SHOULDER ROTATOR CUFF REPAIR POST-OPERATIVE GUIDELINES

The following post-operative rotator cuff repair guidelines were developed by HSS Rehabilitation and are categorized into five phases with the ultimate goal for returning the patient back to their desired activities. They can be used for patients undergoing rotator cuff repair with attention given to the exact location and size of the repair as well as any concomitant procedures. It is important that full range of motion (ROM) is restored while respecting soft tissue healing. Classification and progression are both criteria-based and time-based due to healing constraints of the human body.

The first phase is focused on soft tissue healing and maintenance of pain-free ROM. Phases two and three are focused on building foundational strength and stability, allowing the patient to progress to phase four which includes advanced strengthening. With the completion of phase four the patient will be able to start the final phase which includes returning to previous recreational activities. Cardiovascular endurance, hip and core strengthening should be addressed through the rehabilitation process. The clinician should use their skilled judgement and decision making as progressions may not be linear.

FOLLOW SURGEON MODIFICATIONS AS PRESCRIBED.
SHOULDER ROTATOR CUFF REPAIR POST-OPERATIVE GUIDELINES
Phase 1: Recovery (Weeks 0-3)

PRECAUTIONS
- Avoid weight bearing on operative upper extremity
- No shoulder active range of motion (AROM)
- Avoid pain during ROM exercises
- No shoulder external rotation (ER) past 0°-30° depending on surgeon preference
- Avoid lying on operative side
- Use sling at all times except when bathing, dressing, icing or performing home exercise program (HEP)
- Use pillows to support operative arm when sitting or sleeping
- If combined with biceps tenodesis, no biceps strengthening for 6-8 weeks

SPECIAL CONSIDERATIONS
- Biceps tenodesis: AROM with neutral wrist, no resisted biceps activity for 8 weeks
- Massive cuff tear: delay protocol by 2 weeks unless otherwise directed by surgeon
- Subscapularis repair: no shoulder flexion beyond 90° and no ER beyond 30° for 6 weeks

ASSESSMENT
- Quick Disabilities of Arm, Shoulder and Hand (Quick DASH)
- American Shoulder and Elbow Surgeons (ASES)
- Numeric Pain Rating Scale (NPRS)
- Mental status
- Wound status
- Swelling
- Static scapular assessment (Kibler grading)
- Post-anesthesia neurovascular screening
- Passive range of motion (PROM)
- Cervical mobility
- Functional status – activities of daily living (ADL) and mobility

TREATMENT RECOMMENDATIONS
- Initiate and emphasize importance of HEP to be continued until initiation of outpatient PT or OT
  - Elbow and wrist AROM
- Instruct in semi-reclined sleeping position, avoid lying on operative side
- Education on donning/doffing and proper positioning in sling
• ADL training
• Transfer training in and out of bed and sit to stand, and stair training while maintaining non-weight bearing on operative upper extremity
• Shoulder PROM exercises according to surgeon preferences (e.g., Codman’s, passive ER to neutral)
• Pain-free distal UE AROM: note that surgeon ay specify passive vs. active elbow flexion if biceps tenodesis was performed
• Cryotherapy and elevation of upper extremity to prevent swelling

CRITERIA FOR ADVANCEMENT
• Safely transfers unassisted
• Independent with sling management, or caregivers independent in assisting
• Independent with ADL
• Independent with HEP

EMPHASIZE
• Protection of repair
• Proper sling positioning and compliance
• Independent transfers, ambulation, and stair negotiation
• Pain and edema control
SHOULDER ROTATOR CUFF REPAIR POST-OPERATIVE GUIDELINES
Phase 2: Intermediate (Weeks 4-6)

PRECAUTIONS
- Follow precautions until cleared by surgeon
- Sling to be worn at all times except when exercising, icing, dressing and showering
- Limit shoulder PROM based on pain and surgeon guidelines, with emphasis on limiting ER to protect subscapularis repair
- No shoulder AROM until cleared by surgeon
- Avoid severe pain with therapeutic exercise and functional activities
- Avoid holding items greater than 1lb.
- Avoid prolonged sling use once discharged by surgeon

SPECIAL CONSIDERATIONS
- **Biceps tenodesis**: AROM with neutral wrist, no resisted biceps activity for 8 weeks
- **Massive cuff tear**: delay protocol by 2 weeks unless otherwise directed by surgeon
- **Subscapularis repair**: no flexion beyond 90° for 6 weeks, no ER beyond 30° for 6 weeks

ASSESSMENT
- Quick DASH
- ASES
- NPRS
- Static scapular assessment (Kibler grading)
- Neurovascular screen
- Cervical mobility
- Shoulder PROM
- Distal AROM (PROM vs. AROM of elbow if specified by surgeon due to biceps tenodesis)

TREATMENT RECOMMENDATIONS
- Shoulder ROM Goals (do not force but assess for stiffness)
  - **Week 4**:
    - Elevation in scapular plane: 90°
    - ER in scapular plane: 5°-15°
    - Internal rotation (IR) in scapular plane: to chest
o Week 6:
  ▪ Elevation in scapular plane: 120˚
  ▪ ER in scapular plane: 30˚-45˚
  ▪ IR in scapular plane: to chest
o 0-6 weeks
  ▪ Abduction 0˚-90˚ (gentle motion)

- Codman’s pendulum exercises
- PROM shoulder elevation in scapular plane
  - Table slides
- Active assisted range of motion (AAROM) shoulder ER with wand in scapular plane within prescribed limits
- Scapular mobility and stability exercises progression to manual resistance
  - Manual scapular mobilizations
  - Manually resisted scapular retraction/protraction/depression/elevation; progress to manually resisted PNF
- Distal AROM exercises (unless PROM specified by surgeon for elbow)
- Core strengthening
- Deltoid isometrics
- Week 6: rotator cuff (RC) isometrics
  - Submaximal rhythmic stabilizations ER/IR with PT
    ▪ Submaximal ER/IR isometrics

CRITERIA FOR ADVANCEMENT
- Swelling and pain controlled
- Passive shoulder ER to 45˚ in scapular plane
- Passive shoulder elevation to 120˚ in scapular plane
- Tolerance of scapular and RC exercises without discomfort
- Independent with HEP

EMPHASIZE
- Protect surgical repair
- Proper donning/doffing of sling and use per surgeon instruction
- Control swelling
- Importance of patient compliance with HEP and protection during ADL
SHOULDER ROTATOR CUFF REPAIR POST-OPERATIVE GUIDELINES
Phase 3: Intermediate (Weeks 7-11)

PRECAUTIONS
- Avoid pain with ADL and therapeutic exercise
- No combined shoulder abduction and ER (pitch motion)
- No lifting greater than 5 lbs.
- Avoid supporting full body weight on operative upper extremity

SPECIAL CONSIDERATIONS
- **Biceps tenodesis:** AROM with neutral wrist, no resisted biceps activity for 8 weeks
- **Massive cuff tear:** delay protocol by 2 weeks unless otherwise directed by surgeon

ASSESSMENT
- Quick DASH
- ASES
- NPRS
- Static scapular assessment (Kibler grading)
- Cervical mobility
- Shoulder PROM
- Grip strength

TREATMENT RECOMMENDATIONS
- Discharge sling if still in use
- Reeducation of movement patterns
- Functional mobility training
- Manual therapy as needed (e.g., scapular mobilization, soft tissue mobilization)
- Cervical AROM and upper trapezius stretching
- Address thoracic mobility
- Progress PROM as tolerated
- Shoulder ROM exercises
  - AROM with wand: forward flexion and ER, abduction, extension
  - Initiate AROM in all planes
  - Begin wall slides at week 10
  - Posterior capsule stretch
- Shoulder AROM (with goal of 150 degrees elevation and 45 degrees ER)
  - Supine → increase the incline over table or bolster (lawn chair progression) → standing
• Stabilization exercises
  o Humeral head control exercises
  o Closed kinetic chain exercises begin week 10
    ▪ Quadruped
    ▪ Ball stabilization on wall
  o Scapular stabilization
• Strengthening exercises
  o Sub-maximal shoulder isometrics, e.g., flexion, extension, external and internal rotation
  o Multi-planar deltoid strengthening
  o General upper extremity strengthening
    ▪ Prone rows, extension
  o Core strengthening
• Upper body ergometry if motion allows
• Pool therapy, if available
• Modalities for pain and edema
• Progression of HEP

CRITERIA FOR ADVANCEMENT

  ▪ Pain controlled
  ▪ Shoulder AROM in plane of scapula; elevation to 150°, ER to 45°
  ▪ Restore shoulder forward flexion in scapular plane to full
  ▪ Shoulder ER in scapular plane to 70°-90°
  ▪ Independent with HEP

EMPHASIZE

• Gradually restore shoulder AROM
• Restore scapular and rotator cuff muscle balance and endurance
• Reduce compensatory movements (e.g., overuse of upper trapezius)
SHOULDER ROTATOR CUFF REPAIR POST-OPERATIVE GUIDELINES
Phase 4: Weeks 12-15

PRECAUTIONS
- Avoid scapular compensations with AROM
- No painful activities

SPECIAL CONSIDERATIONS
- Massive cuff tear: delay protocol by 2 weeks unless otherwise directed by surgeon

ASSESSMENT
- Quick DASH
- ASES
- NPRS
- Static/dynamic scapular assessment (Kibler grading)
- Cervical and thoracic spine mobility
- Clavicular mobility
- Shoulder AROM and PROM
- UE and periscapular strength
- Grip strength

TREATMENT RECOMMENDATIONS
- Functional training to address patient’s goals
- Manual therapy to restore shoulder girdle ROM
- Progress shoulder ROM and flexibility to within normal limits
- Proprioceptive neuromuscular facilitation patterning
- Progressive resistive exercises for UE, shoulder girdle, and core
  - Latissimus pull downs, serratus strengthening, side lying ER
- Initiate banded ER/IR
- Continue to progress closed chain upper body exercises with gradual loading (avoid full body weight)

CRITERIA FOR DISCHARGE (OR ADVANCEMENT TO PHASE 5 IF RETURNING TO SPORT)
- Fully independent with ADLs with minimal pain
- Normal shoulder motion compared to non-operative arm and flexibility over 90°
- UE and periscapular muscle strength 4+/5 for control with functional movements
- Tolerance to all exercises without discomfort
EMPHASIZE

• Reduce compensatory patterning
• Posterior capsule mobility
• Restore normal ROM and flexibility
• Restore strength
SHOULDER ROTATOR CUFF REPAIR POST-OPERATIVE GUIDELINES
Phase 5: Return to Activity (Weeks 16+)

PRECAUTIONS
- Avoid high impact (e.g., contact sports)
- Avoid too much too soon – monitor exercise dosing
- Note that expert opinion varies widely on allowable sports – consult with surgeon

ASSESSMENT
- Quick DASH
- ASES
- NPRS
- Cervical and thoracic spine mobility
- Static/dynamic scapular assessment (Kibler grading)
- Clavicular mobility
- Shoulder AROM and PROM
- UE and periscapular strength
- Grip strength

TREATMENT RECOMMENDATIONS
- Progress humeral head control exercises in a variety of overhead positions
- Progress isotonic exercises to higher loads as indicated
- Sustained single arm holds with perturbations
- Closed kinetic chain progression exercises
- Begin upper extremity plyometrics
  - Plyometric progression (over a 4 week period)
    - Double hand chest pass
    - Double hand overhead soccer pass
    - Double hand chops
    - Single hand IR at 0° shoulder abduction
    - Eccentric catch
    - Single hand 90/90 IR
- Endurance progression
  - Double hand overhead wall taps
  - Single arm 90/90 wall taps
  - Single arm 12 o’clock to 3 o’clock wall taps
  - Exercise blade at multiple angles
• Refer to throwing protocol
• Sport-specific multidirectional core retraining
• Progress total body multidirectional motor control exercises to meet sport-specific demands at 6 months if appropriate
• Begin blood flow restriction (BFR) if cleared by surgeon
• Collaboration with trainer, coach, or performance specialist

CRITERIA FOR RETURN TO SPORT
• Independent in long-term sport-specific exercise program
• Movement patterns, strength, flexibility, motion, power, and accuracy to meet demands of sport symptom free

EMPHASIZE
• Monitor load progression and volume of exercise
• Monitor for loss of strength and flexibility
• Improve muscle strength and flexibility
• Neuromuscular patterning
• Collaboration with appropriate Sports Performance expert
References


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