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SPORTS MEDICINE

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ROTATOR CUFF REPAIR REHAB GUIDELINES – MASSIVE TEARS RECONSTRUCTED WITH ECM GRAFT

The proposed guidelines should be reviewed and tailored to individual patients based on their rehab goals, age, size of rotator cuff tear, muscle tissue quality (degree of fatty infiltration), and amount of tension on the cuff repair. Progression should be based on patient progress and approval by the referring physician.

PHASE 1 (Post-op day 1- week 8)

GENERAL GUIDELINES AND PRECAUTIONS

- Sling wear at all times with abduction pillow in place, including sleep. Sling may be removed for basic grooming and exercise sessions. After 2-3 weeks, sling may be removed for desk top work while arm is supported. Begin wean from sling after week 4 with use in uncontrolled settings, and full wean completed by week 6. **Use sling in public for 8 weeks.**
- No active use of the operated UE on land for 8 weeks; No weight bearing through the operated UE for 8 weeks.
- Avoid passive tension across repaired rotator cuff tendon(s) for 6 weeks (eg. no IR behind back for supraspinatus and subscapularis repairs)
- PROM restrictions:
    - Flexion: 0-90 for 3 weeks, then 0-125 remainder of phase 1
    - ER in scapular plane at neutral and at 45 degrees: 0-40 for 3 weeks, 0-60 for remainder of phase 1 unless subscapularis is repaired. **In subscapularis repair, PROM for ER is restricted to 30 degrees for 3 weeks and then 45 degrees for 3 additional weeks.**
- No driving for 3 weeks. No driving while on narcotic pain medication; Do not wear sling when driving. Keep operated arm/hand low on wheel.
- No bathing until catheter removed from neck. May shower with water-proof covering over sutures (Tegaderm/OpSite).
- Ice and elevation used in combination with medication for control of pain and swelling
- Return to work as determined by MD/PT dependent on work demands

GOALS

- Patient education about the nature of the surgery, associated precautions and expected rehabilitation progression
- Protect rotator cuff repair and create an environment for optimal healing
- Control pain, swelling and inflammation
- Achieve PROM limits established above
- Establish stable scapula

EXERCISES

- Elbow, wrist and hand AROM without weight; only PROM (opposite UE assisted) for elbow flexion and supination if concomitant biceps tenodesis/tenotomy performed
- Posture: active seated and standing thoracic extension and scapular sets (retraction to neutral), depression and protraction, cervical ROM/upper trapezius stretch as needed
- Pendulum: small circles with **90 degree flexed elbow cradled** by non-operative arm for first 8 weeks, then unsupported.
- Grade I/II mobilization as indicated for pain relief
- PROM: self assisted with non-operative UE, bent elbow supine elevation in scapular plane in established PROM constraints (0-90 for 3 weeks, followed by 0-125 for remainder of phase); **NO pulley or cane assisted elevation** in this phase. **No sliding arm on table top.**
- Seated or supine self assisted or wand assisted ER in scapular plane in established PROM constraints (0-40 for 3 weeks, followed by 0-60 for remainder of phase)
- Aquatic therapy after 3 weeks with shoulders totally submerged, slow active motion within precautionary ROM with cue such as "Don't let the water ripple."
- NO ROM behind the back in this phase; No cross body adduction past midline

CRITERIA TO PROGRESS TO PHASE 2

- Surgical repair in early healing by adhering to precautions and immobilization guidelines
- Staged PROM goals achieved
- Minimal to no pain

PHASE 2 (Post-op weeks 8 -12)

GENERAL GUIDELINES AND PRECAUTIONS

- Discontinue sling by the end of week 6 and may use arm actively at waist level with minimal weight: "nothing heavier than a coffee cup," and not at or above shoulder height until able to do so with normalized mechanics and no pain
- No supporting of body weight by hands and arms
- No excessive behind the back movement. May tuck in shirt.
- PROM progressed toward normal, AAROM initiated and progressed toward AROM gradually
- As AROM is restored, ensure proper biomechanics of elevation with avoidance of "scapular shrug"

GOALS

- Continued protection of healing tissue with slow progression of activity (exercises and ADL's) from waist level first, and then slowly in more elevated positions
- Restore full PROM by week **10** (gradual restoration)
- Normalize AROM without overstressing healing tissue

- Minimize pain and inflammation (may ice after exercise)

EXERCISES

- Continue thoracic extension and scapular set (retraction to neutral plus depression) prior to any passive or active exercise for optimal positioning
- PROM to tolerance with gentle overpressure in all planes; may begin cross body adduction, hand slide up spine, etc, in range without muscle splinting/guarding; may begin ER at 90 deg abduction in scapular plane. Integrate grade 3/4 glenohumeral mobilization as needed prior to PROM
- AAROM: cane or hand assisted forward elevation in supine - begin with bent elbow, progress to straight as able to control the short lever arm through the range without pain; **No sliding arm on table top.**
- AROM: ER in sidelying; prone extension to hip (not past 20 degrees extension) with end range scapular retraction; supine serratus punches; supine long lever arm motion in controlled range from balanced position
- Aquatic: no range restrictions; may add "hug yourself" activity and "hook and rotate" and may progress speed as directed by PT/MD
- Submaximal isometrics for ER; IR; abduction; flexion; extension
- Rhythmic stabilization in balanced position (90 degrees elevation in supine) with submaximal force. Gradually increase force and move out of balanced position: 60, 120, 150 degree positions of elevation. (See below in Phase III exercises)
- Sidelying manually resisted scapular protraction and retraction
- **No pulleys unless full passive ROM has been achieved**

CRITERIA TO PROGRESS TO PHASE III

- Full passive range of motion
- AROM with normalized mechanics for elevation without scapular shrug or other substitution patterns
- Pain level less than 2/10 with exercise and ADL

PHASE III (Post-op month 3 through Post-op month 6)

GENERAL GUIDELINES AND PRECAUTIONS

- Use of the arm at and above shoulder level may occur with light weight, as long as mechanics for elevation remain normalized, and lifting up to 10 lbs below shoulder level allowed
- Normalization of ADL's, work and recreational activity - gradual return, particularly for repetitive and overhead activities
- Gradual progression of exercises to restore strength, endurance, and work/sport specific movement
- Resistance exercises should only be initiated when there is FAROM with normalized mechanics

GOALS

- Full AROM with normalized mechanics in all planes
- Normalized muscle strength in the rotator cuff, scapular stabilizers, and shoulder primary movers
- Return to ADL's, work and recreational activities without pain or disability

EXERCISES

- UBE for active warm up
- Continued end range stretching and mobilizations as needed, particularly posterior capsule (cross body adduction, sleeper stretch with scapula stabilized, ER > 90 degrees for throwers/tennis)

Rotator cuff strengthening:

- Internal and external rotation – pain free. May be seated or standing. ER and IR strengthening with hand weights or theraband, initially below shoulder level, progressing to above shoulder level as needed for work or sport. Emphasize high repititions (30-50) with low resistance (1-5 lbs); progress in increments of one pound when 30-50 repititions are easy and painless.

- Supine and reclined flexion with weight

    - Supine short and long arc active rhythmic stabilization exercises: Start with 0 lbs. with short arcs, then slowly increase length of arcs, pain-free as in phase 2. Watch for biceps pain. When 3 sets x 15 reps of full arcs are achieved easily, then progress to 1 lb. Restart short arcs, advancing to long arcs (3x15), then progress similarly to 2 lbs., then 3 lbs. Achieve pain-free, good mechanics in supine position with 3 lbs. before going to reclined position. May then progress to reclined position with short to long arcs through 0-3 lbs (3 sets x 15 reps). Achieve pain-free, good mechanics in supine position with 3 lbs. before going to upright (seated or standing) position

- Upright flexion exercises
    - Palm-down scaption, (NO thumbs up or full can) initially to 90 degrees elevation (3 x 15 reps) with pain-free, good mechanics, then progress above shoulder height, no weight..
    - When unweighted flexion goals achieved, progress from 1 lb. to max 5 lb. resistance with hand weights. Do not progress above shoulder level with weights.

Scapular stabilization exercises: Extension to hip and horizontal abduction with ER, either prone with hand weights, or standing with theraband; serratus presses in supine with hand weight; serratus wall presses with shoulder in neutral and in ER, progressing to co-contraction on air disc, plyoball, then progress to weight bearing on incline.

Deltoid: forward and lateral raises to 90 degrees with light hand weight

Use of weight lifting machines (chest press, lat pull downs, seated row...) only anterior the plane of the body; incorporate scapular work to end range; low resistance and high reps

Combined muscle patterns: PNF diagonals progressing from supine to standing, seated on ball for core added, progressing resistance from none to theraband or hand weight

Aquatics: may do full motion for all exercises, with cupped hand, progressing to use of gloves or paddle for added resistance and then increasing speed of movement

- Advanced strengthening activities (not needed for all patients. Ask surgeon to clear patient for these activities - must have 5-/5 in cuff and scapular mm) useful for overhead athletes or heavy laborers:
  Plyoball chest passes on minitramp; body blade ER neutral, 90 deg elevation in scapular plane; sports specific arm movement simulation with theraband or Body blade (eg. tennis swing)

CRITERIA FOR RETURN TO WORK/SPORT

- Clearance from physician
- Painfree at rest and minimal pain with the work or sport specific activity simulation
- Sufficient ROM and strength with normalized mechanics for the activity