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**POSTOPERATIVE REHABILITATION PROTOCOL:  
LARGE - MASSIVE ROTATOR CUFF REPAIR**

- Arthroscopic
- Mini-open
- Open

**Tear size:**

- Large
- Massive

**Biceps tenodesis:**

- Yes
- No

**Distal clavicle resection:**

- Yes
- No

**Phase 1: Weeks 0-6**

- No active ROM exercises.
- Limited supine position passive ROM only.
  - 90 degrees of forward flexion weeks 0-2.
  - 30 degrees of external rotation.
  - 60 degrees of abduction without rotation.
  - May progress supine passive forward flexion to 10-15 degrees per week starting at week 2 as pt tolerates (goal 130-140° at 6 wks)
  - May progress passive abduction to 70-80 degrees at week 4 as pt tolerates.
- Pendulums (Codman's)
- May do table slides (or equivalent) at 14-20 days, hand resting on table, torso leaning forward, pain free, within limits of forward elevation as outlined above.
- No pulleys.
- No strengthening/resisted motions of the shoulder until 12 wk after surgery, unless indicated otherwise.
- Use of sling for protection for 6 wks.
  - Sling may be removed during day when sitting upright in chair prn, but with strict instructions for no active shoulder motion.
  - Sling should be worn at night.
- Therapeutic modalities:
  - Ice, ultrasound, HVGS.
  - Moist heat before therapy, ice at end of session.
- Elbow ROM:
  - Passive progress to active motion.

- 0-130 degrees.
- Pronation and supination as tolerated.
- **Note: If biceps tenodesis, no active elbow flexion or forearm supination until 4 wks postop.**
- Wrist ROM:
  - Full all planes
  - Grip strengthening as tolerated

### **Criteria for Progression to Phase 2**

- At least 6 wk of recovery has elapsed.
- Painless passive ROM to:
  - 130 degrees of forward flexion.
  - 30 degrees of external rotation.
  - 60 degrees of abduction.

### **Phase 2: Weeks 6-12**

- No strengthening/resisted motion of the shoulder until 12 wk after surgery, unless indicated otherwise.
- Discontinuation of sling.
- Therapeutic modalities
- Ice, ultrasound, HVGS.
- Moist heat before therapy, ice at the end of session.
- Shoulder ROM goals:
  - 150 degrees of forward flexion – progress to 160-170 degrees.
  - 30 degrees of external rotation – progress to 60 degrees.
  - 60 degrees of abduction – progress to 90 degrees.
- Continue with passive ROM exercise to achieve above goals.
- Begin active-assisted ROM exercise for the above goals.
- Progress to active ROM exercises as tolerated after full motion achieved with active-assisted exercises.
- Light passive stretching at end ROMs.
- Pendulums and pulleys (or other equivalent)
- Some early strengthening may be allowed depending on certain patient factors and tear/repair characteristics. This is at the surgeon's discretion.
- Continue with grip strengthening.

### **Criteria for Progression to Phase 3**

- Painless active ROM.
- No shoulder pain or tenderness.
- Satisfactory clinical examination.

### **Phase 3: 3 months – 6 months**

#### **Goals**

- Improve shoulder strength, power and endurance.
- Improve neuromuscular control and shoulder proprioception.
- Prepare for gradual return to functional activities.
- Establish a home exercise maintenance program that is performed at least three times per week for strengthening.
- Stretching exercises should be performed daily.

#### **Motion**

- Achieve motion equal to contralateral side.
- Use passive, active-assisted and active ROM exercises.
- Passive capsular stretching at end ROMs especially cross body (horizontal) adduction and internal rotation to stretch the posterior capsule .

#### **Muscle Strengthening**

- Strengthening of the rotator cuff.
- Begin with closed chain isometric strengthening.
- Internal rotation.
- External rotation.
- Abduction.
- Forward flexion.
- Extension.
- Progress to open chain strengthening with free weight (i.e., dumbbells).
- Exercises performed with the elbow flexed to 90 degrees.
- Starting position is with the shoulder in the neutral position of 0 degrees of forward flexion, abduction and external rotation. The arm should be comfortable at the patient's side.
- Exercises are performed through an arc of 45 degrees in each of the five planes of motion.
- Weight progression typically with light object (i.e., tuna or soup can) and increasing gradually in 1-2 pound increments.
- Progression to the next weight level occurs usually in 2 – 3 wk intervals. Patients are instructed not to progress to the next level if there is any discomfort at the present level.
- Internal rotation.
- External rotation.
- Abduction.
- Forward flexion.
- Extension.
- Strengthening of deltoid especially anterior deltoid.
- Strengthening of scapular stabilizers.

- Closed chain strengthening exercise.
- Scapular retraction (rhomboids, middle trapezius).
- Scapular protraction (serratus anterior).
- Scapular depression (latissimus dorsi, trapezius, serratus anterior).
- Shoulder shrugs (trapezius, levator scapulae).
- Progress to open chain scapular stabilizer strengthening.

### **Goals**

- Three times per week.
- Begin with 10 repetitions for one set, advance to 8 to 12 repetitions for three sets.
- Functional strengthening: (begins after 70% of strength recovered)
- Plyometric exercises.
- Progressive, systematic interval program for returning to sports.
  - Throwing athletes
  - Tennis players
  - Golfers

### **Maximal Improvement**

- Large tears 6-10 mos.
- Massive tears 10-15 mos.

Patients will continue to show improvement in strength and function for at least 12-15 mos.

### **Warning Signals**

- Loss of motion especially internal rotation.
- Lack of strength progression especially abduction.
- Continued pain especially at night.

This protocol provides you with general guidelines for the rehabilitation of the patient undergoing arthroscopic, mini-open, or open repair of a large or massive rotator cuff tear.

Specific changes in the program will be made by the physician as appropriate for the individual patient.

Questions regarding the progress of any specific patient are encouraged, and should be directed to Dr. Lervick at **952-944-2519**.

### **REFERENCE:**

Clinical Orthopaedic Rehabilitation, 2<sup>nd</sup> edition. SB Brotzman, KE Wilk. Mosby 2003.