

Altru Advanced Orthopedics

Large to Massive Arthroscopic Rotator Cuff Repair Protocol

The intent of this protocol is to provide the therapist with a guideline for the post-op rehab of a patient who has had an arthroscopic RTC repair for a large to massive tear (3cm to >5cm). It is not intended to be a substitute for appropriate clinical decision making regarding the progression of a patient's rehab. The actual therapy plan of care must be based on the mechanism of injury, surgical approach, physical exam and findings, individual progress, any post-op complications, and/or co-morbidities. If a therapist needs assistance or has questions regarding the progression of a patient post surgically they should consult the referring surgeon.

- If **subscapularis repair**: limit ER to neutral for 4 weeks then to patient tolerance until 6 weeks, gentle stretching for ER at 6 weeks, limit extension to neutral for 6 weeks, no isolated resistance to IR for 12 weeks.
- If associated **subscapularis repair with supraspinatus or infraspinatus repair** follow ER restrictions and other subscapularis restrictions in combination with this protocol
 - If there was >30% subscapularis involvement/complete subscapularis repair (2 anchors) in RTC repair then delay ER ROM past neutral (0°) until 6 weeks post-op. After 6 weeks begin ER to 30°
 - If there was <30% subscapularis involvement/partial (superior) subscapularis repair (1 anchor) in RTC repair then allow ER to 30° immediately post-op until 6 weeks post-op. After 6 weeks, ER past 30° to tolerance.
- If associated **biceps tenodesis with supraspinatus or infraspinatus repair**, follow biceps tenodesis restrictions in combination with this protocol
 - No active elbow flexion for 6 weeks
 - Delay strengthening until 12 weeks to avoid biceps activity
- If an **open repair**: no active flexion for 6-8 weeks, limit extension and ER ROM to neutral for 6 weeks, no resistance to IR for 6-8 weeks d/t deltoid detachment and reattachment.

General Considerations:

- When progressing through protocol consider:
 - Quality of tissue and integrity of the repair (stronger tissue if <50 years old)
 - Acute vs chronic tears (traumatic vs degenerative tears)
 - Tear size (large/massive tear or >1 tendon repair may not achieve full ROM, use caution with AROM and strengthening with chronic/large tears)
 - First vs revision surgery
 - Pain (should decrease over time)
 - Focus on ROM before strength
- Tissue Healing: soft tissue-to-bone healing is a slow and gradual process that requires at least 12 weeks of healing to allow adequate pull-out strength of repair (Ghodadra et al, JOSPT, 2009).

PHASE I: Weeks 0-4

Goals:

- Maintain integrity of the repair
- Decrease pain and inflammation
- Gradually increase PROM
- Educate patient regarding posture, joint protection, positioning, hygiene, incision care, etc.

Precautions:

- Avoid active muscle contraction for **6 weeks**, no lifting, carrying, pushing, pulling, driving
- No active shoulder flexion, extension, abduction, IR/ER
- No aggressive stretching or sudden movements
- Watch for signs of infection, pressure from sling

Immobilization:

- Sling with pillow for a minimum of 6 weeks, except for exercises and hygiene

Therapeutic Exercise:

1. Gentle PROM
 - Supine flexion within tolerance
 - Supine scaption/abduction within tolerance
 - Supine IR/ER to tolerance with arm at side
2. AROM
 - Elbow, wrist, hand
 - Avoid elbow flex and ball/putty squeeze if biceps repair or tenodesis
 - Cervical and thoracic spine if needed
3. Pendulum exercises
4. Scapular Stabilization with sling on
 - Elevation/depression
 - Retraction/protraction
 - Posture/scapular positioning

Modalities:

- Cryotherapy/ice for pain and inflammation
 - 15-20 minutes every 2 hours for first week
- IFC/TENS for pain relief prn

PHASE II: Weeks 5-8

Goals:

- Gradually increase full PROM by 6-8 weeks
- Gradually perform AAROM progressing to AROM to restore motion without compensation
- Decrease pain and inflammation
- Reestablish dynamic shoulder stability

Precautions:

- Avoid active muscle contraction for **6 weeks**, no lifting, carrying, pushing, pulling, driving
- Watch for signs of infection, pressure from sling
- Avoid stress to anterior RTC (behind the back movements)
- Emphasize PROM before AROM
- Avoid impingement with exercises

Immobilization:

- Sling with pillow for a minimum of 6 weeks, except for exercises and hygiene
- Need surgeon approval to discontinue

Therapeutic Exercise:

1. PROM
 - Continue with previous exercises as needed
 - Supine ER and IR to 45°, in neutral plane to 45-90° of abduction plane
 - Supine flexion to 150°
 - Abduction to 45-90°
2. AAROM
 - Pulleys flexion only, advance as tolerated
 - Supine ER 45-60°, in scapular plane
 - Supine flexion 90-120° with cane
3. At 6 weeks initiate submax pain-free isometrics in neutral position with towel roll
 - Flexion, extension, abduction/adduction all with elbow bent
 - IR and ER in scapular plane
 - Elbow flex
4. Scapular isometrics
5. At 6 weeks initiate rhythmic stabilization: neutral shoulder position
6. At 6 weeks initiate closed kinetic chain exercises
 - Advance difficulty as control is restored
 - Progress gradually

Manual Therapy:

- Scar/soft tissue mobilization prn
- Inferior and posterior glenohumeral joint and capsular mobs prn

Modalities:

- Cryotherapy/ice for pain and inflammation
- E-stim prn

PHASE III: Weeks 9-16

Goals:

- Gradually restore full AROM by 10-12 weeks

- Maintain full PROM
- Gradually increase strength and proprioception
- Initiate light functional activities/ADLs and proprioception activities below shoulder height

Precautions:

- No sudden movements with affected arm
- Avoid stress to anterior RTC (behind the back movements)
- Emphasize PROM before AROM
- Avoid impingement with exercises

Therapeutic Exercise:

1. Continue with Phase II exercises
2. PROM
 - IR stretch (posterior capsule sleeper stretch)
 - ER in 90° abduction
3. AAROM
 - Full supine flexion advancing to standing in pain-free range
 - Supine ER 75°, in 90° abduction plane
4. AROM
 - IR/ER supported in neutral plane, no resistance
5. Initiate light isotonic strengthening at week 12-16 depending on pt's progress and repair

Pt must be able to elevate arm without compensation prior to initiating isotonics.

- Theraband or tubing exercises
 - Resisted extension, IR (use towel roll) and Adduction
 - Initiate ER (use towel roll) gradually
 - Prone
 - Row to neutral arm position
 - Horizontal abduction
 - Extension with elbow flexed to 90°
 - Elbow flexion and extension
6. Rhythmic stabilization in 90° flexion
 7. Closed kinetic chain exercises
 - Advance difficulty as control is restored
 - Increase elevation

Manual Therapy:

- Scar/soft tissue mobilization prn
- Inferior and posterior capsule stretch/mobs prn

Modalities:

- Cryotherapy/ice for pain and inflammation prn
- E-stim prn

PHASE IV: Weeks 17-24

Goals:

- Full pain-free AROM
- Maintain integrity of the repair
- Improve scapulohumeral rhythm, muscle strength and power
- Enhance functional use of UE

Precautions:

- No sudden movements with affected arm
- Avoid stress to anterior RTC (IR with/without extension)
- Avoid impingement with exercises

Therapeutic Exercise:

1. Continue Phase III exercises
2. ROM and stretching
 - self-capsule stretches
 - Posterior capsule sleeper stretch
3. AROM
 - Side lying ER and abduction- Progress into light resistance
 - Standing shoulder flexion in pain-free ROM with good scapular mechanics
 - Flexion in standing to 90°
 - Scaption with ER to 90°
 - Lateral raise to 90°
 - Abduction to 90°
4. Rhythmic stabilization progressing 90° to 125° flexion, and ER/IR at multiple angles
5. Closed kinetic chain exercises with increased difficulty
 - Scapular clock 30° advancing to 45° of shoulder scaption
 - Depression, elevation, protraction, retraction
 - Wall push-ups in pain free ROM in the forward flexed or scaption position

Manual Therapy:

- Scar/soft tissue mobilization prn
- Glenohumeral mobs prn

Modalities:

- Cryotherapy/ice for pain and inflammation prn
- E-stim prn

PHASE V: Weeks 25+

Goals:

- Full pain-free AROM
- Improve scapulohumeral rhythm, muscle strength, power, and proprioception

- 80% strength of uninvolved U/E for shoulder testing with Dynamometer
- Gradually return to all functional activities/ADLs and work/sport activities
- Weeks 24-34 gradual return to strenuous work activities and recreational sports activities

Precautions:

- Avoid pain during or after activities or exercises, this indicates too much load or stress on the arm
- Resisted abduction beyond 70° should be avoided until IR/ER is 25% or less deficit compared to uninvolved side

Therapeutic Exercise:

1. Continue phase 4 exercises
2. Continue ROM and stretching to maintain full ROM
3. Progress strengthening exercises
 - Flexion to 90°
 - Scaption with ER through available range
 - Abduction to 90°
4. Wall washes in PNF patterns
5. Theraball UE weight bearing activity
6. Balance board exercises in standing progressing to push up position
7. Humeral head stabilization exercises
 - Serratus anterior and infraspinatus training
8. Inertia Training
 - Flexion and extension to 45°
 - Light IR/ER with arm adducted to side with resistance of TheraBand
9. Progress proprioception- closed chain exercises
 - Wall dribble, ball toss
 - Plyometric training
 - Progressing from double arm short-lever arm below 90° to single-arm long-lever arm above 90° and should mimic a functional activity
10. Initiate conditioning program- sport/work-specific strengthening activities
11. Can return to swimming
 - Elbow on kick board at 4 months
 - Breast stroke at 5 months
 - Crawl stroke at 6 months
12. Initiate golf at 6 months
13. Initiate tennis/racquetball at 6-8 months
14. Progress to moderate functional activities

Criteria for D/C from therapy:

- **Pain-free AROM and strength, sufficient to meet daily needs**
- **Independent home exercise program to be done at least 4 times per week for 12 months (Including stretching and strengthening)**

- **Return to all functional activities, ADLs, and work activities without pain**
- **Functional progression to throwing program for throwing athletes**