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Rotator Cuff Repair Post-Operative 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 after your surgery.

PHYSIOTHERAPISTS

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

Patient Name: ____________________________________ **Surgery Date:** ________________________________

Surgeon: ☐ Dr. Ian Lo

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

Tear Size:
- ☐ Full Thickness
- ☐ Partial Thickness

Biceps:
- ☐ Tenodesis
- ☐ Tenotomy

Additional Surgical Procedures: ____

Post-Operative Restrictions

Wear sling for __________ weeks.

Protection of Biceps?

- ☐ YES, no active elbow flexion for 4-6 weeks, no elbow flexion strengthening for 10 weeks
- ☐ NO, this is not required

No rotator cuff strengthening (Phase 3) until _________ weeks.

Range of Motion Restrictions (gradually progress in pain free ROM to full unless specified below)

Start elevation/flexion exercises (table slides, supine flexion) at _________ weeks.

Restrict external rotation to ________ degrees for ________ weeks

________ degrees for ________ weeks

Please feel free to contact the surgeon's office if there are any questions or concerns.

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PHASE 1 – Immediate Post Operative

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

GOALS

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

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 arm** (e.g. 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 or 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 they are having 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. Family physicians can also be consulted regarding pain control.

RETURN TO WORK

- Timelines depend on the type of work and the surgery performed. Sedentary 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

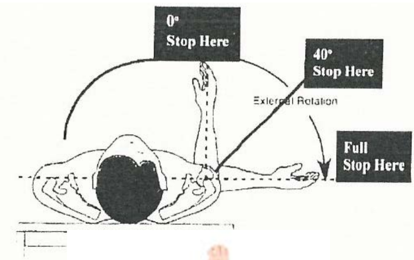
<u>RANGE OF MOTION</u> *(Recommended Parameters = 10 reps, 5 times/day unless specified)*

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 ball.

Elbow Range of Motion *(*see cover page for any restrictions)*
Actively bend and straighten elbow while properly positioning shoulder blades and keeping shoulder stationary. Can use other arm to help you move the operative arm.

Pendulum *(Move arm for 1 minute, do 3 repetitions 5 times a day)*
Lean forward and let operative arm dangle with <u>muscles completely relaxed</u>. 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
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 close to body. With non-operative arm using gently push the operative arm to 0°, 40° or full external rotation *(*see cover page for restrictions)*. Stop once a gentle stretch or pain is felt.



Passive Supine Elevation *(*start at 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 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 forward.

STRENGTHENING

Shoulder Blade Squeezes *(Hold each repetition for 5-10 seconds, repeat 10 times)*
Gently 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.

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.

OTHER CONSIDERATIONS

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

PHASE 2 – Range of Motion

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

GOALS

Progressive Pain-Free Range of Motion (PROM → AAROM → AROM)
Continued Protection of Repaired and Healing Tissue
Improve Static and Dynamic Scapular Control
Improve Proprioception

PATIENT EDUCATION

MOVEMENT RESTRICTIONS

- Avoid **unassisted** motion away from the body, overhead and behind the back as well as **rapid movements and gestures** with operative arm. The operative 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.
- Avoid range of motion exercises and movements into the abduction plane as it is aggravating to the shoulder. This movement will improve as the rest of the range of motion and strength in the shoulder progresses.

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 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 the stress on the shoulder.

EXERCISE PARAMETERS

- Exercises should be performed within pain-free range and with proper technique (e.g. 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

Patients should visit their physiotherapist to receive guidance on the progression and technique for the exercises in the protocol for Phases 2-4. 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°. At 8-10 weeks, progress to full ROM and begin to work into scaption plane.

Elevation/Press Program
Once full AAROM with stick in supine is achieved, advance elevation and shoulder press (press up in the direction of the ceiling) through the following progressions:

Supine with stick → Supine with towel → AROM Supine →
45° Reclined (e.g. Recliner Chair) → Standing

Can begin gentle pain-free end-range stretching at 8-10 weeks on the table or wall. Pulleys can also be used to increase ROM in flexion and scaption planes. Push into a gentle stretch but continue to ensure exercise is pain free.

Internal Rotation Range of Motion Exercises
Can begin internal rotation stretch at 8 weeks with gentle cross body stretching using non-operative arm to bring operative arm across the chest. At 10+ weeks can work into gentle pain free assisted stretching with towel/strap; however this range of motion also tends to improve if the focus remains on achieving flexion and external rotation range of motion goals.

STRENGTHENING – EARLY PHASE 2 (sling discharge to 8-10 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 and progress to arm outstretched or turn slightly away to work into scaption plane.

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. Ensure proper scapular positioning and good overall posture.

- 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)

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

Resisted strengthening of parascapular and distal muscles can begin around 8-10 weeks post operatively. All isolated rotator cuff strengthening must be restricted until the timeline outlined by the surgeon on the cover page of this protocol and full functional active ROM has been achieved.

Side Lying External Rotation (*Without Weight)
In side lying, arm should be on the side with elbow supported by a towel. Ensure good scapular position. Arm is lifted to neutral, progress into ROM as tolerated.

PNF AAROM/AROM Patterns
If full functional AROM has been achieved, can begin PNF patterns below shoulder level with stick. Start in range below shoulder level and progress to overhead range and AROM as tolerated.

Scapular Rows with Resistance
Ensure correct scapular positioning prior to initiating rowing motion and maintain this scapular positioning while arms are moving forward and back. Stop once you reach midline of the body. Use a light resistance (yellow or red band).

Biceps/Triceps Strengthening
With proper scapula and neutral shoulder position, can begin biceps/triceps strengthening with light resistance. See cover page for any restrictions for biceps tenodesis procedures.

Active Assisted Upper Bike Ergometer
Encourage proper scapula positioning/posture and ensure movement of the operative 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

Hydrotherapy

- If incisions are adequately healed, performing range of motion exercises in the pool can be helpful in improving range of motion. Swimming motions/strokes should not be performed 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 10 wks, then gradually start Grade 1-2 mobilization
- Gentle therapist pain free 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° and PROM to at least 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 12 weeks and lasts until 4-5 months.

GOALS

Continued Protection of Healing/Repaired Tissues
Achievement of Full Functional Range of Motion
Initiate Targeted Rotator Cuff Strengthening
Improve Scapulohumeral Rhythm

PATIENT EDUCATION

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** and **restrict lifting to light objects** (< 20lbs)
    - **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)
- Can 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 to avoid fatiguing the shoulder.

STRENGTHENING EXERCISES

- Strengthening of the rotator cuff can begin at the 12 week (or timeline indicated on the cover page) if the recovery is progressing well and meets the criteria listed at the end of Phase 2.
- All resisted exercises should be performed in **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 (e.g. begin with 2-3 sets of 10 and work up to 4 sets of 15). Can also consider initially performing strengthening exercises every other day and continue range of motion exercises daily.
- Begin with **light resistance** 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 (Yellow → Red/Orange/Pink → Green → Blue/Purple)

EXERCISES

<u>RANGE OF MOTION</u>

If full active and passive range of motion have not been achieved it is important to continue to work on range of motion exercises listed in Phase 2. Refer to the criteria listed at the end of the phase as well as the timeline for resisted rotator cuff strengthening outlined by the surgeon on the cover page prior to initiating the exercises outlined below.

<u>STRENGTHENING – EARLY PHASE 3</u>

Shoulder Press/Elevation Program
Continue to increase weight and incline to improve AROM in flexion

Resisted Shoulder Strengthening (Internal /External Rotation)
Ensure good scapular positioning, perform resisted ER/IR in standing with small towel roll under elbow. Initially perform to neutral then progress into ROM as tolerated.

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 (1lb) or band.

Ball on the Wall
Start at waist to shoulder height and progress further into ROM as able, ensuring the exercise is pain free and scapular control is maintained.

STRENGTHENING – LATE PHASE 3

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.

Side Lying External Rotation with Weight
In side lying with elbow supported (same than in Phase 2), externally rotate arm while holding light weight (soup can → 1lb → 2lb).

Resisted Internal/External Rotation at 30-45° Abduction
Progress ER/IR into abduction if cuff is strong in neutral and good scapular control is maintained. Ensure exercise is pain-free, start with partial arc of movement and progress to full ROM as tolerated. Can start in seated position with elbow supported using band or dumbbell and progress into standing.

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

Proprioceptive Exercises
Continue to progress ball on the wall into higher elevations and into scaption planes. Other ideas include balancing ball on an upside down frisbee, tracking tasks with laser pointer taped to finger, etc.
Ensure good scapular control and positioning is maintained with all exercises.

OTHER CONSIDERATIONS

General Fitness

- Continue cardiovascular endurance exercise and consider incorporating lower extremity, core and back strength into 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 (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/Graduated Return to Activity

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

GOALS

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.

PATIENT EDUCATION

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 generally not recommended to perform heavy weighted exercises overhead and more specifically incline bench press, military press, triceps dips and chin-ups after rotator cuff repair surgery. Patients should also avoid exercises or movements in which their elbow/arm moves behind the plane of their body.

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** (e.g. arm extended) and **avoid heavy lifting overhead.** 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

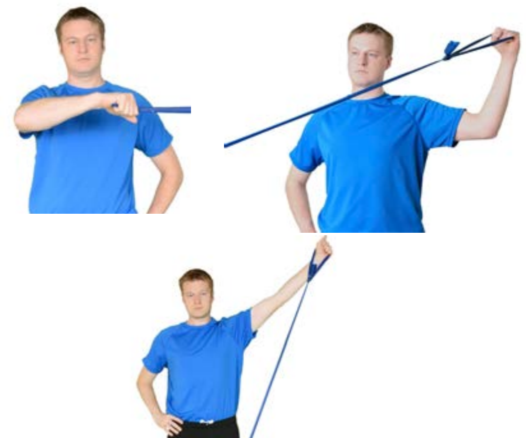
Exercises from Phase 3 can be continued as required to achieve full functional range of motion and strength. Phase 4 exercises focus on specific functional demands required by each patient for their occupation and recreational activities. Be mindful that Phase 4 will be different for every patient depending 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 with adequate recovery between exercise sessions depending on the specifics of the program. 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 timelines for return to occupational and recreational activities.

Examples of Exercises for Phase 4 Rehabilitation include:

Internal/External Rotation at 90° Flexion and 90° Abduction
Ensure good scapular position is maintained. Can start with arm supported on table or large physio ball and move to unsupported.

Resisted PNF Patterns
Start with below shoulder ROM and progress into overhead ranges. Can be performed with light resistance and progressed into using pulley machine at gym.



Weightbearing Exercises

Can begin pushups (progress from wall → table → knees on floor → toes on floor). Other options for weight bearing exercises include planks and bird dogs, etc. Caution is advised with weightbearing exercises as this can create compression of the rotator cuff and exercises should continue to be pain free.

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 and with the considerations discussed above in mind.

CRITERIA FOR RETURN TO SPORT/WORK/ACTIVITY

- Timelines 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.

Please feel free to contact the surgeon's office if there are any questions or concerns.

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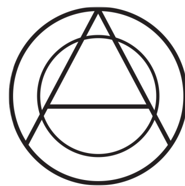

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