

Rehabilitation Protocol for Rotator Cuff Repair-*Small to Medium Sized Tears*

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 the referring physician.

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)

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| Rehabilitation Goals | <ul style="list-style-type: none"> • 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 | <ul style="list-style-type: none"> • Neutral rotation • Use of abduction pillow in 30-45 degrees abduction • Use at night while sleeping |
| Precautions | <ul style="list-style-type: none"> • No shoulder AROM/AAROM • No lifting of objects • No supporting of body weight with hands • Avoid scapular retraction with a teres minor repair |
| Intervention | <p><i>Swelling Management</i></p> <ul style="list-style-type: none"> • Ice, compression <p><i>Range of motion/Mobility</i></p> <ul style="list-style-type: none"> • 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 <p><i>Strengthening (Week 2)</i></p> <ul style="list-style-type: none"> • Periscapular: scap retraction*, prone scapular retraction*, standing scapular setting, supported scapular setting, inferior glide, low row <ul style="list-style-type: none"> ○ *avoid with subscapularis repair and teres minor repair • Ball squeeze |
| Criteria to Progress | <ul style="list-style-type: none"> • 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)

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| Rehabilitation Goals | <ul style="list-style-type: none"> Continue to protect surgical repair Reduce swelling, minimize pain Maintain shoulder PROM Minimize substitution patterns with AAROM Patient education |
| Sling | <ul style="list-style-type: none"> Neutral rotation Use of abduction pillow in 30-45 degrees abduction Use at night while sleeping |
| Precautions | <ul style="list-style-type: none"> No lifting of objects No supporting of body weight with hands |
| Intervention <i>*Continue with Phase I interventions</i> | <p><i>Range of motion/Mobility</i></p> <ul style="list-style-type: none"> 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 <p><i>Strengthening</i></p> <ul style="list-style-type: none"> Periscapular: Row on physioball, shoulder extension on physioball |
| Criteria to Progress | <ul style="list-style-type: none"> 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)

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| Rehabilitation Goals | <ul style="list-style-type: none"> Do not overstress healing tissue Reduce swelling, minimize pain Gradually increase shoulder PROM/AAROM Initiate shoulder AROM Improve scapular muscle activation Patient education |
| Sling | <ul style="list-style-type: none"> Discontinue |
| Precautions | <ul style="list-style-type: none"> No lifting of heavy objects (>10 lbs) |
| Intervention <i>*Continue with Phase I-II interventions</i> | <p><i>Range of motion/Mobility</i></p> <ul style="list-style-type: none"> 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 <p><i>Strengthening</i></p> <ul style="list-style-type: none"> 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 | <ul style="list-style-type: none"> 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)

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| Rehabilitation Goals | <ul style="list-style-type: none"> 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 | <ul style="list-style-type: none"> No lifting of heavy objects (> 10 lbs) |

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| Intervention <i>*Continue with Phase II-III interventions</i> | <i>Range of motion/mobility</i> <ul style="list-style-type: none"> 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 <i>Strengthening</i> <ul style="list-style-type: none"> Periscapular: Push-up plus on knees, prone shoulder extension Is, resistance band forward punch, forward punch, tripod, pointer |
| Criteria to Progress | <ul style="list-style-type: none"> 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)

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| Rehabilitation Goals | <ul style="list-style-type: none"> Restore full PROM and AROM Enhance functional use of upper extremity |
| Intervention <i>*Continue with Phase II-IV interventions</i> | <i>Range of motion/mobility</i> <ul style="list-style-type: none"> PROM: Full AROM: Full <i>Stretching</i> <ul style="list-style-type: none"> 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 | <ul style="list-style-type: none"> 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)

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| Rehabilitation Goals | <ul style="list-style-type: none"> Maintain pain-free ROM Initiate RTC strengthening (with clearance from MD) Initiate motor control exercise Enhance functional use of upper extremity |
| Intervention <i>*Continue with Phase II-V interventions</i> | <i>Strengthening</i> <ul style="list-style-type: none"> 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) <i>Motor Control</i> <ul style="list-style-type: none"> 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 | <ul style="list-style-type: none"> 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)

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| Rehabilitation Goals | <ul style="list-style-type: none"> • 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 | <p><i>Strengthening</i></p> <ul style="list-style-type: none"> • 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 <p><i>Motor control</i></p> <ul style="list-style-type: none"> • 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 | <ul style="list-style-type: none"> • Last stage-no additional criteria |
| Return-to-Sport | <ul style="list-style-type: none"> • 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. |

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| Contact | Please email MGHSportsPhysicalTherapy@partners.org with questions specific to this protocol |
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References

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Quick DASH

Please rate your ability to do the following activities in the last week by circling the number below the appropriate response.

| | <i>NO DIFFICULTY</i> | <i>MILD DIFFICULTY</i> | <i>MODERATE DIFFICULTY</i> | <i>SEVERE DIFFICULTY</i> | <i>UNABLE</i> |
|---|--------------------------|----------------------------|--------------------------------|------------------------------|---------------|
| 1. Open a tight or new jar | 1 | 2 | 3 | 4 | 5 |
| 2. Do heavy household jobs (e.g. wash windows, clean floors) | 1 | 2 | 3 | 4 | 5 |
| 3. Carry a shopping bag or briefcase | 1 | 2 | 3 | 4 | 5 |
| 4. Wash your back | 1 | 2 | 3 | 4 | 5 |
| 5. Use a knife to cut food | 1 | 2 | 3 | 4 | 5 |
| 6. Recreational activities which require you to take some force or impact through your arm, shoulder or hand (e.g. golf, hammering, tennis etc) | 1 | 2 | 3 | 4 | 5 |

| | <i>NOT AT ALL</i> | <i>SLIGHTLY</i> | <i>MODERATELY</i> | <i>QUITE A BIT</i> | <i>EXTREMELY</i> |
|---|-------------------|-----------------|-------------------|--------------------|------------------|
| 7. During the past week, <i>to what extent</i> has your arm, shoulder or hand problem interfered with your normal social activities with family, friends, neighbours or groups? <i>(circle number)</i> | 1 | 2 | 3 | 4 | 5 |

| | <i>NOT LIMITED AT ALL</i> | <i>SLIGHTLY LIMITED</i> | <i>MODERATELY LIMITED</i> | <i>VERY LIMITED</i> | <i>UNABLE</i> |
|--|-------------------------------|-----------------------------|-------------------------------|---------------------|---------------|
| 8. During the past week, were you limited in your work or other regular daily activities as a result of your arm, shoulder or hand problem? <i>(circle number)</i> | 1 | 2 | 3 | 4 | 5 |

| Please rate the severity of the following symptoms in the last week <i>(circle number)</i> | <i>NONE</i> | <i>MILD</i> | <i>MODERATE</i> | <i>SEVERE</i> | <i>EXTREME</i> |
|---|-------------|-------------|-----------------|---------------|----------------|
| 9. Arm, shoulder or hand pain | 1 | 2 | 3 | 4 | 5 |
| 10. Tingling (pins and needles) in your arm, shoulder or hand | 1 | 2 | 3 | 4 | 5 |

| | <i>NO DIFFICULTY</i> | <i>MILD DIFFICULTY</i> | <i>MODERATE DIFFICULTY</i> | <i>SEVERE DIFFICULTY</i> | <i>SO MUCH DIFFICULTY THAT I CAN'T SLEEP</i> |
|---|--------------------------|----------------------------|--------------------------------|------------------------------|--|
| 11. During the past week, how much difficulty have you had sleeping because of the pain in your arm, shoulder or hand? <i>(circle number)</i> | 1 | 2 | 3 | 4 | 5 |

QuickDASH DISABILITY/SYMPTOM SCORE = $\frac{[(\text{sum of } n \text{ responses})-1]}{n} \times 25$ (where n is the number of completed responses)

A QuickDASH score may not be calculated if there is greater than 1 missing item.

WORK MODULE (OPTIONAL)

The following questions ask about the impact of your arm, shoulder or hand problem on your ability to work (including home-making if that is your main work role).

Please indicate what your job / work is: _____

I do not work (you may skip this section).

Please circle the number that best describes your physical ability in the past week.

| Did you have any difficulty: | NO DIFFICULTY | MILD DIFFICULTY | MODERATE DIFFICULTY | SEVERE DIFFICULTY | UNABLE |
|---|------------------|--------------------|------------------------|----------------------|--------|
| 1. Doing your work in your usual way? | 1 | 2 | 3 | 4 | 5 |
| 2. Doing your usual work because of arm, shoulder or hand pain? | 1 | 2 | 3 | 4 | 5 |
| 3. Doing your work as well as you would like? | 1 | 2 | 3 | 4 | 5 |
| 4. Spending your usual amount of time doing your work? | 1 | 2 | 3 | 4 | 5 |

SPORTS/PERFORMING ARTS MODULE (OPTIONAL)

The following questions relate to the impact of your arm, shoulder or hand problem on playing *your musical instrument or sport or both*. If you play more than one sport or instrument (or play both), please answer with respect to that activity which is most important to you.

Please indicate the sport or instrument which is most important to you: _____

I do not play a sport or an instrument. (You may skip this section).

Please circle the number that best describes your physical ability in the past week.

| Did you have an difficulty: | NO DIFFICULTY | MILD DIFFICULTY | MODERATE DIFFICULTY | SEVERE DIFFICULTY | UNABLE |
|---|------------------|--------------------|------------------------|----------------------|--------|
| 1. Playing your instrument or sport in your usual way? | 1 | 2 | 3 | 4 | 5 |
| 2. Playing your musical instrument or sport because of arm, shoulder or hand pain? | 1 | 2 | 3 | 4 | 5 |
| 3. Playing your instrument or sport as well as you would like? | 1 | 2 | 3 | 4 | 5 |
| 4. Spending your usual amount of time practising or playing your instrument or sport? | 1 | 2 | 3 | 4 | 5 |

Scoring the optional modules: add up the assigned values for each response; divide by 4 (number of items); subtract 1; multiple by 25.

An optional module score may not be calculated if there are any missing items.

The Penn Shoulder Score, Part 1: Pain and Satisfaction Subscales

| | |
|--|--|
| Please circle the number closest to your level of pain or satisfaction | Office Use Only |
| <p>Pain at rest with your arm by your side:</p> <p style="text-align: center;">0 1 2 3 4 5 6 7 8 9 10</p> <p style="text-align: center;">No pain Worst pain possible</p> | <p>_____</p> <p>(10 – # circled)</p> |
| <p>Pain with normal activities (eating, dressing, bathing):</p> <p style="text-align: center;">0 1 2 3 4 5 6 7 8 9 10</p> <p style="text-align: center;">No pain Worst pain possible</p> | <p>_____</p> <p>(10 – # circled) (Score 0 if not applicable)</p> |
| <p>Pain with strenuous activities (reaching, lifting, pushing, pulling, throwing):</p> <p style="text-align: center;">0 1 2 3 4 5 6 7 8 9 10</p> <p style="text-align: center;">No pain Worst pain possible</p> | <p>_____</p> <p>(10 – # circled) (Score 0 if not applicable)</p> |
| | <p>Pain score: = _____/30</p> |
| <p>How satisfied are you with the current level of function of your shoulder?</p> <p style="text-align: center;">0 1 2 3 4 5 6 7 8 9 10</p> <p style="text-align: center;">Not satisfied Very satisfied</p> | <p>_____ /10</p> <p>(# circled)</p> |

The Penn Shoulder Score: Function Subscale

| Please circle the number that best describes the level of difficulty you might have performing each activity | No difficulty | Some difficulty | Much difficulty | Can't do at all | Did not do <u>before</u> injury |
|--|---------------|-----------------|-----------------|-----------------|---------------------------------|
| 1. Reach the small of your back to tuck in your shirt with your hand | 3 | 2 | 1 | 0 | X |
| 2. Wash the middle of your back/hook bra | 3 | 2 | 1 | 0 | X |
| 3. Perform necessary toileting activities | 3 | 2 | 1 | 0 | X |
| 4. Wash the back of opposite shoulder | 3 | 2 | 1 | 0 | X |
| 5. Comb hair | 3 | 2 | 1 | 0 | X |
| 6. Place hand behind head with elbow held straight out to the side | 3 | 2 | 1 | 0 | X |
| 7. Dress self (including put on coat and pull shirt off overhead | 3 | 2 | 1 | 0 | X |
| 8. Sleep on affected side | 3 | 2 | 1 | 0 | X |
| 9. Open a door with affected arm | 3 | 2 | 1 | 0 | X |
| 10. Carry a bag of groceries with affected arm | 3 | 2 | 1 | 0 | X |
| 11. Carry a briefcase/small suitcase with affected arm | 3 | 2 | 1 | 0 | X |
| 12. Place a soup can (1-2 lb) on a shelf at shoulder level without bending elbow | 3 | 2 | 1 | 0 | X |
| 13. Place a one gallon container (8-10 lb) on a shelf at shoulder level without bending elbow | 3 | 2 | 1 | 0 | X |
| 14. Reach a shelf above your head without bending your elbow | 3 | 2 | 1 | 0 | X |
| 15. Place a soup can (1-2 lb) on a shelf overhead without bending your elbow | 3 | 2 | 1 | 0 | X |
| 16. Place a one gallon container (8-10 lb) on a shelf overhead without bending your elbow | 3 | 2 | 1 | 0 | X |
| 17. Perform usual sport/hobby | 3 | 2 | 1 | 0 | X |
| 18. Perform household chores (cleaning, laundry, cooking) | 3 | 2 | 1 | 0 | X |
| 19. Throw overhand/swim/overhead racquet sports (circle all that apply to you) | 3 | 2 | 1 | 0 | X |
| 20. Work full-time at your regular job | 3 | 2 | 1 | 0 | X |

SCORING

Total of columns = ____ (a)

Number of Xs × 3 = ____ (b), 60 – ____ (b) = ____ (c) (if no Xs are circled, function score = total of columns)

Function Score = ____ (a) ÷ ____ (c) = ____ × 60 ____/60