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Notes:

**This protocol is designed to serve as a guide for the rehabilitation process. It is not intended to supersede clinical judgment and decision making. Progression through each phase is designed to allow for maximal tissue healing of repaired tissues and is based on scientific evidence and clinical experience.*

Phase III

Precautions:

*No Lifting > 5 pounds

*No straight arm forward raises^{41-43,56}

*No empty can Exercises^{41-43,56}

Phase III – Tissue Proliferation Phase/Progression Phase (10-16 weeks)

Goals: 1)Initiate gradual strength progression

2)Achieve full AROM

3)Improve neuromuscular control and dynamic shoulder stability

4)Normalize Scapulohumeral rhythm

5)Gradual return to ADLs

ROM: Sleeper stretch/Cross body stretch (@ 10 weeks)^{56,59}

Towel IR stretch (@ 10 weeks)^{56,59}

Chest stretch/corner/doorway stretch (@ 10 weeks)^{32,56,59}

AROM – forward flexion in scapular plane^{33,41,43,44}

Exercise: UE wall slide

Rowing/Scap retractions (mid/lower trapezius)³⁷

Bear Hug/Scapular punch³⁷

Isotonics biceps/triceps (<5 pounds)⁵⁶⁺

Scapular I,T, Y's^{37,44,62}

(Starting Week 12)

RC IR/ER at 30/30/30 position^{37,47,50}

Full can to 80 degrees (scapular plane)⁵⁴

Prone shoulder ext/horizontal abd/scaption (in ER)^{37,62}

Manual: Shoulder PROM^{23,-27}

GH joint mobilization grade III/IV (PRN)²¹⁻²⁵

Modalities: PRN

CV Exercise: UBE (high seat, low resistance @ 12 weeks or later)

Criterion for Progression:

1)Full non painful AROM in all planes with no compensatory shrug sign

2)Pain free with current rehab program and ADLs

3)MMT at least 4/5 in all shoulder muscle groups

4)Normalized Scapulohumeral mechanics

Phase IV – Tissue Remodeling/Hypertrophy Phase (weeks 17-32)

Goals: 1)Improve muscular endurance, strength, and power

2)Normalize scapulohumeral rhythm

3)Normalize neuromuscular control and dynamic stability

4)Prepare for sport specific phase – if applicable

ROM: As previous

Exercise: *Progress resistance every 1-2 weeks when no fatigue is appreciated with 10 reps^{46-48,56}

WB exercises – push up progression (wall/edge of table/ball)⁵³

Progressive RC strengthening towards 90 degrees abduction⁵⁵

Body Blade/OKC/CKC perturbation training

Open chain gentle plyometrics

Criterion for Progression:

1) PT or MD clearance

2) Strength >70-80% of uninvolved side and 5/5 by MMT

3)Pain free with rehab program and ADLs

4)Normal Scapulohumeral mechanics with OH motions

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Phase V -Sport Specific Training (32-52)

- Goals:**
- 1)Prepare for return to sport activities
 - 2)Prepare for return to strenuous work activities
 - 3)Normalize strength and neuromuscular control

Exercise: Sport specific Progression (Throwing/Golf/Tennis)
Plyometric Progression

Criterion for Return to Play/Work: *(Recommend combination testing of strength, ROM, motor control, and confidence according to available resources/clinic setting)*

- 1)Modified ASES > 90%
 - 2)Patient confidence
 - 3)Normal scapulohumeral mechanics with OH motion (by visual inspection)
 - 4)Satisfactory stability by clinical exam
 - 5)No pain during sporting activity (throwing/tennis swing/golf swing)
 - 6)Strength measure (1 of 3 options according to clinic resources)
 - A: Handheld dynamometer at 30/30/30 1 rep; hold 5 seconds at midrange
Normal = > 85% of uninvolved side
 - B: isokinetic testing ER/IR at 30/30/30 at 60/180/300 degrees/sec comparing involved:
 - i)normal= bilateral difference <=10-15% peak torque (involved > 85% of uninvolved)
 - ii)normal ER/IR ratio = 66% (range 65-75% for throwers)

*alternative testing at 90 degrees abduction with same parameters

 - C: Functional strength testing (relevant to sport). Consider use of CKCUES test, Single Arm Seated Shot Put Test; Push up test, Modified Pull up test
- 7)ROM: < 20 degrees difference (or < 10 %) of total rotation compared to uninvolved arm

Estimated Return to Sport / Work:

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Large/Massive RC Repair

ROM

Sling Use

Sling: _____ weeks

With sleep: _____ weeks

Recommended Clinical Guidelines

PROM:

- *Flexion to 115 x 0-2 weeks
- *Flexion >=140 x 3-6 weeks
- *ER 0-25 x 4 weeks

*Supra/infraspinatus –
Caution with excessive IR
ROM for 6-8 weeks⁹

Precautions (x 14 wks)

- *Avoid active reaching behind back
- *No lifting/carrying heavy objects > 5 pounds^{3,6,8}
- *Avoid using arm to push up from lying/seated position^{3,6}
- *Avoid sudden jerking Motions^{38,43}

Phase I – Tissue Protection/Healing Phase (Max protection) (0-5 weeks)

- Goals:**
- 1) Reduce pain and inflammation
 - 2) Minimize adhesion formation, joint stiffness, and muscle inhibition
 - 3) Protect repaired tissue
 - 4) Maintain cuff vascularity
- ROM:** Painfree PROM per MD restrictions^{2,5}
- Exercise:** Elbow, wrist, hand AROM and grip strengthening (POD 1)
Pendulums Hangs
Table slides flex/abd (scapular plane)^{2,58}
***No Cane, Pulleys, or High EMG exercises**
- Manual:** Shoulder PROM^{2,5,21,22}
- Modalities:** Cryotherapy¹⁰⁻¹⁵

Criterion for Progression:

- 1) Minimal pain and signs of active inflammation
- 2) PROM: flexion to 115, ER to 25-35 degrees

Phase II – Tissue Protection/Healing Phase (Moderate protection)(6-9 weeks)

- Goals:**
- 1) Pain and edema control
 - 2) Minimize stress to healing tissue
 - 3) Minimize adhesion formation
 - 4) Restore full PROM by week 6
 - 5) Restore neuromuscular and scapular control
- ROM:** PROM/AAROM to tolerance (*gravity lessened progressing to anti-gravity*)^{5,8,16-18}
- Exercise:** Pendulums^{31,34}
Supine anterior deltoid re-education (*assisted [e.g dowel] progressing to no assistance*)⁶³
Submax pain free isometrics @ 8 weeks^{36,45,56}
Wand/T-bar exercises⁴³
Pulleys (scapular plane) week 4^{31,34,56,59}
Scapular AROM 4 way³⁸
Robbery³⁵
Serratus press^{38,42}
Prone Row to neutral⁵⁶
- Manual:** PROM/AAROM^{23,25-27}
Scapular mobilization/MRE
GH Joint mobilization grade I/II^{21-24,58,59}
Rhythmic stabilization in supine balanced position^{28,56}
- Modalities:** Cryotherapy¹⁰⁻¹⁵
Neuromuscular Electric Stimulation @ 8 weeks³⁶

Criterion for Progression:

- 1) Minimal Pain
- 2) PROM > 140 in forward flexion, ER WNL at 45 degrees abduction
- 3) Normal scapular and shoulder resting position