

LARGE-MASSIVE ROTATOR CUFF REPAIR GUIDELINE

Background

The rotator cuff is responsible for stabilization and active movement of the glenohumeral joint. An acute or overuse injury may cause the rotator cuff to be injured and varying widths of tears may cause increased pain and dysfunction of the shoulder joint. A large size rotator cuff tear is defined as a tear 3-5cm, massive >5cm. Rotator cuff repair is performed, either arthroscopically or via mini-open procedure, by suturing the torn tendon to the humerus.

Disclaimer

Progression is time and criterion-based, dependent on soft tissue healing, patient demographics and clinician evaluation. Contact Ohio State Sports Medicine at 614-293-2385 if questions arise.

Superior Capsule Reconstruction Considerations

- Follow protocol timeframes
- Limit lifting to 5 lbs for 6 months

Summary of Recommendations

Risk Factors	• Low preoperative functional level • Poorer preoperative active ER • Younger age • Lower education level • Workman's comp claims
Precautions	• Sling use for 6 weeks • No PROM into pain • Start physical therapy at 4-6 weeks <i>Subscapularis Repair (12 weeks)</i> • No ER past 30 degrees • No cross body adduction • No active IR or IR behind back • No supporting of body weight on affected side (i.e. pushing up from chair)
Manual Therapy	• Week 0-4: continue post-operative home exercises (wrist and hand, pendulums, scap squeeze) • Week 4-6: posterior and caudal GH mobilizations, soft tissue mobilization as appropriate • Week >6: PROM, soft tissue and joint mobilization as appropriate
Corrective Interventions	• Pain and edema control modalities • Manual for glenohumeral and scapular mobility and shoulder ROM • Therapeutic exercise and neuromuscular re-education for UE strength, control and postural stability • Therapeutic activity for return to work simulations to increase strength and endurance • Sport-specific activity training
Outcome Testing	• Disability of Arm, Shoulder, Hand (DASH) • Quick DASH
Criteria for Discharge	• Full AROM with no scapular substitution • 5/5 MMT RTC strength • 65-70% IR/ER isokinetic testing



Phase 1: Protection

WEEK 4-6	ROM	• Continue PROM ▪ Begin PROM in flexion and external rotation only ▪ Do NOT push into pain • Shoulder joint mobilizations (grade II-III) – posterior and caudal • Scapular mobilization • Pectoralis minor flexibility ▪ Supine postural stretch ▪ Passive therapist overpressure • Begin wand exercises in a seated position ▪ Shoulder external rotation ▪ Shoulder flexion with physician's authorization
	Strengthening	• Begin isotonic scapular retraction/protraction ▪ Serratus punches ▪ PNF patterns in sidelying (scapular clock) ▪ Sitting retraction • Begin manual resistance scapular stabilization (sitting, side lying) ▪ Rows, pulldowns – light resistance
	Modalities	• Ice and pain modalities as indicated
	Goals for Progression to Next Phase	1. Decrease pain 2. Full PROM supine 3. Sleeping through the night 4. Normal posture



Phase 2

WEEK 6-8	D/C sling per physician	
	ROM	• AAROM per patient tolerance - adding abduction, horizontal abduction (maintain subscapularis precautions) • Ball on wall, UE swiss ball mobility –IR/ER • Towel wipes on table – any direction
	Strengthening	• Closed-chain stability – elbow extension with hand on ball performing oscillations • Progress scapular neuromuscular strengthening • Initiate SUB-MAX/50% effort strengthening • Isometric flexion, extension, abduction, ER, IR • Isometric lower trap
WEEK 8-10	ROM	▪ AROM per patient tolerance; avoid scapular substitution
	Strengthening	• UBE light resistance • Begin prone exercise program <u>no weight, below shoulder level</u> • Row • Shoulder extension • Continue scapular strengthening progression • Begin closed chain UE activities ▪ Towel wipes on wall – horizontal, diagonal and vertical ▪ Quadraped weight-shifts
WEEK 10-12	ROM	▪ Continue AROM per patient tolerance ▪ Add gentle IR stretching
	Strengthening	• UBE moderate resistance • Continue isometric strengthening • Dynamic isometric walk-outs • Progress prone exercise program <u>no weight</u> • Row • Shoulder extension • Progress closed chain UE activities • Seated press-up • Serratus punches • Proprioceptive exercises • Ball on wall • Supine ABC's
	Goals for Progression to Next Phase	1. Full AROM with no scapular substitution 2. No reactive inflammation with strengthening 3. Return to full ADLs pain free



Phase 3

WEEK 12-16	Strengthening	• T-band exercises • Shoulder IR/ER • Horizontal abduction/adduction • Diagonal patterns • Begin Prone exercise program <u>with weight</u> • Row • Shoulder extension • Horizontal abduction – T exercise position • Lower trapezius – Y exercise position • Begin rhythmic stabilization exercises supine, starting at balance point position (90-100 degrees of elevation); progress to side lying, prone, standing • Functional eccentric strengthening • Decelerations • Progress closed chain UE strengthening • Push up with a plus • Swiss ball activities • Plank BOSU weight shifts • Trunk and lower extremity strengthening
	Goals for Progression to Next Phase	1. Full AROM with no scapular substitution between weeks 10-12 2. 5/5 rotator cuff strength 3. 65-70% IR/ER isokinetic testing

Phase 4 – Return to Sport / Activity

Goal is to return to sport at 6 months

4-6 MONTHS	ROM	• Emphasis on posterior capsule stretching • General stretching/flexibility program
	Strengthening	• Progress T-band exercises • Progress Dumbbell Program with weight • Scaption • Diagonal patterns • Bent row • Prone Retraction with ER • Functional eccentric strengthening • Progress closed chain UE strengthening • Push up with a plus • Swiss ball activities • Continuation of trunk and lower-extremity strengthening • Initiation of throwing progression (See OSU Sports Med Throwing Program) • Begin short toss and overhead endurance activities per physician release • Continuation of functional UE/LE strengthening and endurance activity
	Goals to Return to Sport	• Completion of throwing progression • No reactive effusion, pain and/or instability • 65-70% IR/ER isokinetic testing • Full functional mobility and strength



THE OHIO STATE UNIVERSITY

WEXNER MEDICAL CENTER

Authors: Mitch Salsbery, PT, DPT, SCS and Adam Ingle PT, DPT, SCS

Reviewers: Grant Jones, MD and Julie Bishop, MD

Completion date: December 2017

References

Colvin AC, Egorova N, Harrison AK, Moskowitz A, Flatow EL. National trends in rotator cuff repair. *J Bone Joint Surg Am.* 2012;94:227-233.

Kim YS, Chung SW, Kim JY, Ok JH, Park I, Oh JH. Is early passive motion exercise necessary

McCann PD, Wooten ME, Kadaba MP, Bigliani LU. A kinematic and electromyographic study of shoulder rehabilitation exercises. *Clin Orthop Rel Res.* 1993;288:178-188.

Ellsworth AA, Mullaney M, Tyler TF, McHugh M, Nicholas S. Electromyography of selected shoulder musculature during un-weighted and weight pendulum exercises. *N Am J Sports Phys Ther.* 2006;1:73-79.

Kibler WB, Livingston B, Bruce R. Current concepts in shoulder rehabilitation. In: Stauffer RN, Erlich MG. *Advances in Operative Orthopaedics. Vol 3.* St. Louis, MO: Mosby; 1995: 249-297

Park MC, Idjadi JA, Elattrache NS, Tibone JE, McGarry MH, Lee TQ. The effects of dynamic external rotation comparing 2 footprint-restoring rotator cuff repair techniques. *Am J Sports Med.* 2008;36(5): 893-900.

Slabaugh MA, Nho SJ, Grumet RC, Wilson JB, Seroyer ST, Frank RM, Romeo AA, Provencher MT, Verma NN. Does the literature confirm superior clinical results in radiographically healed rotator cuffs after rotator cuff repair? *Arthroscopy.* 2010 Mar;26(3):393-403. Epub 2010 Jan 15

Jost B, Zumstein M, Pfirrmann CW, Gerber C. Long-term outcome after structural failure of rotator cuff repairs. *J Bone Joint Surg Am.* 2006 Mar;88(3):472-9.

Paxton ES, Teefey SA, Dahiya N, Keener JD, Yamaguchi K, Galatz LM. Clinical and radiographic outcomes of failed repairs of large or massive rotator cuff tears: minimum ten year follow-up. *J Bone Joint Surg Am.* 2013 Apr 3;95(7):627-32.

