

Appendix A
Exercise Progression for a Supraspinatus Rotator Cuff Repair

Phase 1: Protection and PROM	Week:	1	2	3	4	5	6				
Pendulums (Small)		X	X	X	X	X	X				
Table Slide in Scaption Plane		X	X	X	X	X	X				
Supine Bar-Assisted ER (20 deg Abd)		X	X	X	X	X	X				
Forward Bow			X	X	X	X	X				
Towel Slide Flexion			X	X	X	X	X				
Upright Bar-Assisted ER			X	X	X	X	X				
Supine Press Up, Holding Small Towel				X	X	X	X				
Standing IR Isometric (0 deg Abd)				X	X	X	X				
Phase 2: AAROM --> AROM	Week:	5	6	7	8	9	10	11	12		
Supine Self Assisted Elevation		X	X	X	X	X	X	X	X		
Prone Shoulder Extension (0 deg Abd)		X	X	X	X	X	X	X	X		
Ball Roll				X	X	X	X	X	X		
Supine Bar-Assisted ER (45 deg Abd)				X	X	X	X	X	X		
Pully-Assisted Elevation				X	X	X	X	X	X		
Active Flexion Elbow Bent (Lawn Chair Prog)					X	X	X	X	X		
Upright Bar-Assisted Elevation						X	X	X	X		
Self or Bar-Assisted IR						X	X	X	X		
Wall Walks							X	X	X		
Supine ER Range of Motion (90 deg Abd)							X	X	X		
Phase 3: Early Strengthening	Week:	9	10	11	12	13	14	15	16	20	
Standing Shoulder Extension		X	X	X	X	X	X	X	X		
Seated Row		X	X	X	X	X	X	X	X		
Standing ER Walkout (0 deg Abd without Towel)		X	X	X	X						
Standing IR (0 deg Abd with Towel)		X	X	X	X						
Standing IR (45 deg Abd)					X	X	X	X	X		
Standing ER (0 deg Abd with Towel)					X	X	X	X	X	X	
Standing Active Shoulder Elevation/Flexion					X	X	X	X	X	X	
Standing ER (45 deg Abd) with dumbbell					X	X	X	X	X	X	
Standing Forward Punch										X	X
Standing IR (90 deg Abd)										X	X
Standing Resisted Low and High Row/Pull										X	X
Phase 4: Strengthening --> Task Specific	Week:	20	21	22	23	24					
Side lying ER		X	X	X	X	X					
Standing ER (90 deg Abd)		X	X	X	X	X					
Dynamic Hug		X	X	X	X	X					
Full Can Shoulder Abduction		X	X	X	X	X					
Prone ER		X	X	X	X	X					
Prone Horizontal Abd (90 and 100 deg Abd)		X	X	X	X	X					
Push-up Plus Progression		X	X	X	X	X					
Throwing Progression (Begin Per Protocol)		X	X	X	X	X					
Return to Work Progressions as Necessary		X	X	X	X	X					

Figure 2. This exercise progression timeline is for a supraspinatus rotator cuff repair that was a small to medium complete tear. Refer to Appendix B for precautions, weight restrictions, range of motion timeline, and goals. These exercise progressions serve solely as a guideline, which is based on the available literature and is not an exhaustive list. Information derived from Edwards et al.⁶

Appendix B

Partial Tear.

Phase 1: Immobilization and Passive Range of Motion, weeks 0-4.

- **Schedule Appt. with Physical Therapy**
 - 1 week post-surgery
- **Immobilization**
 - Sling with abduction pillow – weeks 0-3
 - Sling without abduction pillow – week 4
- **Precautions**
 - Wear sling all day and while sleeping
 - No active motion, no lifting
 - Monitor incision healing
 - Follow restrictions as advised by Surgeon and Physical Therapist
- **Goals**
 - Protect healing tissue, reduce pain and inflammation
 - Gradually increase passive range of motion
 - Prevent joint stiffness
- **Range of Motion Goals by week 5**
 - Flexion – Progress slowly as tolerated
 - External rotation @ 20 deg abduction – greater than 30 deg

Phase 2: Active Assist to Active Range of Motion, weeks 5-8.

- **Discontinue Sling end of week 4**
- **Precautions**
 - No sudden or excessive movement, no lifting
 - Do not support body weight by hands
 - 5 lb. restriction weeks 5-10.
 - Follow restrictions as advised by Surgeon and Physical Therapist
- **Goals**
 - Protect healing tissue
 - Gradually increase range of motion
- **Range of Motion Goals by week 10**
 - A/PROM Flexion: 120/160 deg.
 - PROM ER @ 20 deg abduction – 45 deg.
 - PROM ER @ 90 deg abduction – 60 deg.
 - PROM IR – progress slowly as tolerated
 - Functional Hand Behind Back – started at week 8
 - Horizontal adduction – started at week 8

Phase 3: Progressive Resistance Exercise, weeks 9-16.

- **Precautions**
 - No sudden or excessive movements
 - Do not support body weight by hands
 - 10 lb. restriction weeks 11-16.
 - Follow restrictions as advised by your Surgeon and Physical Therapist
- **Goals**
 - Gradually progress strength and stability
 - Continue to protect healing soft tissue
 - Maintain full A/PROM
- **Range of Motion Goals by month 3.5**
 - A/PROM: WNL

Phase 4: Progression to Full Activity, weeks >16.

- **Precautions**
 - Follow restrictions as advised by Surgeon and Physical Therapist
- **Goals**
 - Maintain Full A/PROM
 - Progress functional use of upper extremity
- **Range of Motion Goals by month 3.5**
 - Progress shoulder strength and stability
 - At 4 months can begin sport specific / labor demanding tasks if patient goals require such rehab
 - Monitor workload

Appendix B

Small/Medium Complete Tear.

Phase 1: Immobilization and Passive Range of Motion, weeks 0-6.

- **Schedule Appt. with Physical Therapy**
 - 1-2 weeks post-surgically
- **Immobilization**
 - Sling with abduction pillow – weeks 0-4
 - Sling without abduction pillow – weeks 5-6
- **Precautions**
 - Wear sling all day and while sleeping
 - No active motion, no lifting
 - Monitor incision healing
- **Goals**
 - Follow restrictions as advised by Surgeon and Physical Therapist
- **Range of Motion Goals by week 6**
 - Protect healing tissue, reduce pain and inflammation
 - Gradually increase passive range of motion
 - Prevent joint stiffness

Phase 2: Active Assist to Active Range of Motion, weeks 7-12

- **Discontinue Sling end of week 6**
- **Precautions**
 - No sudden or excessive movement, no lifting
 - Do not support body weight by hands
 - 5 lb. restriction weeks 7-12.
 - Follow restrictions as advised by Surgeon and Physical Therapist
- **Goals**
 - Progress into AAROM eventually to AROM
 - Prevent Joint Stiffness
 - Reduce Pain and Inflammation
- **Range of Motion Goals by week 11-12**
 - A/PROM Flexion: 120/160 deg.
 - PROM ER @ 20 deg abduction – 45 deg.
 - PROM ER @ 90 deg abduction – 60 deg.
 - PROM IR – progress slowly as tolerated
 - Functional Hand Behind Back – started at week 9
 - Horizontal adduction – started at week 9

Phase 3: Progressive Resistance Exercise, weeks 13-20

- **Precautions**
 - No sudden or excessive movements
 - Do not support body weight by hands
 - 10 lb. restriction weeks 13-16.
 - Follow restrictions as advised by your Surgeon and Physical Therapist
- **Goals**
 - Gradually progress strength and stability
 - Continue to protect healing soft tissue
 - Maintain full A/PROM
- **Range of Motion Goals by month 4**
 - A/PROM: WNL

Phase 4: Progression to Full Activity, weeks >20

- **Precautions**
 - Follow restrictions as advised by Surgeon and Physical Therapist
- **Goals**
 - Progress shoulder strength and stability
 - At 4.5 - 5 months can begin sport specific / labor demanding tasks if patient goals require such rehab
 - Monitor workload
 - Maintain Full A/PROM
 - Progress functional use of upper extremity

Appendix B

Large Complete Tear.

Phase 1: Immobilization and Passive Range of Motion, weeks 0-7

- **Schedule Appt. with Physical Therapy**
 - 2-3 weeks post-surgically
- **Immobilization**
 - Sling with abduction pillow – weeks 0-5
 - Sling without abduction pillow – weeks 6-7
- **Precautions**
 - Wear sling all day and while sleeping
 - No active motion, no lifting
 - Monitor incision healing
- **Goals**
 - Follow restrictions as advised by Surgeon and Physical Therapist
- **Range of Motion Goals by week 7**
 - Protect healing tissue, reduce pain and inflammation
 - Gradually increase passive range of motion
 - Prevent joint stiffness

Phase 2: Active Assist to Active Range of Motion, weeks 8-12

- **Discontinue Sling end of week 7**
- **Precautions**
 - No sudden or excessive movement, no lifting
 - Do not support body weight by hands
 - 5 lb. restriction weeks 8-12.
 - Follow restrictions as advised by Surgeon and Physical Therapist
- **Goals**
 - Progress into AAROM eventually to AROM
 - Prevent Joint Stiffness
 - Reduce Pain and Inflammation
- **Range of Motion Goals by week 12**
 - A/PROM Flexion: 120/160 deg.
 - PROM ER @ 20 deg abduction – 45 deg.
 - PROM ER @ 90 deg abduction – 60 deg.
 - PROM IR – progress slowly as tolerated
 - Functional Hand Behind Back – started at week 10
 - Horizontal adduction – started at week 10

Phase 3: Progressive Resistance Exercise, weeks 13-20

- **Precautions**
 - No sudden or excessive movements
 - Do not support body weight by hands
 - 10 lb. restriction weeks 13-17.
 - Follow restrictions as advised by your Surgeon and Physical Therapist
- **Goals**
 - Gradually progress strength and stability
 - Continue to protect healing soft tissue
 - Maintain full A/PROM
- **Range of Motion Goals by month 4.5**
 - A/PROM: WNL

Phase 4: Progression to Full Activity, weeks >20

- **Precautions**
 - Follow restrictions as advised by Surgeon and Physical Therapist
- **Goals**
 - Progress shoulder strength and stability
 - At 5 months can begin sport specific / labor demanding tasks if patient goals require such rehab
 - Monitor workload
 - Maintain Full A/PROM
 - Progress functional use of upper extremity

Appendix B

Massive Complete Tear.

Phase 1: Immobilization and Passive Range of Motion, weeks 0-8

- **Schedule Appt. with Physical Therapy**
 - 2-3 weeks post-surgically
- **Immobilization**
 - Sling with abduction pillow – weeks 0-6
 - Sling without abduction pillow – weeks 7-8
- **Precautions**
 - No Shoulder PROM until 3-4 weeks
 - Can start Pendulums
 - Can begin hand, wrist, elbow range of motion at first post op visit
 - Wear sling all day and while sleeping
 - No active motion, no lifting
 - Monitor incision healing
- **Goals**
 - Follow restrictions as advised by Surgeon and Physical Therapist
 - Protect healing tissue, reduce pain and inflammation
 - Gradually increase passive range of motion
 - Prevent joint stiffness
- **Range of Motion Goals by week 8.**
 - Flexion – Progress slowly as tolerated
 - External rotation @ 20 deg abduction – greater than 30 deg
 - Limit to 30 deg external rotation for 6 weeks if subscapularis is also repaired

Phase 2: Active Assist to Active Range of Motion, weeks 9-14

- **Discontinue Sling end of week 8**
- **Precautions**
 - No sudden or excessive movement, no lifting
 - Do not support body weight by hands
 - 5 lb. restriction weeks 9-13.
 - Follow restrictions as advised by Surgeon and Physical Therapist
- **Goals**
 - Progress into AAROM eventually to AROM
 - Prevent Joint Stiffness
 - Reduce Pain and Inflammation
- **Range of Motion Goals by week 13**
 - A/PROM Flexion: 120/160 deg.
 - PROM ER @ 20 deg abduction – 45 deg.
 - PROM ER @ 90 deg abduction – 60 deg.
 - Functional Hand Behind Back – started at week 11
 - Horizontal adduction – started at week 11

Phase 3: Progressive Resistance Exercise, weeks 15-20

- **Precautions**
 - No sudden or excessive movements
 - Do not support body weight by hands
 - 10 lb. restriction weeks 14-18.
 - Follow restrictions as advised by your Surgeon and Physical Therapist
- **Goals**
 - Gradually progress strength and stability
 - Continue to protect healing soft tissue
 - Maintain full A/PROM
- **Range of Motion Goals by 5 months**
 - A/PROM: WFL

Phase 4: Progression to Full Activity, >20 weeks

- **Precautions**
 - Follow restrictions as advised by Surgeon and Physical Therapist
- **Goals**
 - Progress shoulder strength and stability
 - At 6 months can begin sport specific / labor demanding tasks if patient goals require such rehab
 - Monitor workload

Progress functional use of upper extremity

Appendix C

Specific Return to Sport Goals for Overhead Athlete^{1,2,5,39}

- Isometric ER:IR strength ratio = 75%.
- Total shoulder rotation ~180 deg.
- Glenohumeral internal rotation deficit <20 deg. Deficit compared to contralateral shoulder.
- Total flexion <5 deg. deficit compared to contralateral shoulder.

Throwing Program³⁸

Note: Program assumes partial tear.

Soreness Rules

- A. If no soreness, advance steps per throwing program
- B. If sore during warm-up but soreness is gone within 15 throws, repeat previous throwing workout. If soreness continues, stop, and take two days off. Drop down one step.
- C. If sore more than one hour after throwing, or the next day, take one day off and repeat most recent throwing workout.
- D. If sore during warm up and soreness continues through the first 15 throws, stop throwing, take two days off. Drop down one step.

Figure 3. Soreness rules. Information derived from Thorsness et al.³⁸

- Before starting step one of throwing program, initiate throwing program at 3.5 - 4 months, or when cleared by Surgeon and Physical Therapist, with the following progression:
 - A. Week 1: 20x30ft tennis ball Mon. and Wed.
 - B. Week 1: 30x30ft tennis ball Fri. with Sat. and Sun. off.
 - C. Week 2: 20x30ft baseball (No Glove) Mon. and Wed.
 - D. Week 2: 30x30ft. baseball (No Glove) Fri. with Sat. and Sun. off.
- Begin step one – Reference Figure 4 below.

Return to Throwing Program

Phase 1: 45 feet	Phase 2: 60 feet	Phase 3: 90 feet	Phase 4: 120 feet	Phase 5: 150 feet	Phase 6: 180 feet
Step 1 - Warm-up throwing - 25 throws at 45' - Rest 10 min. - Warm-up throwing - 25 throws at 45' -	Step 3 - Warm-up throwing - 25 throws at 60' - Rest 10 min. - Warm-up throwing - 25 throws at 60' -	Step 5 - Warm-up throwing - 25 throws at 90' - Rest 10 min. - Warm-up throwing - 25 throws at 90' -	Step 7 - Warm-up throwing - 25 throws at 120' - Rest 10 min. - Warm-up throwing - 25 throws at 120' -	Step 9 - Warm-up throwing - 25 throws at 150' - Rest 10 min. - Warm-up throwing - 25 throws at 150' -	Step 11 - Warm-up throwing - 25 throws at 180' - Rest 10 min. - Warm-up throwing - 25 throws at 180' -
Step 2 - Warm-up throwing - 25 throws at 45' - Rest 5 min. - Warm-up throwing - 25 throws at 45' - Rest 5 min. - Warm-up throwing - 25 throws at 45'	Step 4 - Warm-up throwing - 25 throws at 60' - Rest 5 min. - Warm-up throwing - 25 throws at 60' - Rest 5 min. - Warm-up throwing - 25 throws at 60'	Step 6 - Warm-up throwing - 25 throws at 90' - Rest 5 min. - Warm-up throwing - 25 throws at 90' - Rest 5 min. - Warm-up throwing - 25 throws at 90'	Step 8 - Warm-up throwing - 25 throws at 120' - Rest 5 min. - Warm-up throwing - 25 throws at 120' - Rest 5 min. - Warm-up throwing - 25 throws at 120'	Step 10 - Warm-up throwing - 25 throws at 150' - Rest 5 min. - Warm-up throwing - 25 throws at 150' - Rest 5 min. - Warm-up throwing - 25 throws at 150'	Step 12 - Warm-up throwing - 25 throws at 180' - Rest 5 min. - Warm-up throwing - 25 throws at 180' - Rest 5 min. - Warm-up throwing - 25 throws at 180'

Figure 4. Return to throwing program. Perform each step 2 to 3 times with at least 1-day rest between sessions. Follow soreness rules in Figure 3. At completion of step 12, transition to position or pitching specific program. For pitching specific program, reference Figure 5. Position players are recommended to start at 50% and gradually increase to 100% play. Information derived from Thorsness et al.³⁸

Return to Pitching Program

<p>Phase 1: Fastballs only, all pitches are from the mound</p> <p>Step 1</p> <ul style="list-style-type: none"> - Interval program to 120' - 15 pitches at 50% <p>Step 2</p> <ul style="list-style-type: none"> - Interval program to 120' - 30 pitches at 50% <p>Step 3</p> <ul style="list-style-type: none"> - Interval program to 120' - 45 pitches at 50% <p>Step 4</p> <ul style="list-style-type: none"> - Interval program to 120' - 60 pitches at 50% <p>Step 5</p> <ul style="list-style-type: none"> - Interval program to 120' - 70 pitches at 50% <p>Step 6</p> <ul style="list-style-type: none"> - Interval program to 120' - 45 pitches at 50% - 30 pitches at 75% 	<p>Phase 1 Continued</p> <p>Step 7</p> <ul style="list-style-type: none"> - Interval program to 120' - 30 pitches at 50% - 45 pitches at 75% <p>Step 8</p> <ul style="list-style-type: none"> - Interval program to 120' - 65 pitches at 75% - 10 pitches at 50% <p>Phase 2: Fastballs only, all pitches are from the mound</p> <p>Step 9</p> <ul style="list-style-type: none"> - Warm-up - 60 pitches at 75% - 15 pitches in batting practice <p>Step 10</p> <ul style="list-style-type: none"> - Warm-up - 50 pitches at 75% - 30 pitches in batting practice <p>Step 11</p> <ul style="list-style-type: none"> - Warm-up - 45 pitches at 75% - 45 pitches in batting practice 	<p>Phase 3: Add breaking balls, all pitches are from the mound</p> <p>Step 12</p> <ul style="list-style-type: none"> - Warm-up - 30 pitches at 75% - 15 pitches at 50% - breaking balls <p>Step 13</p> <ul style="list-style-type: none"> - Warm-up - 30 pitches at 75% - 30 pitches at 75% - breaking balls - 30 pitches in batting practice <p>Step 14</p> <ul style="list-style-type: none"> - Warm-up - 30 pitches at 75% - 70 pitches in batting practice, gradually increase breaking balls <p>Step 15</p> <ul style="list-style-type: none"> - Simulated game - Gradual progression of game situation pitching
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Figure 5. Return to pitching program. Perform each step 1 to 2 times with at least 1-day rest between sessions. Follow soreness rules in Figure 3. Recommend position players start at 50% game situation building tolerance to 100%. Information derived from Thorsness et al.³⁸