

# ValleyOrtho Rehabilitation Playbook Series

**Physician:** Dr. Ferdinand Liotta  
**Office Phone:** 970-384-7637

**Physician Assistant:** Amanda Hunter & Erin Flores **MA:** Kara Morgan **ATC:** Hannah Krewson  
**Office Fax:** 970-384-8133

**Surgical Procedure:** Large-Massive Rotator Cuff Repair (Without Regeneten Patch Repair) **Red Playbook**

*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 from Therapist 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 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
- 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

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

- Information regarding adherence/participation in rehabilitation process
- Comments on progress and 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** (weeks 0 to 6)

### **Goals:**

- Protect repair & optimize healing environment via postural control
- Pain, swelling and sling/cryotherapy management
- Intense emphasis on PROM via Manual therapy in this phase
- Improve passive scapula-humeral disassociation
- Establish patient 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 6-8 weeks** except during periods of bathing, dressing or prescribed therapy activities (sling D/C by MD)
- Postural EXT limited to neutral in all positions **until week 7**
- Therapist provided PROM only (caution repair's antagonistic rotation)
- No lifting, pushing, pulling, GHJ isometrics, or RROM of involved UE

### **Phase 1 Therapeutic Activities:**

- PROM to restrictions in prescription, do not work through a guarded reaction. Avoid EXT and caution into repair's antagonistic rotation
- GHJ protected PROM/mobs without deformation of surgically involved tissue and without pain increase (verbal/non-verbal) from patient
- Cervical, thoracic and scapular manual treatment and postural exercises to improve healing environment and decrease effects from interscalene block
- Clavicle posterior rotation and elevation mobilizations at AC/SC joints
- AROM at elbow, wrist, hand, scapula, cervical and thoracic
- Tubigrip and/or glove compression to manage distal swelling as needed
- Scar management on healed incisions (**≈ 2 weeks**)

### **Criteria for Progression to Phase 2:**

- Tolerates therapeutic progressions without undue discomfort, compensation or guarding
- Achieves without exceeding rotational and elevation restrictions in prescription

### **Progression Note:**

- If the patient has not reached ROM restrictions, forceful stretching and mobilization without respect for soft tissue restraints is not indicated in this phase. Continue current phase approach unless cleared with the physician

## **Phase 2: ROM & Early strengthening** (weeks 6 to 8)

### **Goals:**

- Continue strong emphasis of PROM and Manual therapy in this phase: Restore ≈ 50% full PROM (caution into antagonistic rotation until 8 wks)
- Gently restore RTC function for proper GHJ arthrokinematics (AAROM)
- Minimal to no pain at rest
- Consistent and independent with HEP and cardiovascular program

### **Precautions:**

- No RROM or uncontrolled active movements, CKC <10% BW
- Begin AAROM elevation to 90° and agonistic rotation in sitting/standing
- Begin PROM into EXT **at 7 weeks** and PROM IR in 90/90 **at 7 weeks**
- Do not over stress surgically involved healing tissue (Therapist's target activity goal is for mild tissue deformation)

### **Phase 2 Therapeutic Activities:**

- GHJ and scapular mobs emphasizing posterior capsule mobility
- P/AAROM scapula-humeral disassociation as needed to support proper biomechanics
- AAROM in sitting or standing without excessive compensations
- Clavicle posterior rotation and elevation mobilizations at AC/SC joints
- Cervical, thoracic and scapular manual work and postural exercises

### **Criteria for Progression to Phase 3:**

- Tolerates therapeutic progressions without undue discomfort, compensation or guarding
- **PROM to Achieve without exceeding: (Flexion = 130°) (ABD = 90°)**  
(ER in RP = 60°) (ER @ 60° ABD = 50°) (ER @ 90° ABD = 40°)  
(IR in RP = 40°) (IR @ 90° ABD = 20°) (EXT = 20°)

### **Progression Note:**

- If the patient has not reached the above PROM, forceful stretching and mobilization without respect for soft tissue restraints is not indicated in this phase. Continue current phase approach unless cleared with the physician



### **Phase 3: AROM & Intermediate strengthening** (weeks 8 to 12)

#### **Goals:**

- Gradual restoration of near full GHJ PROM with arthrokinematic focus
- Increased emphasis on gradual restoration of shoulder AROM endurance and postural endurance
- Improve neuromuscular coordination of T-spine, scapula, and GHJ
- Return to light ADL's below shoulder level without discomfort

#### **Precautions:**

- No heavy lifting, aggressive strengthening, or sudden lifting / pushing
- Begin shoulder AROM, continue AAROM within ROM guidelines
- Begin light RROM biceps/triceps (absent BT or labral repair)
- Begin sub-max RTC isometrics in neutral GHJ and scapular position
- NWB rhythmic stabilization, CKC <10% BW
- Slow progression of P/AA/AROM IR behind back **at 10 weeks**

#### **Phase 3 Therapeutic Activities:**

- GHJ protected PROM and mobilizations with target intensity for mild to moderate tissue deformation to patient's tolerance
- Endurance focused AROM exercise without compensations
- Gentle NWB rhythmic stabilization activities

#### **Criteria for Progression to Phase 4:**

- Tolerates AA>AROM without undue soreness
- AROM within 15% of uninjured UE with good GHJ arthrokinematics
- Maintains scapula and thoracic posture during exercise without cueing
- **PROM to Achieve without Exceeding: (Flex = 170°) (ABD = 150°) (EXT = 50°) (ER in RP = 80°) (ER @ 90° ABD = 70°) (IR in RP = 70°) (IR @ 90° ABD = 60°)**

#### **Progression Note:**

- If the patient is having difficulties attaining the above mentioned functional ROM at 12 weeks, more forceful short lever mobilizations and stretching with GHJ protection may be used with respect to the patient's pain tolerance
- If excessive shoulder shrugging occurs with AA/AROM elevation do not progress to additional exercise above shoulder level (increase Manual focus). Poor humeral head inferior glide with elevation
- 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

### **Phase 4: Advanced strengthening and Final HEP** (wk 12- D/C)

#### **Goals:**

- Finalize full PROM, then achieve and maintain full non-painful AROM
- Progress muscular endurance, strength and power
- Return to light duty work and modified 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
- Begin RROM for RTC progressing from neutral GHJ to 90/90 ABD as tolerated
- CKC to 50% progressing to FWB **at 18 weeks**

#### **Phase 4 Therapeutic Activities:**

- Slow progression of low elevation RROM IR/ER *followed by RROM* flexion, scaption and extension
- Ensure gradual exercise and activity progression
- 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 [vorthocare.org](http://vorthocare.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 1<sup>st</sup> test ≈ 16wks)
- Compliant with prescribed HEP and understanding of commitment to shoulder care

#### **Physician Alert Recommended:**

- If comorbidities create unattainable goals for discharge, discuss this with the treating physician group
- 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



## 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  
**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

## Risk Factors for a Failed Structural Repair

Approach → Factors ↓	Conservative
Age	Over 65 years old
Bone Density	Osteopenia/Osteoporosis
Smoker	Yes
Tear size / #	> 3cm / multiple tendon
Tissue Quality	Poor
Pre-op Strength	Poor

Adapted from: [Kokmeyer D<sup>1</sup> et al.](#)

## ROM & Activity Quick Guide

Wk	ROM Restrictions	Activity
0-6	<ul style="list-style-type: none"> <li>●90° elevation      ●30° ER in RP</li> <li>●20°ER @90°ABD   ●20° IR in RP   ●0° Ext</li> </ul>	- Therapist PROM only
6-8	<ul style="list-style-type: none"> <li>●130° Flex              ●90° ABD</li> <li>●60° ER in RP        ●50° ER in 60° ABD</li> <li>●40° ER in 90° ABD   ●40° IR in RP</li> <li>●20° EXT ●20° IR in 90° ABD @ 7 Wks</li> </ul>	- Begin AAROM elevation & Agonistic Rotation - CKC <10% BW - Begin PROM EXT and IR in 90° ABD @ 7 Wks
8-10	<ul style="list-style-type: none"> <li>●140° Flex      ●110° ABD      ●30° EXT</li> <li>●60° ER in RP</li> <li>●50° ER in 90° ABD</li> <li>●45° IR in RP ●40° IR in 90° ABD</li> </ul>	- Begin AROM - Begin Sub-max Isometrics - Begin Light Elbow RROM ≠ BT
10-12	<ul style="list-style-type: none"> <li>●170° Flex      ●150° ABD      ●50° EXT</li> <li>●80° ER in RP ●70° ER in 90° ABD</li> <li>●70° IR in RP   ●60° IR in 90° ABD</li> </ul>	- P/AA/AROM IR behind back
@ 12	Full P/AA/AROM As Tolerated	Begin RTC RROM CKC to 50% BW
18+	Full P/AA/AROM As Tolerated	CKC to 100% BW Progressive RTC RROM into elevated ranges as tolerated



## References

1. Abtahi AM, Granger EK, Tashjian RZ. Factors affecting healing after arthroscopic rotator cuff repair. *World J Orthop.* 2015 Mar 18;6(2):211-20. eCollection 2015 Mar 18.
2. Chang KV, Hung CY, Han DS, Chen WS, Wang TG, Chien KL. Early Versus Delayed Passive Range of Motion Exercise for Arthroscopic Rotator Cuff Repair: A Meta-analysis of Randomized Controlled Trials. *Am J Sports Med.* 2015 May;43(5):1265-73. Epub 2014 Aug 20.
3. Gunderson Health System Rotator Cuff Repair Rehabilitation Program
4. Houck DA, Kraeutler MJ, Schuette HB, McCarty EC, Bravman JT. Early Versus Delayed Motion After Rotator Cuff Repair. *Am J Sports Med.* 2017 Mar [Epub ahead of print]
5. Hsu JE, Horneff JG, Gee AO. Immobilization After Rotator Cuff Repair: What Evidence Do We Have Now? *Orthop Clin North Am.* 2016 Jan;47(1):169-77.
6. Kluczynski MA, Isenburg MM, Marzo JM, Bisson LJ. Does Early Versus Delayed Active Range of Motion Affect Rotator Cuff Healing After Surgical Repair? A Systematic Review and Meta-analysis. *Am J Sports Med.* 2016 Mar;44(3):785-91. Epub 2015 May 5.
7. Kokmeyer D, Dube E, Millett PJ. Prognosis Driven Rehabilitation After Rotator Cuff Repair Surgery. *Open Orthop J.* 2016 Jul 21;10:339-348. eCollection 2016.
8. Lee BG, Cho NS, Rhee YG. Effect of two rehabilitation protocols on range of motion and healing rates after arthroscopic rotator cuff repair: aggressive versus limited early passive exercises. *Arthroscopy.* 2012 Jan;28(1):34-42. Epub 2011 Oct 20.
9. Liotta, F. Expert Opinion and Consultation.
10. Mulligan EP, Devanna RR, Huang M, Middleton EF, Khazzam M. Factors that impact rehabilitation strategies after rotator cuff repair. *Phys Sportsmed.* 2012 Nov;40(4):102-14.
11. Nikolaidou O, Migkou S, Karampalis C. Rehabilitation after Rotator Cuff Repair. *Open Orthop J.* 2017 Feb 28;11:154-162.
12. Riboh JC, Garrigues GE. Early passive motion versus immobilization after arthroscopic rotator cuff repair. *Arthroscopy.* 2014 Aug;30(8):997-1005. Epub 2014 May 10.

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 VALLEY VIEW