Rotator Cuff Repair (Small to Medium) Rehabilitation Guideline

This rehabilitation program is designed to return the individual to their activities as quickly and safely as possible. It is designed for rehabilitation following small to medium rotator cuff repairs. Modifications to this guideline may be necessary depending on physician-specific instructions, the size and location of the tear, tendons involved, acute vs. chronic condition, length of immobilization, age, first vs. revision, pre-morbid function, tissue quality, fatty infiltration and atrophy, smoking, hypercholesterolemia and diabetes. This evidence-based small to medium 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 and activity participation. The therapist may modify the program appropriately depending on the individual's goals for activity.

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

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General Guidelines/Precautions:

- Immediate post-operative precautions
  - 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 their 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.

- First 6 weeks: Protected shoulder PROM, shoulder bracing

- At 8 weeks: Initiate AROM within the range that shows good mechanics and no pain (weight of arm only).

- At 12 weeks: Initiate strengthening

- Return to sport (generally 6-8 months)
  - Physician approval
  - Full ROM
  - Strength within 10% of contralateral side.
  - Shows confidence with sport-specific training with pain 0-2 on NPRS.
  - Inclusive strength independent 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.

- Special considerations that are not accounted for in below guideline:
  - Subscapular repair
    1. 0-4 weeks: ER to neutral
    2. 4-6 weeks: gentle passive ER from neutral to patient tolerance
    3. Extension limited to neutral for 6 weeks
    4. 6+ weeks: gentle stretching into ER
    5. No resisted IR for 12 weeks
  - Biceps tenodesis
    1. No isolated biceps contraction for 6 weeks

Rotator Cuff Repair (Small to Medium) Rehabilitation Guideline (6-8 months to expected D/C)

<table>
<tr><th>PHASE</th><th>SUGGESTED INTERVENTIONS</th><th>GOALS/MILESTONES FOR PROGRESSION</th></tr>
<tr><td>Phase I
Patient Education Phase</td><td>Discuss:
Anatomy, existing pathology, post-op rehab schedule, bracing, precautions and expected progressions</td><td>Goals of Phase:
1. Improve ROM and strength to tolerance prior to surgery.
2. Appropriate expectation framework for post-operative rehabilitation.

Criteria to Advance to Next Phase:
1. Progress to Phase II post-operatively</td></tr>
<tr><td>Phase II
Maximum Protection Phase

Weeks 0-4</td><td>Discuss:
Anatomy, existing pathology, post-op rehab schedule, bracing, precautions, posture and expected progressions
Specific Instructions:
• No movements beyond neutral extension
• No reaching behind back
• No lifting, pulling or pushing including during transfers
• No AROM of involved shoulder
• No aggressive, painful PROM or stretching

Suggested Treatments:
Modalities as indicated:
Edema and pain controlling treatments as needed

Range of motion:
• AROM:
– Neck, elbow, wrist and hand
– Scapular retraction/depression to neutral
– Active thoracic extension
• PROM
– Passive pendulum: forward/back, side/side. Less than 7-inch arc
– Passive ER with a stick (start at 2 weeks): Pain-free range
• Manual therapy
– Grade I-II glenohumeral mobs in the plane of the scapula.
– Thoracic PA mobs seated weeks 1-2. Can do prone weeks 2-4 if tolerated</td><td>Goals of Phase:
1. Protect repair
2. Prevent contractures above and below shoulder joint
3. Manage inflammation and pain
4. Gradual improvements in passive range of motion per guidelines

Criteria to Advance to Next Phase:
1. Controlled post-operative pain
2. Therapist-assisted PROM in flexion to 90 degrees
3. PROM of ER in scapular plane: 20 degrees</td></tr>
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Phase III		
Healing/Protective Phase Weeks 4-6	***Specific Instructions:*** • Continue with previous exercise program and precautions • Continue sling use unless resting at home (sling will be discontinued at the conclusion of this phase per physician approval) • Avoid forward head rounded shoulder posture and promote thoracic extension ***Suggested Treatments:*** • PROM – Flexion and scaption to tolerance (self-assisted supine, table top, etc.) – Initiate self-assisted supine and/or table top PROM flexion and scaption to tolerance – Supine passive ER with stick (progress from 30 degrees to 90-90 position) – Gentle, passive, pain-free supine IR in the plane of the scapula • AROM/Strength – Scapular retraction and depression AROM – Elbow, wrist and hand AROM – Thoracic extension AROM – Supine press up – Sub-maximal pain-free elbow flexion and extension isometrics ***Exercise Examples:*** • Passive pendulum • Self-assisted supine shoulder flexion • Self-assisted passive, pain-free ER with a stick, supine or upright • Scapular retraction	***Goals of Phase:*** 1. Protect repair 2. Prevent contractures above and below shoulder joint 3. Manage inflammation and pain 4. Gradual improvement in PROM/AAROM per guidelines 5. Toleration of progressed exercise program 6. Passive ER in plane of the scapula: 45 degrees 7. Passive ER at 60 degrees abduction: 45 degrees 8. Passive shoulder flexion 120 degrees ***Criteria to Advance to Next Phase:*** 1. Appropriate healing of the repair by adherence to precautions, immobilization guideline and exercise protocol 2. Manageable pain level

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<td>Phase IV
Minimal Protection/ Mobility Phase

Weeks 6-12</td>
<td>Specific Instructions:

Weaning from brace according to physician guidelines
Avoid above shoulder height activities
Avoid sudden or ballistic movements
No aggressive strengthening
Avoid lifting, pulling or pushing of objects

Suggested Treatments:

PROM

Continue ER stretching from 30-90 degrees abduction and flexion PROM and stretching
Initiate shoulder extension to tolerance
At 8 weeks, initiate gentle IR stretching including behind the back

AAROM

Begin shoulder AAROM in supine and progress to upright (table/wall slides, ball rolls on table, wand/ cane, pulleys)
Active warmup can be done prior to PT via UBE and or active ER/IR in plane of the scapula gravity minimized
Initiate upright AAROM into flexion and scaption (pulleys or self-assisted)
At 8 weeks, begin gentle IR behind back
Progress ER AROM from upright to side lying to tolerance

Manual therapy

Grade III-IV glenohumeral/scapulothoracic mobilizations for mobility as necessary

AROM (Begin at 8 weeks)

As quality of movement improves, progress flexion/ scaption from AAROM to AROM. Begin supine and progress to standing.
Short-arc motions in newly acquired ROM

Exercise Examples:

As quality of movement improves, initiate and progress AROM endurance training in flexion, scaption, IR and ER

Progress from 10 to 30 reps, 1–3 sets 1x/day- 3x/ week as tolerated
Progress ER from upright to side lying AROM

Scapular exercise 6–8 weeks

Inferior glide isometric: (Shoulder girdle depression while hand rests comfortably on a table)
Low row isometric: (scapular depression with extension near neutral)

Scapular exercises: 8–12 weeks. 0-light resistance

Row, serratus punch, prone extension, scapular clock, side lying external rotation with scapular setting

Sub-max pain-free GH isometrics at 8 weeks

Flexion near neutral
IR/ ER in the neutral position

Isotonics

Biceps/triceps at 8weeks

Rhythmic stabilization progression:

Supine ER/IR in the neutral position 6–8 weeks
Supine flexion/extension 90 degrees 8–10 weeks
Supine flexion/extension at 120 degrees 10 weeks
Ball on wall near 90 degrees in comfortable range of motion

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<td>Goals of Phase:

Preserve integrity of the repair
Able to tolerate initiation and progression of active shoulder flexion and scaption without compensatory hiking
Restore functional PROM in all planes with normal movement patterns
Decrease pain and inflammation
Able to tolerate initiation of submaximal, pain free muscle activation exercises

Criteria to Advance to Next Phase:

PROM total arc and flexion within 10 degrees of contralateral side
AROM shows no substitution patterns, appropriate scapula-thoracic rhythm and minimal (NPRS 0-2/10)to no pain in available range of motion
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Phase V Strengthening and Proprioceptive Phase Weeks 12-24	***Specific Instructions:*** • Avoid sudden lifting, jerking, pushing or pulling movements • No uncontrolled movements • Avoid heavy lifting, especially above shoulder height (weight lifted must not cause pain or compensatory hiking) ***Suggested Treatments:*** **Strength:** • 30-30 ER and IR progressing to 90-90 in overhead athletes • Row, straight arm row • Shoulder • Prone or bent over horizontal abduction in external rotation **Exercises that can be added at 16 weeks** • Advance CKC exercises form partial to full weight-bearing exercises • Proprioception and kinesthetic awareness	***Goals of Phase:*** 1. Facilitate and maintain functional ROM and quality of movement 2. Tolerate progression of program for muscular strength, power and endurance. ***Criteria to Advance to Next Phase:*** 1. Strength: 5/5 or 85%-90% of contra lateral side with hand held dynamometer tested at 22-24 weeks 2. Full ROM in all planes with normal movement mechanics 3. Pain free with ADLs and phase V strengthening 4. Quick DASH <10% disability
Phase VI Advanced Movement and Impact Phase *Months 6-9 months*	***Specific Instructions:*** • With overhead athletes, refer to Sanford Overhead Athlete Rehab Guideline • Initiate Sanford Interval Throwing Program • Consider Upper Extremity Testing (see guideline)	***Return to Sport:*** • Full, non-painful ROM with no compensatory mechanisms • Strength: – 90% of contralateral side with handheld dynamometer or isokinetic machine • Special considerations for overhead athletes: – Consider throwing mechanics assessment – ER/IR Ratio >80% – Handheld dynamometry at 90 abduction within 10% of contralateral side – Quick DASH or Kerlin Jobe score – Successful completion of SHARP Program (if available).

NOTE:

Progression of functional activities should be performed only as pain and proper biomechanics allow. Emphasis should be on proper mechanics and limiting compensatory mechanisms with exercises and activities.

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In designing the current protocol, the following protocols were reviewed:

- Gunderson Lutheran Sports Medicine (George Davies)
- Moon Shoulder Group Vanderbilt University
- Brigham and Women's Hospital Department of Rehabilitation Services
- The American Society of Shoulder and Elbow Therapists Arthroscopic Rotator Cuff Repair Rehabilitation Guide

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