



LARGE/MASSIVE ROTATOR CUFF REPAIR

1. Timelines

- a. Follow Up with Surgeon:
 - i. **2 weeks** post-op via a telemedicine visit. Please send updated PT notes to surgeon on last visit before telemedicine visit. Pt will be submitting on their own a picture of the incision via their EMR portal day before surgery. Fax therapy notes to (317) 718-2676
 - i. **6 weeks** in person with the surgeon. Please send therapy notes before follow-up appt.
- b. **Suture Removal:** Therapist to remove portal sutures at days 10-14.
 - i. Apply steri-strips over portal after removing sutures.

2. Defined

- a. Suturing of tears within the rotator cuff (most commonly supraspinatus muscle)
- b. May be done arthroscopically or open. Open repairs are more common with massive tears and/or extensive injuries in which the surgeon needs better visualization of damaged structures and the approach for repair.
- c. May be done in conjunction with subacromial decompression and debridement and/or biceps tendonesis

3. Goals

- a. Protect healing tissue
- b. Control post-operative pain and swelling
- c. Improve post-operative range of motion
- d. Improve functional strength, stability, and neuromuscular control

4. Rehabilitation Principles

- a. Be aware of compromised and/or repaired tissue including
 - i. Size of tear. Small (<1cm), Medium (1-3cm), Large (3-5cm), Massive (>5cm, involving multiple rotator cuff muscles)
 - ii. Tissue quality-may be inferred from physician's therapy script
 - iii. Anchor stability
- b. Healing tissue should never be overstressed but appropriate levels of stress are beneficial
 - i. Inflammatory phase days 1-3
 - ii. Tissue repair with proliferation phase days 3-20
 - iii. Scar tissue most responsive to remodeling 21-60 days but occurs from 1 to 8 weeks
 - iv. Final maturation taking as long as 360 day
- c. Tissue reactivity of the shoulder and tissue healing will dictate the rehabilitation process. Reactivity is determined by the clinical exam
 - i. Level I Reactivity
 - 1. Resting pain, pain before end range.
 - 2. Aggressive stretching is contraindicated.
 - 3. Grade I-II mobilization for neurophysiological effect
 - ii. Level II Reactivity



-
1. Pain onset occurs with end range resistance
 2. Grade III and IV mobilization appropriate per patient tolerance
 - iii. Level III Reactivity
 1. Engagement of capsular end feels with little or no pain.
 2. Pain occurs after resistance.
 3. Grade III and IV mobilization and sustained stretching is appropriate
 - d. Eliminate inflammation as the cause of pain and neuromuscular inhibition
 - e. Ensure return of appropriate joint arthrokinematics and scapulohumeral rhythm.
 - f. Apply techniques in loose packed unidirectional and progress to close packed and multidirectional based on tissue healing and patient response
 - g. Facilitate performance of complex skills with proprioceptive and kinesthetic techniques: Low to high, sagittal to frontal, bilateral to unilateral, stable to unstable, slow to fast, fixed to unfixed surface
 - h. Encourage life-long activity modification to reduce risk factors associated with re-injury. Work within the "safe zone" for upper extremity activity.
 - i. Factors that affect the rehab process
 - i. Surgical approach
 - ii. Tissue quality
 - iii. Presence of concomitant pathology
 - iv. Age of patient
 - v. Comorbidities
 - vi. Pre and intra-operative range of motion
 - vii. Pain and sensitivity levels
 - viii. Cognitive abilities
 - j. Re-establish voluntary and pain free control of the rotator cuff to prevent rotator cuff shutdown and decrease humeral head migration with AROM. Exercising through the shrug sign may damage the repair. Progress through the following:
 - i. Isometrics
 - ii. Active assisted elevation with eccentric lowering and isometric holds
 - iii. Isotonics <90 degrees ("downstairs" or gravity eliminated)
 - iv. Isotonics >90 degrees ("upstairs")
 - v. Rhythmic stabilization
 1. Flexion (prone and supine)
 2. Internal/External rotation
 - k. Maintain scapular stabilization and mobility; proximal stability for distal mobility
 - l. Passive Motion Restoration Time Frames
 - i. Small 5-6 weeks
 - ii. Medium 8-12 weeks
 - iii. Large 10-14 weeks
 - iv. Massive 12-16 weeks
 - m. 2-2-2 and 3-3-3 protocol description
 - i. Describes passive ROM, active assisted ROM, active ROM phase time frames weeks
 5. Post op functional guidelines
 - a. Dependent on functional range, strength, and neuromuscular control
 - b. Drive
-



- i. Refer patient to physician
 - ii. Refer patient to drug precautions
 - iii. Refer patient to auto insurance coverage
 - iv. No research to support recommendations for return to driving
 - c. Work
 - i. Sedentary no earlier than 6 to 8 weeks
 - ii. Medium to high physical demand level no earlier than 12 weeks
 - iii. May depend on physician preference
 - iv. Dependent on functional demands of the job
 - d. Sport
 - i. Golf no earlier than 12 weeks encouraging backward golfing, beginning putting in 6 weeks, return to full swing/driving at 12 weeks
 - ii. Swimming with a kick board no earlier than 7 weeks as flexion range allows, return to freestyle stroke no earlier than 14 weeks
 - iii. Weight lifting no earlier than 12 to 14 weeks reinforcing safe zone principles such as caution with hyper abduction/extension with bench press lowered below the plane of the body until strength and control dictate otherwise
 - iv. Throwing
 - 1. Initiate interval throwing program no earlier than 16 weeks
 - 2. Throwing from the mound no earlier than 20 weeks
 - 3. Throwing from the mound, full velocity no earlier 24 weeks
 - v. Contact sports
 - 1. No earlier than 24 weeks
- 6. Post op equipment guidelines
 - a. Sling with abduction pillow at all times when not bathing or performing exercises
 - i. Begin weaning out of sling at 4-6 weeks per MD orders
 - b. Polar Care as needed for pain and inflammation
- 7. Rehabilitation for large/massive (3-3-3)
 - a. Week 1-3: Protective PROM Phase**
 - i. Precautions/Limits
 - 1. No AROM
 - 2. No upper extremity lifting
 - 3. No functional IR stretching reaching behind the back
 - 4. Precaution with passive IR stretching
 - ii. Clinical Expectations by end of week 3
 - 1. Flexion to 100°
 - 2. External rotation to 20°
 - iii. Treatment
 - 1. PROM for shoulder elevation such as pulleys, pendulum, or manual passive range
 - 2. Grade I – II mobilizations and modalities
 - 3. Isometric scapular setting and scapular AROM such as scapular clocks, shoulder shrugs, or shoulder squeezes
 - 4. Initiate elbow, hand, and finger AROM and PREs for total arm strength
 - b. Week 4-6: AAROM Phase**
 - i. Precautions/Limits:
 - 1. No AROM



- 2. No upper extremity lifting
 - 3. No functional IR stretching behind the back
- ii. Clinical Expectations by end of week 6
 - 1. Flexion to 120°
 - 2. External rotation to 30°
- iii. Treatment
 - 1. PROM for shoulder elevation such as pulleys, pendulum, or manual passive range
 - 2. Grade I – II mobilizations and modalities
 - 3. AAROM for shoulder elevation such as pulleys, wand, wall walks, or manual assisted range
 - 4. Isometric scapular setting and scapular AROM such as scapular clocks, shoulder shrugs, or shoulder squeezes
 - 5. Sub-maximum pain free isometric contraction of the rotator cuff with gradual increase in force production
 - 6. Initiate elbow, hand, and finger AROM and PREs for total arm strength

c. Week 7-9: AROM Phase

- i. Precautions/Limits
 - 1. No AROM into flexion or abduction
 - 2. No lifting
- ii. Clinical Expectations by end of week 9
 - 1. Flexion and scaption to 150°
 - 2. Abduction to 120°
 - 3. External rotation to 60° at 0° abduction and 45° at 45° abduction
 - 4. Achieve AROM to 90° of scaption
 - 5. Achieve upper trap level for functional ER
 - 6. Achieve iliac crest level for functional IR
 - 7. Achieve 4-/5 strength for ER at 0° abduction
- iii. Treatment
 - 1. Progress to grade III-IV mobilization if not meeting passive range of motion expectations
 - 2. Initiate gravity reduced AROM
 - 3. AROM progressed from AAROM
 - 4. Passive posterior shoulder and IR stretching
 - 5. Initiate internal/external rotation with resistance with respect to tissue reactivity and within ROM limitations
 - 6. Gravity reduced rhythmic stabilization at 90° of flexion in scapular protraction beginning gradually with light resistance and progressing from proximal to distal.
 - 7. Functional IR stretch with scapular stabilization such as reaching behind the back at week 6
 - 8. Initiate partial weight bearing exercises such as wall push up at week 9
 - 9. Initiate 2 handed plyometrics at week 9

d. Week 10-14: Strengthening Phase

- i. Precautions/limits
 - 1. Progress symptomatically



-
- 2. No lifting >5 lbs into abductions
 - ii. Clinical Expectations by end of week 14
 - 1. Flexion and scaption to 160°
 - 2. External rotation to 90° at 90° abduction
 - 3. Achieve 150° of active elevation without shrug sign
 - 4. Achieve C7 level for functional ER
 - 5. Achieve L5 level for functional IR
 - 6. 4/5 strength for ER at 0° abduction
 - iii. Treatment
 - 1. Grade III-IV joint mobs if indicated
 - 2. Progress resistance and reps with isotonics throughout phase concentrating on eccentric limb control
 - 3. Advance proprioception per rehabilitation principles
 - 4. Advance weight bearing exercises per rehabilitation principles
 - 5. Initiate 1 handed plyometrics at week 8
 - 6. Initiate overhead plyometrics at week 10
- e. Week 14+: Functional Training**
- i. Precautions/Limits
 - 1. Progress symptomatically
 - ii. Clinical expectations by the end of week 16
 - 1. Achieve symmetrical AROM for elevation without shrug sign.
 - 2. Achieve symmetrical functional ER and IR.
 - 3. Achieve 4+/5 strength for ER at 0° abduction
 - 4. Achieve 4/5 strength for ER at 90 abduction
 - 5. Achieve symmetrical strength at 90° abduction
 - iii. Treatment
 - 1. Initiate sports specific training
 - 2. Progress isotonics/isokinetics/rhythmic stabilization
 - 3. Continue PNF and plyometrics in open and closed kinetic chain
 - 4. Continue to progress rotator cuff and scapular strengthening and proprioception encouraging working shoulder safe zone principles
 - 5. Return non-overhead athletes back to sports as tolerated per post op functional guidelines