

Rehabilitation Protocol for Rotator Cuff Repair-Large Sized Tears (>5 Cm)

This rehabilitation program is designed to return the individual to their activities as quickly and safely as possible. It is designed for rehabilitation following large to massive rotator cuff repairs. Modifications to this guideline may be necessary dependent on physician specific instruction, size and location of tear, tendons involved, acute vs. chronic condition, length of time immobilized, age, first versus revision, pre morbid function, tissue quality, fatty infiltration and atrophy, smoking, hypercholesterolemia and diabetes.

This evidence-based large to massive rotator cuff repair physical therapy guideline is criterion-based; time frames and visits in each phase will vary depending on many factors- including patient demographics, goals, and individual progress.

This guideline is designed to progress the individual through rehabilitation to full sport/ activity participation. The therapist may modify the program appropriately depending on the individual's goals for activity and discussion with Dr. Carr.

This guideline is intended to provide the treating clinician a frame of reference for rehabilitation. It is not intended to substitute clinical judgment regarding the patient's post-operative care based on exam/treatment findings, individual progress, and/or the presence of concomitant procedures or post-operative complications. If the clinician should have questions regarding post-operative progression, they should contact Dr. Carr.

General Guidelines/ Precautions:

- Immediate post-operative precautions expected
- No movements beyond neutral extension
- 1. Keep pillow or towel roll under the arm when lying on back
- 2. Patient should always be able to see his/her elbow
- No reaching behind back
- No lifting, pulling or pushing of objects with the involved upper extremity
- No pushing off with involved upper extremity during transfers
- No active range of motion
- No aggressive, painful passive range of motion or stretching that promotes muscle over-activity or spasm.
- Bracing generally for 6-8 weeks per physician approval
- Protected PROM considered during the first 6-8 weeks
- AROM initiated at 8 weeks within the range that shows good mechanics and no pain (weight of arm only).
- Strengthening initiated at week 12
- Return to sport (generally 6-9 months)
- Physician approval
- Full ROM
- Strength within 10% of contra lateral side.
- Shows confidence with sport specific training with pain 0-2 on NPRS.
- Independent strength program recommended for at least one year post surgery
- Anatomic failure is associated with increasing age, poor tissue quality, fatty infiltration, atrophy, smoking, hypercholesterolemia and diabetes.
- Anatomic failure tends to occur in the first 3-6 months.

This protocol is intended to guide clinicians and patients through the post-operative course of a rotator cuff repair. Specific interventions should be based on the needs of the individual and should consider exam findings and clinical decision making. If you have questions, contact Dr. Carr.

Considerations for the Post-operative Rotator Cuff Repair Rehabilitation Program

Many different factors influence the post-operative rotator cuff repair rehabilitation outcome, including rotator cuff tear size, type of repair, tissue quality, number of tendons involved, and individual patient factors like age and co-morbidities including increased BMI and diabetes. Consider taking a more conservative approach for more complex tears, including large/massive tears (>3 cm) and >1 tendon involvement.

Post-operative Complications

If you develop a fever, unresolving numbness/tingling, excessive drainage from the incision, uncontrolled pain or any other symptoms you have concerns about you should contact the referring physician.

PHASE I: IMMEDIATE POST-OP (0-3 WEEKS AFTER SURGERY)

Rehabilitation Goals

- Protect surgical repair
- Reduce swelling, minimize pain
- Maintain UE ROM in elbow, hand and wrist
- Gradually increase shoulder PROM
- Minimize muscle inhibition
- Patient education

Sling

- Neutral rotation
- Use of abduction pillow in 30-45 degrees abduction
- Use at night while sleeping

Precautions

- No shoulder AROM/AAROM
- No lifting of objects
- No supporting of body weight with hands
- Avoid scapular retraction with a teres minor repair

Intervention Swelling Management

- Ice, compression

Range of motion/Mobility

- PROM: ER<20 scapular plane, Forward elevation <90, seated GH flexion table slide, horizontal table slide
- AROM: elbow, hand, wrist (PROM elbow flexion with concomitant biceps tenodesis/tenotomy)
- AAROM: none

Strengthening (Week 2)

- Periscapular: scap retraction*, prone scapular retraction*, standing scapular setting, supported

scapular setting, inferior glide, low row

*avoid with subscapularis repair and teres minor repair

- Ball squeeze

Criteria to Progress

- 90 degrees shoulder PROM forward elevation
- 20 degrees of shoulder PROM ER in the scapular plane
- 0 degrees of shoulder PROM IR in the scapular plane
- Palpable muscle contraction felt in scapular and shoulder musculature
- No complications with Phase I

PHASE II: INTERMEDIATE POST-OP (4-6 WEEKS AFTER SURGERY)

Rehabilitation Goals

- Continue to protect surgical repair
- Reduce swelling, minimize pain
- Maintain shoulder PROM
- Minimize substitution patterns with AAROM
- Patient education

Sling

- Neutral rotation
- Use of abduction pillow in 30-45 degrees abduction
- Use at night while sleeping

Precautions

- No lifting of objects
- No supporting of body weight with hands

Intervention

*Continue with Phase I Interventions

Range of motion/Mobility

- PROM: ER<20 scapular plane, Forward elevation <90
- AAROM: Active assistive shoulder flexion, shoulder flexion with cane, cane external rotation stretch, washcloth press, sidelying elevation to 90 degrees

Strengthening

- Periscapular: Row on physioball, shoulder extension on physioball

Criteria to Progress

- 90 degrees shoulder PROM forward elevation
- 20 degrees shoulder PROM ER in scapular plane
- 0 degrees of shoulder PROM IR in the scapular plane
- Minimal substitution patterns with AAROM
- Pain < 4/10
- No complications with Phase II

PHASE III: INTERMEDIATE POST-OP CONTD (7-8 WEEKS AFTER SURGERY)

Rehabilitation Goals

- Do not overstress healing tissue
- Reduce swelling, minimize pain
- Gradually increase shoulder PROM/AAROM
- Initiate shoulder AROM
- Improve scapular muscle activation
- Patient education

Sling • Discontinue

Precautions • No lifting of heavy objects (>10 lbs)

Intervention

*Continue with Phase I-II Interventions

Range of motion/Mobility

- PROM: ER<30 scapular plane, Forward elevation <120
- AAROM: seated shoulder elevation with cane, seated incline table slides, ball roll on wall
- AROM: elevation < 120, supine flexion, salutes, supine punch, wall climbs

Strengthening

- Periscapular**: Resistance band shoulder extension, resistance band seated rows, rowing, lawn mowers, robbery, serratus punches
- **Initiate scapular retraction/depression/protraction with subscapularis and teres minor repair
- Elbow: Biceps curl, resistance band bicep curls and triceps

Criteria to Progress

- 120 degrees shoulder PROM forward elevation
- 30 degrees shoulder PROM ER and IR in scapular plane
- Minimal substitution patterns with AROM
- Pain < 4/10

PHASE IV: TRANSITIONAL POST-OP (9-10 WEEKS AFTER SURGERY)

Rehabilitation Goals

- Do not overstress healing tissue
- Gradually increase shoulder PROM/AAROM/AROM
- Improve dynamic shoulder stability
- Progress periscapular strength
- Gradually return to full functional activities

Precautions • No lifting of heavy objects (> 10 lbs)

Intervention

*Continue with Phase II-III Interventions

Range of motion/mobility

- PROM: ER<45 scapular plane, Forward elevation <155, ER @ 90 ABD < 60
- AROM: supine forward elevation with elastic resistance to 90 deg, scaption and shoulder flexion to 90 degrees elevation

Strengthening

- Periscapular: Push-up plus on knees, prone shoulder extension Is, resistance band forward punch,

forward punch, tripod, pointer

Criteria to Progress

- 155 degrees shoulder PROM forward elevation
- 45 degrees shoulder PROM ER and IR in scapular plane
- 60 degrees shoulder PROM ER @ 90 ABD
- 120 degrees shoulder AROM elevation
- Minimal to no substitution patterns with shoulder AROM
- Performs all exercises demonstrating symmetric scapular mechanics
- Pain < 2/10

PHASE V: TRANSITIONAL POST-OP CONTD (11-12 WEEKS AFTER SURGERY)

Rehabilitation Goals

- Restore full PROM and AROM
- Enhance functional use of upper extremity

Intervention

*Continue with Phase II-IV Interventions

Range of motion/mobility

- PROM: Full
- AROM: Full

Stretching

- External rotation (90 degrees abduction), Hands behind head, IR behind back with towel, sidelying horizontal ADD, sleeper stretch, triceps and lats, doorjam series

Criteria to Progress

- Full pain-free PROM and AROM
- Minimal to no substitution patterns with shoulder AROM
- Performs all exercises demonstrating symmetric scapular mechanics
- Pain < 2/10

PHASE V: TRANSITIONAL POST-OP CONTD (11-12 WEEKS AFTER SURGERY)

Rehabilitation Goals

- Restore full PROM and AROM
- Enhance functional use of upper extremity

Intervention

*Continue with Phase II-IV Interventions

Range of motion/mobility

- PROM: Full
- AROM: Full

Stretching

- External rotation (90 degrees abduction), Hands behind head, IR behind back with towel, sidelying horizontal ADD, sleeper stretch, triceps and lats, doorjam series

Criteria to Progress

- Full pain-free PROM and AROM
- Minimal to no substitution patterns with shoulder AROM
- Performs all exercises demonstrating symmetric scapular mechanics

- Pain < 2/10

PHASE VI: STRENGTHENING POST-OP (13-16 WEEKS AFTER SURGERY)

Rehabilitation Goals

- Maintain pain-free ROM
- Initiate RTC strengthening (with clearance from MD)
- Initiate motor control exercise
- Enhance functional use of upper extremity

Intervention

*Continue with Phase II-V Interventions

Strengthening

- Rotator cuff: internal external rotation isometrics, side-lying external rotation, Standing external rotation w/ resistance band, standing internal rotation w/ resistance band, internal rotation, external rotation, sidelying ABD→standing ABD
- Periscapular: T and Y, “T” exercise, push-up plus knees extended, wall push up, “W” exercise, resistance band Ws, dynamic hug, resistance band dynamic hug
- Biceps curl (begin with concomitant biceps tenodesis/tenotomy)

Motor Control

- Internal and external rotation in scaption and Flex 90-125 (rhythmic stabilization)
- IR/ER and Flex 90-125 (rhythmic stabilization)
- Quadruped alternating isometrics and ball stabilization on wall
- PNF – D1 diagonal lifts, PNF – D2 diagonal lifts
- Field goals

Criteria to Progress

- Clearance from MD and ALL milestone criteria below have been met
- Full pain-free PROM and AROM
- ER/IR strength minimum 85% of the uninvolved arm
- ER/IR ratio 60% or higher
- Negative impingement and instability signs
- Performs all exercises demonstrating symmetric scapular mechanics
- QuickDASH/PENN

PHASE VII: EARLY RETURN-TO-SPORT (4-6 MONTHS AFTER SURGERY)

Rehabilitation Goals

- Maintain pain-free ROM
- Continue strengthening and motor control exercises
- Enhance functional use of upper extremity
- Gradual return to strenuous work/sport activity

Intervention

*Continue with Phase II-VI Interventions

Strengthening

- Rotator cuff: External rotation at 90 degrees, internal rotation at 90 degrees, resistance band standing external rotation at 90 degrees, resistance band standing internal rotation at 90 degrees

Motor control

- Resistance band PNF pattern, PNF – D1 diagonal lifts w/ resistance, diagonal-up, diagonal-down
Wall slides w/ resistance band
- See specific return-to-sport/throwing program (coordinate with physician)

Criteria to Progress

- Last stage-no additional criteria

Return-to-Sport • For the recreational or competitive athlete, return-to-sport decision making should be individualized and based upon factors including level of demand on the upper extremity, contact vs non-contact sport, frequency of participation, etc. We encourage close discussion with the referring surgeon prior to advancing to a return-to-sport rehabilitation program.

References

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