resisted ER/IR Strengthening at 45° → 90° abduction			☐	☐
Resisted PNF Patterns			☐	☐
Resisted Wall Washes			☐	☐
Wall Push Up and Push Up Plus (Wall → Plinth → Floor)				☐
Ball Tosses (Two → One Handed, Chest Pass → Overhead)				☐
Advanced Proprioceptive Drills → Body Blade, Planks on Bosu				☐
Functional/Sport Specific Drills				☐

Phase 1 - Immediate Post Operative

This phase involves the initial recovery period after surgery and generally lasts until 4-6 weeks post operative.

Goals - Phase 1

- Patient education
- Control pain and inflammation
- Protect repaired and healing tissue
- Early protected shoulder range of motion
- Maintain mobility of joints surrounding shoulder

Patient Education - Phase 1

What is the Rotator Cuff?

- The rotator cuff is made up of 4 muscles (Supraspinatus, Infraspinatus, Subscapularis, and Teres Minor) that help stabilize the shoulder. In rotator cuff repair surgery one or more of these muscles are reattached to the bone using anchors/sutures. The sutures/anchors hold the tendons so they can heal back to the bone.

Sling Use/Driving

- Do not attempt to lift the operative arm without assistance or use the muscles in the operative shoulder (i.e., lifting, carrying, pushing, pulling, driving, moving in bed).
- The sling is for comfort and protection and should be worn for 4-6 weeks after surgery (see front page of booklet). It can be removed when sitting comfortably at home with arm supported, for showering and range of motion exercises.
- Patients should not drive until surgeon allows them to stop using their sling and when they are no longer on narcotic medications.
- Sleeping – It is recommended that the sling is worn while sleeping. If there is difficulty finding a comfortable sleeping position, it may be easier to sleep in a reclining chair or propped up with pillows in bed. The weight of the arm can also be supported on a pillow.

Pain Control

- **Icing**: use cryocuff or ice pack/bag of frozen peas. Do not get dressings wet (use plastic bag/wrap between shoulder & ice pack) and a fabric layer between to prevent frostbite. For the first 48 hours following surgery ice for 30 minutes every hour when awake. After this, reduce icing to every 2-3 hours or as needed.
- **Medication**: follow instructions from surgeon.

Return to Work

- Timelines depend on the type of work and the surgery performed. Light desk work duties can often be tolerated by 3-6 weeks. Returning to work when it is deemed safe to do so by the surgeon has been shown to be beneficial in overall recovery.

Exercises - Phase 1

RANGE OF MOTION

Recommended Parameters = two sets of 10 reps, 5 times/day unless specified

Neck, Wrist and Hand Range of Motion

To maintain range of motion look up/down, turn to each side and bring ear to each shoulder, actively flex and extend wrist, make a fist and extend fingers. Can also do gentle ball squeezes/grip exercises while in sling.

Elbow Range of Motion (*See cover page for restrictions.)

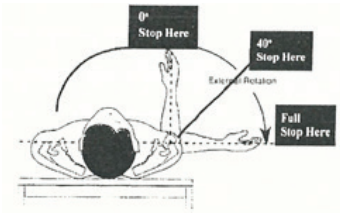
Actively bend and straighten elbow while properly positioning shoulder blades and keeping shoulder stationary. If you have a biceps tenodesis, use the non-operative arm to move your elbow.

Pendulum *(Move arm for 1 minute, do 3 repetitions 5 times a day)*

Lean forward and let operative arm dangle with muscles completely relaxed. Gently allow arm to move by rocking body side to side, forward/back and in small circles. Operative arm can also be supported with other arm or exercise ball and use non-operative arm to move it.

Passive/Assisted Supine External Rotation with Stick

Lie on your back, hold a pole with arms at side and elbows bent to 90°. Support the elbow of operative arm on a towel and keep elbow in. With uninvolved hand gently push the operative arm outwards to 0°, 40° or Full ER (**see front page for restrictions*). Do not use the muscles in operative arm to move the shoulder. Stop once a gentle stretch or pain is felt.



Passive Supine Elevation (**start at 3-4 weeks post op unless otherwise directed, see cover page for restrictions from your surgeon**)

While lying on your back, use non-operative arm to slowly lift operative arm through pain-free range. Do not use the muscles in operative arm to move the shoulder. Stop when once a gentle stretch or pain is felt.

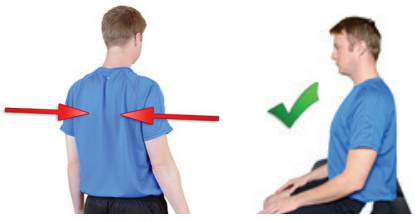
Passive Table Slides (**start at 3-4 weeks post op unless otherwise directed, see cover page for restrictions from your surgeon**)

Sitting on a stool or chair, rest operative arm on the table. While keeping operative arm relaxed push chair/stool back until a comfortable stretch is felt in the shoulder. Exercise can also be performed by placing both hands on a ball and using non-operative arm to move the ball.

STRENGTHENING

Shoulder Blade Squeezes (*Hold each repetition for 5-10 seconds*)

Bring shoulder blades back together towards spine.



Postural Awareness/Correction

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

Thoracic Extension

If having difficulty with upper back stiffness, a towel/ball can be placed behind the back when seated and then gently back over the roll/ball.

Pictures courtesy of SimpleSet, used with permission.

Other Considerations - Phase 1

Manual Therapy - for Physiotherapist Consideration

- Soft tissue massage (e.g., lat dorsi, pecs, deltoid; avoid muscle bellies of repaired muscles)
- Address cervical/thoracic spine issues (joint mobilization and soft-tissue massage)
- No glenohumeral joint mobilization in Phase 1

Criteria for Progression to Phase 2

- Pain adequately controlled at rest
- Good postural awareness and ability to properly set scapula with arms at side
- Demonstrates progression of passive/assisted range of motion
- Sling discharge *(*see cover page for instructions from surgeon)*

Phase 2 - Range of Motion

This phase starts at 4-6 weeks (or sling discharge) and lasts until approximately 12 weeks post operatively.

Goals - Phase 2

- Progressive pain-free range of motion (PROM → AAROM → AROM)
- Improve static and dynamic scapular control
- Continued protection of repaired and healing tissue
- Improved proprioception

Patient Education - Phase 2

Avoid UNASSISTED shoulder motion and RAPID MOVEMENTS/GESTURES with operative shoulder.

- Do not use the muscles in the operative shoulder to move it out to the side (abduction), behind the back or across the body. The operative shoulder/arm can be used for light activities such as eating, hygiene, reading, computer use and dressing, but should not be used to lift more than the weight of a cup of coffee.

Heat / Ice

- A heating pad for 15-20 minutes can be used to loosen up the shoulder before working on exercises. Ice can be used for 15-20 minutes after completing exercises and as required for pain relief.

Return to Work

- It is possible to return to sedentary work that involves no lifting or overhead work in this phase of recovery. Specific restrictions and return-to-work plan for heavier occupations should be discussed with the surgeon.

General Fitness/Activity

- It is important to keep active, despite the post-operative shoulder restrictions. Activities such as walking, treadmill or stationary bike are great options to keep active and not stress the shoulder. Using the sling or placing hand of operative arm in a pocket/jacket can reduce stress on the shoulder.
- **Exercise Parameters**
- Remember exercises should be performed within pain-free range and with proper technique (i.e., proper shoulder blade position, no shoulder hiking). It is best to complete exercises more often throughout the day (3-5 times/day), especially for range of motion exercises, doing 1-2 sets of 10 repetitions.

Exercises - Phase 2

Patients should visit their physiotherapist to receive guidance on the progression and technique for the exercises in the protocol. The surgeon will provide recommendations on when to start physiotherapy.

RANGE OF MOTION

Supine Active Assisted Range with Stick (Elevation & External Rotation)

Gradually progress through pain free ROM to 120-140° *(* see cover page for restrictions)*

Progress to full ROM and begin to work into scaption plane at 6-8 weeks

Elevation/Press Program

Once full AAROM with stick in supine is achieved, advance elevation through the following progressions:

Supine with stick → supine with towel → AROM Supine → 45° reclined (e.g., recliner chair) → standing

For press program, press up in the direction of the ceiling:

Supine with Stick → Supine with Towel → Supine AROM → Supine with 1lb Weight

Flexion Stretch on Wall/Table *(focus on longer duration holds)*

Begin gentle end-range stretching at 8 - 10 weeks

Pulleys can also be used to increase ROM in flexion/scaption plane

Internal Rotation Range of Motion

At 6-8 weeks can begin gentle IR Rom in supine with arm slightly away from body and using non-operative arm with a stick to assist into internal rotation.

At 8 weeks can begin gentle cross body stretching using non operative arm to bring operative arm across the chest.

At 10-12 weeks work into gentle assisted stretching behind back with towel or strap

STRENGTHENING – EARLY PHASE 2 (4-8 weeks)

Ball on Table

Start with elbow bent to 90° and ensure proper scapula positioning while moving ball on table in circular motion or spelling alphabet

Begin facing table, progress to arm outstretched or in ER

Isometrics *(Hold each contraction for 5 seconds, repeat each direction 10 times)*

This exercise is intended to 'wake up' and activate the rotator cuff, not strengthen.

Amount of force is low (~30% of max contraction) so ensure gentle pressure – as if pressing into a balloon.

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)

Pictures courtesy of SimpleSet, used with permission.

STRENGTHENING – LATE PHASE 2 (>8-10 weeks)

Note: Resisted strengthening of parascapular and distal muscles can begin at this time. All isolated rotator cuff strengthening must be restricted until reach criteria for progression to Phase 3.

Side Lying External Rotation (without weight)

Arm supported on towel with elbow by side, ensure good scapular position

Perform to neutral then progress as tolerated

PNF AAROM/AROM Patterns

If full functional AROM has been achieved, can begin PNF patterns below shoulder level with stick and progress overhead and to AROM as able

Scapular Rows with Resistance

Use a light resistance band (yellow or red) in standing position

Ensure correct scapular positioning prior to initiating rowing motion and maintenance of this scapular positioning while arms are moving

Biceps/Triceps Strengthening

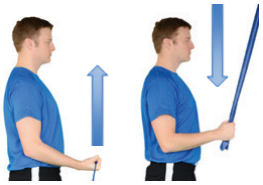
With proper scapula and neutral shoulder position, can begin biceps/triceps strengthening with light resistance

Note restrictions (*on first page*) for biceps tenodesis procedures

Active Assisted Upper Bike Ergometer

Encourage proper scapula positioning/posture and ensure movement of the surgical arm is **ASSISTED** in a **slow controlled manner**.

Ensure axis of motion is below shoulder height. Consider perform cycling motion backwards to encourage scapular retraction.



Other Considerations - Phase 2

Hydrotherapy

- If incisions adequately healed, performing range of motion exercises in the pool can be helpful in improving range of motion. Do not perform any swimming motions/strokes at this time.

Manual Therapy - for Physiotherapist Consideration

- Soft tissue/scar massage (as per Phase 1, can begin gentle release of repaired rotator cuff)
- Address cervical/thoracic spine issues (joint mobilization and soft-tissue massage)
- No glenohumeral joint mobilization until 8 weeks, then gradually start grade gentle 1-2 mobilization
- Gentle therapist-assisted range of motion and passive scapular mobilization

Criteria for Progression to Phase 3

- Sufficient passive and active range of motion without pain and compensation
  - No shoulder hiking, scapular winging or trunk side flexion/extension
  - Ability to perform 2 sets of 10 of flexion to at least AROM 90-110°, PROM 120-140°
- Good scapular positioning and postural awareness at rest and dynamic scapular control with range of motion exercises

Phase 3 - Rotator Cuff Strengthening

This phase involves the start of targeted rotator cuff strengthening at approximately 12 weeks and lasts until 4-5 months.

Goals - Phase 3

- Achievement of full functional range of motion
- Initial rotator cuff strengthening
- Improve scapulohumeral rhythm
- Continued protection of healing/repaired tissues

Patient Education - Phase 3

Continued Protection of the Rotator Cuff Repair

- It is important to be aware that the rotator cuff repair is continuing to heal at this point. Here are some points to keep in mind during this phase:
  - **No overhead lifting or above shoulder and restrict lifting to light objects** (< 20 lbs)
  - **Avoid long lever / outstretched arm positions** (e.g., reaching for pot at back of stove)
  - **Avoid quick movements** (e.g., reaching to catch a falling object)
- Patients may begin to return to activities of daily living such as cooking, gardening and light cleaning (no vacuuming or raking, keep laundry baskets light) keeping in mind the considerations listed above. It is important that activities are paced throughout the day.

Strengthening Exercises

- Strengthening of the rotator cuff can begin at 12 weeks (*or the timeline indicated on the first page*), if the patient is progressing well and meets the criteria listed at the end of Phase 2.
- All resisted exercises should be performed in a **pain-free range of motion** and **below shoulder height**, initially.
- Strengthening exercises should be performed maximum 1-2 times per day and parameters should focus on gradually building endurance (i.e., begin with 2-3 sets of 10 and work up to 4 sets of 15). Can also consider performing strengthening exercises every other day and continue range of motion exercises daily.
- Begin with **light resistance band** or **light weight** initially. It is acceptable to progress to the next level of resistance once the patient can correctly perform exercise with 3-4 sets of 15 reps.
  - Progression of bands (Typically yellow → red/orange/pink → green → blue/purple)

Exercises - Phase 3

RANGE OF MOTION

If full active range of motion has not been achieved, it is important to continue to work on range of motion exercises listed in Phase 2. Internal rotation range of motion exercises can be started as early as 8 weeks, but can be progressed to hand behind the back using a towel-assisted stretch now.

STRENGTHENING – EARLY PHASE 3

**see cover page for timeline to start resisted rotator cuff strengthening*

Resisted Shoulder Strengthening (Internal / External Rotation)

Standing with towel/ball supporting arm in 0° abduction

Initially perform to neutral then progress as tolerated

Side Lying External Rotation with Weight

Same position than described in Phase 2, add light weight

Alphabet with Band or Weight (Supine)

In supine with arm at 90° flexion, add slight scapular protraction and spell 3-5 letters of alphabet in the air, repeat 10 times

Start with light weight (1 lb.) or band resistance around back

Foam Roller Y on Wall

Using uninvolved arm to assist, roll arms up wall into Y position and encourage scapular upward rotation

Progress in range of motion as tolerated

Ball on Wall

Gradually progress further in flexion ROM ensuring exercise is pain-free and scapular control is maintained

STRENGTHENING – LATE PHASE 3

Flexion/Scaption with Weight

With light dumbbell, lift arm to 30-45 degrees flexion. Repeat in scaption plane (30 degrees out to the side). Ensure exercise is pain free and scapular control is maintained.

Resisted Internal/External Rotation at 30-45° Abduction

Progress ER/IR into abduction if cuff is strong in neutral position and patient able to maintain good scapular control. Can do with elbow supported on table or standing with band.

Ensure exercise is pain-free, start with partial ROM and progress to full ROM as tolerated

Resisted PNF Patterns

Progress to light resistance below shoulder height, ensure short lever arm (bent elbow) while arm is moving

Tennis Ball on Frisbee/Plate

With frisbee upside down or plate on hand, move ball around plate in circular motion without it touching the edges

Progress as tolerated – increase weight of ball, move hand away from body, spell alphabet, etc.

Pictures courtesy of SimpleSet, used with permission.

Other Considerations - Phase 2

General Fitness

- Encourage patients to continue cardiovascular endurance exercise and consider incorporating lower extremity, core and back strength into their exercise regime.

Manual Therapy - for Physiotherapist Consideration

- Continue as per Phase 2; can progress glenohumeral mobilization to grade 3-4
- Can begin supine rhythmic stabilization for proprioception

Criteria for Progression to Phase 4

- Full functional range of motion without compensation
- Demonstrates adequate endurance and correct technique with strengthening exercises (i.e., 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/Graduated Return to Activity

This phase involves functional and activity specific strengthening and starts at 5-6 months after surgery.

Goals - Phase 4

- 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.

Patient Education - Phase 4

Weight Bearing Activities

- Activities with weight bearing need to be performed with caution as they can cause compression and aggravate the rotator cuff. When moving into weight bearing exercises, they should be progressed gradually (e.g., push-ups on wall → on knees).

Gym Routines

- Patients should discuss with their surgeon as to when it is appropriate to return to gym routines (~6 months post operatively). It is recommended that heavy weights are not used, especially in overhead positions.
- It is **not recommended** to perform incline bench press, military press, dips, upright rows and chin-ups.

Long-Term Protection of Rotator Cuff

- In order to protect the repair and maintain the health of the rotator cuff long term, it is recommended to **avoid lifting in long lever positions** (i.e., arm extended) and **avoid heavy lifting overhead**. Unless otherwise recommended, patients are encouraged to continue to work on strength and range of motion exercises for 6-12 months post-operatively. Also, incorporating rotator cuff strengthening exercises into a regular workout regime in the long term is important to maintain the strength that has been developed and keep the muscles and tendons strong and healthy.

Exercises - Phase 4

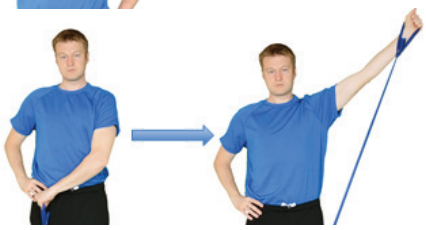
Exercises from Phase 3 can be continued as required to achieve full functional range of motion and strength. Phase 4 exercises focus on specific functional demands required by each patient for their occupation and recreational activities. Be mindful that Phase 4 will be different for every patient depending on their specific functional requirements, tissue quality and expected surgical outcome.

Exercises should be performed once per day with exercise parameters focusing on developing muscular endurance. All exercises should continue to be performed in pain-free range and with proper technique. Exercises from Phase 3 can be progressed to functional positions relevant to each patient's occupation and recreational activities. Physiotherapists will be able to assist patients with appropriate exercise prescription and the surgeon will provide guidance on time lines for return to occupational and recreational activities.

Examples of exercises for Phase 4 rehabilitation include:

Progression of Phase 3 Exercises

- External Rotation at 45° → 90° Abduction
- Resisted PNF Patterns
  - Work through full ROM and incorporate full body motion (e.g., 'lawn mower' or 'woodchopper')
- Alphabet with Weight/Band
  - Progress into Side Lying or Standing Positions



Push Ups (Wall → Table → Knees on Floor → Toes on Floor)

Once on floor, ensure patient only comes to a 90° bend in their elbow and not all the way down to the floor

Advanced Proprioception Drills

- Ball Tosses
  - Start with two hands at chest level, progress to one hand overhead)
- Body Blade
- Planks or push ups on Bosu ball / unstable surface

Functional/Sport Specific Drills

It is important for patients to practice the specific drills and functional tasks they will need to perform prior to returning to game play, etc. These will be unique to each patient and can include skills such as throwing, stick/puck handling or lifting mechanics.

Criteria for Return to Sport/Work/Activity

- Time lines for return to sport and recreational activities involving the use of the surgical arm, as well as contact sports, should be discussed with the surgeon.
- Returning to occupations that involve medium to heavy lifting (30+ lbs.) and overhead work/lifting should also be discussed with the surgeon.

Contact Canadian Surgery Solutions Shoulder Care Centre with any questions or concerns.
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