

ValleyOrtho Rehabilitation Playbook Series

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Surgical Procedure: Partial Thickness Rotator Cuff Regeneration Patch Repair **(without concurrent rotator cuff suture repair)**

*The intent of this information is to inform the treating clinician on the evidence based considerations to be used as a guideline regarding the surgery noted above. This is not a substitute for appropriate clinical decision making but a supplement to that effect. If at any time a clinician feels uncertain about a given phase discrepancy or patient presentation they are strongly encouraged to discuss this with the referring physician and his/her team. If specific comorbidities create unattainable goals for phase progression, discuss this with the treating physician group before progressing to the next phase. **Always check the prescription for potential patient specific ROM variations.***

*****It is the responsibility of the therapist to read the operative report before providing care to the patient to improve treatment communication as variations to treatment plan may occur because of surgical details and patient response to treatment*****

Therapeutic Activity Progression Disclaimer: Phase progression should be strongly based on meeting clinical criteria (not solely based on the post-operative timeframes) and in collaboration with the referring surgeon. Patient progress is variable and should be individualized while ROM restrictions provide upper limits, not absolute goals. Exercise prescription should be clinically directed by pain and performance absent of detrimental compensation with respect to proper arthrokinematics at the glenohumeral joint (GHJ).

Communication Recommendations to Surgical Team: When a treating therapist feels the need to reach out to the physician, and his/her team, at any point for any reason they are strongly encouraged to do so. All concerns are not explicitly written and clinical judgement is paramount. Below is a handful of reasons and suggested methods of contact to promote communication:

Urgent Red Flag Communication

- Uncontrollable and unremitting pain
 - Signs of infection at incision or treated limb
 - Severe palpation tenderness, swelling, tachycardia (UE or LE DVT)
 - Labored breathing (PE)
 - Drastic improvement or decline in ROM (failed repair)
 - Excessive muscle guarding or motion phobia evident after the first 1-2 outpatient visits
 - After a fall/trauma, or near fall/trauma, resulting in a clinical change
- Preferred Contact Method:** 1. Immediate call to MD or PA Cell.
2. Office phone call to request consult with MD/PA/MA/ATC until answer.

Administrative Needs

- Rehabilitation Prescription needed or specific prescription change requests.
- Appointment needed with the physician office, or medication refill.

Preferred Contact Method: Office phone call to MA/ATC.

Other Patient Concerns During Clinic Hours M-TH 9am-5pm F 9-3pm

- Abnormal pain, comorbidities or complications that may prevent attainment of established discharge criteria
- Patient is noncompliant with rehabilitation process
- Adverse work or home practices negatively impacting recovery
- Patient expresses discontent or concerns with the current POC established by PT/OT and/or by MD/PA

Preferred Contact Method: Phone call to MD &/or PA

Preferred Updates before checkup visits with MD

- Info regarding adherence/participation in rehabilitation process
 - Comments on progress & trending nature of the patient's rehab course
- Preferred Contact Method:** Phone call MD and/or PA. Or Fax update.



Phase 1: Healing & PROM Recovery (week 0 to 1)

Patch Concept Alert:

- Graft has 1mm of thickness when augmented to partial tear¹⁴
- Fragile initially but sticky and integrates into the native tissue enough to pull on in ≈ 2 days⁹

Goals:

- Protect repair and optimize healing environment via postural control
- Proper pain, swelling and sling/cryotherapy management
- Decrease negatives of immobilization via improvements in PROM
- Emphasis on PROM via HEP and Manual therapy in phases 1 & 2
- Establish appropriate cardiovascular exercise program
- Discuss any clinical concerns of excessive muscle guarding to PROM or motion phobia after the first 1-2 outpatient visits with the physician

Precautions:

- Sling use 100% of the time **for 48 hours**¹⁶ except to dress, shower, or for rehab. Then the sling is used in public and during sleep until week 2-4^{9, 16}
- PROM as tolerated in front of the body
- EXT limited to neutral in all positions until week 3
- No lifting, pushing, pulling, GHJ isometrics, CKC >10% BW or RROM of involved UE
- No RROM elbow flexion until week 12 with Bicep Tenodesis¹⁵

Phase 1 Therapeutic Activities:

- HEP instructed before surgery includes¹⁶:
 - ☐ Counter top supported PROM flexion walk backs
 - ☐ Standing PROM ER via turning body in doorframe
 - ☐ Scapular retractions
- Pain free Therapist provided PROM in front of the body
- GHJ protected PROM/mob without tissue deformation of surgically involved tissue
- Cervical, thoracic and scapular manual work and postural exercises to decrease potentially prolonged effects from interscalene block
- Clavicle posterior rotation and elevation mobilizations at AC/SC joints
- AROM encouraged at elbow, wrist, hand, scapula, cervical and T-spine
- Tubigrip and/or glove compression to manage distal swelling as needed

Criteria for Progression to Phase 2 Activities:

- Decreasing swelling and pain

Phase 2: ROM & Early Strengthening (weeks 1 to 6)

Patch Stiffness Alert:

During incorporation of the graft into damaged tendon it is prone to excessive stiffness into IR⁹, ensure gradual increase in IR and ADD anterior to the frontal plane for proper remodeling stressors during this phase

Goals:

- Continue strong emphasis of PROM and Manual therapy in this phase
- Gently restore RTC function with GHJ arthrokinematics (AA>AROM)
- Improve Active/Passive scapula-humeral disassociation
- Return to all light ADL's below shoulder level without discomfort
- Consistent and independent with HEP and cardiovascular program

Precautions:

- Therapist communication with provider to D/C sling between wks 2-4^{9, 16}
- No RROM elbow flexion until week 12 with Bicep Tenodesis¹⁵
- No RROM outside resting position (RP) until A/PROM is $\geq 90\%$ LSI
- No combined ADD and IR behind the body, however encouraged ROM work in front of the body
- Do not over stress surgically integrating/healing tissue
 - ☐ Target activity goal for mild tissue deformation for weeks 1-3 and moderate tissue deformation for weeks 3-6

Phase 2 Therapeutic Activities:

- Begin Sub max shoulder isometrics without pain near GHJ RP
- Gentle GHJ and scapular mobilizations, **emphasis on posterior capsule mobility** & P/AA/AROM scapula-humeral disassociation
- Progress AAROM to AROM activities
- Scar management on healed incisions **at ≈ 2 weeks**
- NWB rhythmic stabilization
- Slow and progressive RROM into ER / IR in GHJ RP at week 3
- Gradually increase CKC activity from 10% to 50% BW by end of phase

Criteria for Progression to Phase 3 Activities:

- AROM to 90% LSI of uninvolved UE in all planes

Progression Note:

- If the patient has not reached the above ROM criteria, forceful stretching/mobs without respect for soft tissue restraints is not indicated in this phase. Continue phase approach unless cleared with physician.
- If excessive shoulder shrugging occurs with AROM elevation do not progress to additional exercise above shoulder level. Ensure full PROM with manual efforts, if PROM is full; increase cuff recruitment for proper GHJ positioning.



Phase 3: AROM & Intermediate Strengthening (weeks 6 to 12)

Goals:

- Restoration of full shoulder AROM in all planes¹⁶
- Improve neuromuscular control and coordination of T-spine, scapula, and GHJ for improved activities above shoulder level

Precautions:

- No heavy lifting, aggressive strengthening, or sudden lifting / pushing
- No RROM elbow flexion until week 12 with Bicep Tenodesis¹⁵
- Assess and address combined ADD and IR behind back with/without scapula stabilization as required for ROM goals
- Gradually increase from CKC 50% BW to 100% BW by end of phase

Phase 3 Therapeutic Activities:

- GHJ protected PROM and mobilizations with target intensity for strong tissue deformation to patient's tolerance, emphasis on combined ADD and IR behind back and posterior capsule mobility
- Begin to progress RROM of RTC from GHJ RP towards 90° ABD/flexion positions as tolerated¹⁶
- Progressive RTC exercises focusing on high repetition low load RROM
- Increasing duration and intensity with rhythmic stabilization/PNF diagonal activities¹⁶
- Manual and exercise programming to maintain/improve the adjacent body regions that kinetically impact shoulder function
- Gradually progress plyometric ball toss from GHJ RP towards 90° ABD/flexion positions as tolerated¹⁶

Low Demand D/C Criteria:

- AROM =100% LSI with good arthrokinematics & return to all ADLs
- Total ER/IR arc of ROM in 90° ABD within 7° of uninjured¹⁵
- Pain free Hawkins Kennedy, relocation 90/90 test & SLAP testing¹⁵
- MMT with Hand Held Dynamometer¹⁵ at 12 weeks:
 - ☐ Obtain clearance from surgical team before initial dynamometer test or manual muscle test (surgical team to perform 1st test)
 - ☐ ER:IR and ER:ABD Ratios of 70%^{17, 18}
 - ☐ Flex and ABD LSI >75%¹⁸

Additional Criteria for Progression to Phase 4: (see appendix A-D)

- Achieved Low demand D/C criteria above
- Front & side plank on hands for 60" with proper scapular form¹⁵
- Prone ball flips for 30" with proper form maintained without pain¹⁵
- 2# rhythmic IR bounces at wall x 10 with without pain¹⁵
- 1# 20" ball toss/catch to rebounder with proper form maintained without pain¹⁵

Phase 4: Advanced Strengthening & Final HEP (wk 12 to D/C)

Patch Remodeling:

- 2.2mm mean increase in tendon repair thickness at 12wks¹⁴
- Patch gradually absorbs/integrates completely within 6 months¹³

Goals:

- Maintain full non-painful AROM
- Progress muscular endurance, strength and power
- Return to full duty work and recreational activity absent of forceful repetitive overhead tasks
- Patient understands appropriate exercise progressions/regressions for long term success with HEP to prevent likelihood of re-injury

Precautions:

- Continue to avoid sudden reactional motions and heavy/repetitive lifting overhead early in phase 4
- Ensure gradual exercise and activity progression

Phase 4 Therapeutic Activities:

- Slow progression of RROM above shoulder level focusing on stability
- Home program maintenance and progression education
- Return to work and recreation specific exercise
 - ☐ Suggested sport specific progressions for overhead throwing, softball pitching, swimming, tennis, golf and volleyball can be found in the Post-Surgical Return to Shoulder Sports Playbook at vvorthocare.org

Criteria for Discharge / Expected Outcomes:

- Pain free AROM **to 95%** uninjured extremity with normal mechanics
- Pain free isometric muscle strength **to 85%** uninjured extremity
 - ☐ Obtain clearance from surgical team before initial dynamometer test or manual muscle test (surgical team performs 1st test ≈ 12 wks)
- Patient demonstrates appropriate strength and endurance to perform required work and desired recreational activity
- Compliant with prescribed HEP and understanding of commitment to shoulder care

Physician Alert Recommended:

- If the patient hasn't made progress in ROM for 1.5 - 2 weeks and/or has persistent pain complaints beyond recovery expectations; Dr. Liotta requests more information to decide whether injections, surgical release or revision may need to be provided during the 12-16 week timeframe
- If comorbidities create unattainable goals for discharge, discuss this with the treating physician group



Abbreviation List:

AAROM: Active assisted range of motion

ABD: Abduction

ADD: Adduction

ADL: Activity of daily Living

AROM: Active range of motion

BT: Biceps tenodesis

BW: Body Weight

CKC: Closed kinetic chain

D/C: Discharge

DVT: Deep vein thrombosis

ER: External rotation

EXT: Extension

FWB: Full weight bearing

GHJ: Gleno-humeral joint

HEP: Home exercise program

IR: Internal rotation

LE: Lower extremity

LSI: Limb Symmetry Index (involved/uninvolved x 100 = %)

MA: Medical assistant

MD: Medical doctor

Mobs: Mobilizations

NWB: Non weight bearing

PA: Physician assistant

PE: Pulmonary embolism

PROM: Passive range of motion

ROM: Range of motion

RP: Resting position

RROM: Resisted range of motion

RTC: Rotator Cuff

UE: Upper extremity

WB: Weight bearing

Wks: Weeks

#: Pounds

≈: Approximately

≠: Without

“: Seconds

ROM & Activity Quick Guide

Wk	ROM Restrictions	Activity / Restrictions
0-1	PROM as tolerated in front of the body	- Self PROM HEP - Scapula retractions - Therapist PROM - CKC <10% BW
1-3	P/AA/AROM as tolerated in front of the body	- Begin AA/AROM - Begin sub max isometrics without pain - NWB rhythmic stabilization
3-6	- P/AA/AROM as tolerated - No combined EXT, ADD, & IR	- Begin light RROM ER & IR in RP - Gradual progression of CKC to 50% BW by wk 6
6-12	P/AA/RROM[Ⓢ] AS TOLERATED	- Begin ROM work for combined EXT, ADD and IR ⚡ No RROM Elbow Flexion with BT - Progress UE RROM outside of RP as tolerated - PNF diagonals - Gradual progression of CKC to FWB by wk 12
12+	P/AA/RROM AS TOLERATED	- Begin RROM elbow flexion with concurrent BT - Progressive RTC/UE RROM into elevated ranges as tolerated - Assess D/C criteria and progress to return to sport when indicated



Appendix A: Front & Side Plank Positions



Maintain plank on hands for 60" with proper scapular form¹⁵ in each position.

Appendix B: Prone Ball Flips



Laying prone on a table, maintain proper scapular form¹⁵ and repetitively drop and catch ball for 30 seconds.



Appendix C: Rhythmic IR Bounces at Wall



Maintain proper scapular form¹⁵ while repetitively bouncing 2# ball into wall for 10 repetitions.

Appendix D: Rebounder Ball Toss

Maintain proper scapular form¹⁵ and repetitively throw and catch 1# ball for 20 seconds.



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