Shoulder Large-Massive Rotator Cuff Tear Repair

Purpose:
This guideline 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, premorbid 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.

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/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 the referring physician.

General Classification of Rotator Cuff Tear Size:
- Small: <1 cm in length
- Medium: 1-3 cm
- Large: 3-5 cm
- Massive: >5 cm

Precautions:
- Bracing/sling/immobilizer +/- abduction pillow generally for 6-8 weeks per physician discretion
- 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
- No movements beyond neutral extension
  - Keep pillow or towel roll under the arm when lying on back
  - Patient should always be able to see his/her elbow
- Anatomic failure is associated with increased age, poor tissue quality, fatty infiltration, atrophy, smoking, hypercholesterolemia and diabetes
  - Tends to occur in the first 3-6 months post op
- Subscapular repair
  - 0-4 weeks: ER to neutral
  - 4-6 weeks: gentle passive ER from neutral to patient tolerance
  - Extension limited to neutral for 6 weeks
  - 6+ weeks: gentle stretching into ER
  - No resisted IR for 12 weeks
- Biceps Tenodesis

— No active elbow flexion for 6 weeks

PHASE	SUGGESTED INTERVENTIONS	MILESTONES FOR PROGRESSION
Phase I Weeks 0-4	**Precautions:** • Use immobilizer at all times • No movements beyond neural extension, reaching behind the back, lifting, pulling or pushing (including during transfers) • No aggressive, painful PROM or stretch • No AROM of involved shoulder • Avoid AROM of shoulder • Avoid aggressive, painful PROM or stretching • Avoid lifting, pulling or pushing, including during transfers • Avoid movements beyond neutral extension • Avoid forward head, rounded shoulder posture **Therapy:** • Shoulder: — Pendulum hang — PROM in supine through comfortable range ⇒ Under therapist supervision, within pain limits ⇒ 0-2 weeks: (1) No ROM (2) Pendulum hang only ⇒ 2-6 weeks: (1) Therapist-guided PROM in supine (2) Limit extension in supine with towel roll (3) Begin Codman's (<7-inch arc) (a) Forward/back (b) Side/side • Elbow/Wrist/Hand: — AROM — Stress ball/Thera putty • Cervical spine stretching: — Upper Trapezius — Levator Scapulae — Scalenes	**Goals:** • Protect repair • Prevent contractures above and below shoulder joint • Manage pain and inflammation • Gradual improvements in PROM per guidelines • Prevent muscular inhibition **Criteria to Advance:** • Appropriate healing of repair with adherence to precautions, immobilization and exercise protocol • Controlled post-op pain • PROM of ER/IR in the scapular plane: 35°

	• Active thoracic extension • Posture training • Maintain cardiovascular health with walking, bike • Control of pain and inflammation (Ice/IFC, as needed) • Cryotherapy • Mobilizations: — Grade I-II Glenohumeral mobs in plane of scapula: ⇒ Posterior ⇒ Anterior ⇒ Long axis distraction — Thoracic PA mobs: ⇒ Seated 1-2 weeks ⇒ Can do prone at week 2-4 if tolerated	
Phase II Weeks 4-8	**Precautions:** • Continue immobilizer use unless resting at home • Promote thoracic extension • Limit shoulder extension in supine with towel roll • Continue precautions from previous phase • Avoid forward head, rounded shoulder posture • Avoid loading, lifting, pulling or pushing, including during transfers • Avoid movements beyond neutral extension **Therapy:** • Shoulder: — Codman's Pendulums: ⇒ Forward/back ⇒ Side/side ⇒ <7-inch arc — Initiate self-assisted passive ER with stick upright/supine 30° → 60° — Passive, pain-free supine IR in plane of scapula to 30° — 2-6 weeks: ⇒ Therapist-guided PROM in supine — 6-8 weeks: ⇒ Gentle AAROM with cane/stick ⇒ Use cane/stick (PROM) progressions: supine → 45° semi-reclined → sitting/standing → pulleys (=AAROM) (1) Upright positions at 8 weeks	**Goals:** • Protect repair • Gradual improvement of PROM • Passive ER to 45° in plane of scapula and at 60° abduction **Criteria to Advance:** • Appropriate healing of repair with adherence to precautions, immobilization and exercise protocol • PROM: flexion and scaption to 90°

	⇒ Scaption and flexion to 90°+ — 7 weeks: ⇒ Initiate shoulder extension to tolerance • Scapula: — Retraction and depression AROM (with immobilizer in place) • Elbow/Hand: — Sub-max, pain-free elbow flexion and extension isometrics with arm against body (avoid resisted shoulder elevation) • Maintain cardiovascular health with walking/bike • Control pain and inflammation (ice/IFC, as needed) • Mobilization: — Grade I and II joint mobs used for pain relief (GH, AC, ST, SC) — Thoracic PA mobs as needed: ⇒ Seated/supine to tolerance — Scar mobilization when completely healed	
Phase III Weeks 8-12	**Precautions:** • Wean from brace according to physician guidelines • Avoid sudden/ballistic movements • Avoid performing activities over shoulder height • Avoid lifting, pulling or pushing of objects • Avoid aggressive strengthening **Therapy:** • Shoulder: — Use cane/stick (PROM) progressions: supine → 45° semi-reclined → sitting/standing → pulleys (=AAROM) — 8 weeks: ⇒ Initiate upright AAROM (pulleys/self-assisted) — 10 weeks: ⇒ Initiate gentle IR stretching (behind back) ⇒ Gentle, sub-max pain-free glenohumeral isometrics (1) Flexion near neutral (2) IR/ER in neutral position — Progress AAROM → AROM as quality of movement improves ⇒ Progress cane/stick → wall/towel slides → unassisted AROM ⇒ Progress 10 → 30 reps and 1→ 3 sets	**Goals:** • Initiation of functional activities/ADLs and proprioception exercises below shoulder height • Considerable decrease in pain/inflammation • Able to tolerate initiation and progression of active shoulder flexion and scaption without compensatory hiking • Able to tolerate initiation of submaximal pain free muscle activation exercises **Criteria to Advance:** • PROM arc and flexion within 10° of contralateral side • AROM free of substitution patterns, normal scapulo-thoracic rhythm and minimal/no pain • Appropriate shoulder blade position at rest and with activity

	⇒ Endurance work should be in pain-free arc with no substitution patterns — Continue ER stretching from 30° → 90° of abduction ⇒ Progress AROM ER from upright → side-lying — PROM low load/long duration passive stretching into all motions — Active warm up with un-resisted UBE at 8 weeks — Rhythmic Stabilization ⇒ 8 weeks: (1) Supine ER/IR in neutral position ⇒ 10-12 weeks: (1) Supine flexion/extension at 90° (2) Ball on table • Scapula: — 10-12 weeks: ⇒ Row ⇒ Supine protraction ⇒ Prone extension ⇒ Scapular clock ⇒ Side-lying external rotation with scapular setting • Elbow: — Isotonics: ⇒ 8 weeks: (1) Supported biceps and triceps ⇒ 10 weeks: (1) Unsupported biceps and triceps • Maintain cardiovascular health with walking/bike • Control of pain and inflammation (Ice/IFC PRN) • Mobilizations: — Grade III-IV GH/ST mobilizations for mobility as needed — Scar mobilization when completely healed	
Phase IV Weeks 12+	**Precautions:** • No uncontrolled movements • Weight lifted must not cause pain or compensatory hiking • Endurance then strength: — Increase number of repetitions before adding resistance • Avoid sudden lifting, jerking, pushing or pulling movements • Avoid activities that cause pain	**Goals:** • Tolerate progression of program for muscular strength, power and endurance • Facilitate/Maintain functional ROM and quality of movement **Criteria to Advance:**

	• Avoid heavy lifting over shoulder height • Avoid full and empty can exercises: — Long lever places too much stress on rotator cuff **Therapy:** • Active warm-up • Strengthening: — 50-60 repetitions before increasing by 1 lb. ⇒ Do not compromise shoulder/postural mechanics ⇒ Pain-free — Glenohumeral ⇒ Overhead wall slides/walks/ball slides ⇒ Gradual progression of elastic band resistance — Scapulothoracic ⇒ PNF patterns: no/light resistance ⇒ Push-up plus progression: wall → plinth → floor ⇒ Supine serratus punch/dynamic hug ⇒ Prone exercises: (1) Y, T and I (2) Rows (3) ER — Rotator cuff ⇒ Side-lying ER with towel, gradually progress to 1 lb. ⇒ Low force rhythmic stabilization supine 90° flexion and ER/IR at 45° abduction ⇒ 30/30 ER and IR ⇒ Scaption to 90° — Elbow ⇒ Bicep curls and tricep press down • Proprioception and kinesthetic awareness — Ball on wall — Rhythmic stabilization — Body blade <u>Week 18:</u> • 90-90 ER and IR in overhead athletes • Prone scaption	• Full ROM in all planes with normal movement mechanics • Pain-free basic ADLs • Quick DASH <10% disability • Strength 75-90% contralateral side at 24 weeks

	• Progression to overhead flexion and scaption as tolerated in absence of impingement symptoms/substitution patterns • Advance CKC exercises from PWB → FWB • Maintain cardiovascular health: — Walking — Biking — Treadmill — Elliptical (no arms) • Heat prior to therapy, cold after as needed • Mobilizations: — Grade III–IV GH mobilizations for mobility as needed	
Phase V Months 6-9	**Precautions:** • End point will differ depending on the patient — At this phase, a shoulder with a low functional demand may continue to improve in a progressive manner with a HEP • Interval throwing program • Advance strengthening program+/- plyometric training if required • Work/sport-specific training: — Heavy labor or overhead sports • Return to sport generally over 6-9 months — Physician approval — Full ROM — Strength withing 10% of contralateral side — Shows confidence with sport-specific training with pain at a 0-2/10 at most — Independent with strength program recommended for at least one-year post-surgery • Avoid any pain with activity **Therapy:** • Biceps/Triceps • Chest press • Shoulder press (military press) • Fly/reverse fly • Lat pull downs • Full pushup • Plyometric exercise (if needed):	**Goals:** • Functional activities/ADLs above shoulder height — Progress with weight +/- repetition **Criteria for Discharge:** • Therapist/Physician clearance • No pain at rest or with exercises/activities • Sufficient ROM to meet task demands

	— Tubing plyometrics for ER/IR at 90° abduction with varying speeds — 2 handed tosses: ⇒ Waist/chest level → overhead → diagonal (PNF patterns) — 1 handed toss: ⇒ Begin with shoulder flexion/elbow extension → progress to increased shoulder ABD and ER — Start with towel, beach ball, tennis ball → progress to lightly weighted ball • Cardiovascular: — Train specific to demand of sport (aerobic/anaerobic)	