



Pectoralis Major Repair Rehabilitation Guideline

This rehabilitation program is designed to return the individual to their activities as quickly and safely as possible. It is designed for rehabilitation following pectoralis major repair. Modifications to this guideline or procedures performed. This evidence-based pectoralis major post surgical guideline is criterion-based; time frames and visits in each phase will vary depending on many factors - including patient demographics, goals, and individual progress. This guideline is designed to progress the individual through rehabilitation to full sport/activity participation. The therapist may modify the program appropriately depending on the individual's goals for activity following pectoralis major repair.

This guideline is intended to provide the treating clinician a frame of reference for rehabilitation. It is not intended to substitute clinical judgement regarding the patient's post-operative care based on exam/treatment findings, individual progress, and/or the presence of concomitant procedures or post-operative complications. If the clinician should have questions regarding post-operative progression, they should contact the referring physician.

General Guidelines/Precautions:

- Immediate post-operative precautions expected
 - No stretching - horizontal abduction, extension, external rotation
 - No squeezing - horizontal adduction
- PROM expectations & timeframe
 - 90 degrees at 4 weeks
 - 120 degrees at 6 weeks
 - Full at 12-16 weeks
- Bracing expected & timeframe instructions
 - Sling - 4 weeks for tendon to tendon repair
 - Sling - 3 weeks for bone to tendon repair
- Precautions to certain exercises and timeframes listed for those (IE: Running, squatting, elliptical, swimming, overhead throwing)
 - Push-ups - 10 weeks (elevated)
 - Bench press - 12 weeks
 - Pull-ups - 14 weeks
 - Dips - 16 weeks
 - Pec/Chest flies - 24 weeks (heavy)
- Reasons for possible slower progression indicated
 - Complete vs. partial
 - Tendon to tendon vs. bone to tendon repair (14-16 weeks full A/PROM tendon to tendon ; 12-14 weeks for bone to tendon)
- Return to sport timeframe expected
 - Criteria to be met for return to sport (see UE testing)

PECTORALIS MAJOR Repair Rehabilitation Guideline (Timeframe to expected D/C: 16 to 20 weeks)

PHASE	SUGGESTED INTERVENTIONS	GOALS/MILESTONES FOR PROGRESSION
<p>Phase I Patient Education Phase</p>	<p>Discuss: Anatomy, existing pathology, post-op rehab schedule, bracing/sling, and expected progressions.</p> <p>Instructions on Pre-Operative Exercises:</p> <ul style="list-style-type: none"> Elbow flexion/extension, isometrics, shoulder ROM, scapula exercises <p>Immediate Post-Operative instructions:</p> <ul style="list-style-type: none"> Nutrition, rest, sling use 	<p>Goals of Phase:</p> <ol style="list-style-type: none"> Understanding of rehab following surgery <p>Criteria to Advance to Next Phase:</p> <ol style="list-style-type: none"> Surgical intervention
<p>Phase II Maximum Protection Phase</p> <p>Weeks 0-2</p> <p>Expected visits: 0-1</p>	<p>Specific instructions:</p> <ul style="list-style-type: none"> NO ACTIVE RANGE OF MOTION <p>Suggested Treatments:</p> <p>Modalities as Indicated:</p> <ul style="list-style-type: none"> Edema controlling treatments <p>Range of Motion:</p> <ul style="list-style-type: none"> Passive within protected ROM (0-90 degrees) <p>Manual Therapy: GH mobilizations, PROM, scar mobilizations</p> <p>Exercise Examples:</p> <ul style="list-style-type: none"> Elbow flexion/extension, supination/pronation, table rollouts <p>Other Activities:</p> <ul style="list-style-type: none"> N/A 	<p>Goals of Phase:</p> <ol style="list-style-type: none"> Provide environment of proper healing of repair site Prevention of post-operative complications Restore ROM – within guidelines (90 degrees) <p>Criteria to Advance to Next Phase:</p> <ol style="list-style-type: none"> Control of post-operative pain (0-1/10 with ADL's in brace) Resolution of post-operative effusion (trace to 1+) PROM 0-90 degrees
<p>Phase III Protected Motion Phase</p> <p>Weeks 3-6</p> <p>Expected visits: 4-9</p>	<p>Specific Instructions:</p> <ul style="list-style-type: none"> Add AAROM at week 5 NO ADDUCTION, NO HAND BEHIND BACK <p>Suggested Treatments:</p> <p>Modalities:</p> <ul style="list-style-type: none"> Edema controlling treatments <p>ROM:</p> <ul style="list-style-type: none"> Progressive ROM program with progression >90 degrees beginning <p>Manual Therapy: GH mobilizations, PROM, gentle isometrics (NO ADDUCTION), scar mobilizations</p> <p>Exercise Examples:</p> <ul style="list-style-type: none"> Table rollouts (flexion), isometrics, banded triceps, ball squeezes (hand) <p>Other Activities:</p> <ul style="list-style-type: none"> Pulleys, wand/dowel 	<p>Goals of Phase:</p> <ol style="list-style-type: none"> Reduction of post-operative swelling and inflammation (no to trace effusion) ROM to 160 degrees for flexion and abduction 2/5 MMT <p>Criteria to Advance to Next Phase:</p> <ol style="list-style-type: none"> PROM to 160 degrees; AAROM to 120 degrees No pain with isometrics

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<p>Phase IV <i>Motion and Muscle Activation Phase</i></p> <p>Weeks 6-9</p> <p>Expected visits: 9-12</p>	<p>Specific Instructions:</p> <ul style="list-style-type: none"> Initiate resisted (bands, free weights) NO CHEST FLYS <p>Suggested Treatments:</p> <p>Modalities:</p> <ul style="list-style-type: none"> As needed for pain control <p>ROM: A/AA/PROM</p> <p>Exercise Examples:</p> <ul style="list-style-type: none"> DB raises, DB press (supine), banded RTC, cable exercises, landmine press, scapular exercises <p>Other Activities:</p> <ul style="list-style-type: none"> Elevated push-ups 	<p>Goals of Phase:</p> <ol style="list-style-type: none"> Full AROM for flexion and abduction Ability to bear weight through UE <p>Criteria to Advance to Next Phase:</p> <ol style="list-style-type: none"> Hand behind back without pain Perform horizontal adduction without pain Bear weight through UE without pain
<p>Phase V <i>Advanced strengthening and eccentric control phase</i></p> <p>Weeks 9-12</p> <p>Expected visits: 13-20</p>	<p>Specific Instructions:</p> <ul style="list-style-type: none"> Eccentrics under external load Initiate plyometrics for UE <p>Suggested Treatments:</p> <p>ROM: End range rotation</p> <p>Exercise Examples:</p> <ul style="list-style-type: none"> BB bench, overhead press, advance RTC exercises, scapular exercises, plyometrics, pec/chest flies <p>Other Activities:</p> <ul style="list-style-type: none"> Push-ups 	<p>Goals of Phase:</p> <ol style="list-style-type: none"> Full ROM in all planes (may take up to 16 weeks) <p>Criteria to Advance to Next Phase:</p> <ol style="list-style-type: none"> Push-ups from ground without pain Overhead lifting and carrying without pain 90/90 resistance without pain Initiated return to throwing program without complications (if necessary)
<p>Phase VI <i>Advanced Movement and Impact Phase</i></p> <p>Months 3-6</p> <p>Expected Visits: 21-24</p>	<p>Specific Instructions:</p> <ul style="list-style-type: none"> Sport or activity specific <p>Exercise Examples:</p> <ul style="list-style-type: none"> Single arm MB stick, varying planes horizontal abduction/adduction, prone scapular exercises, upper body plyometrics, perturbations in weight and non-weight bearing <p>Other Activities:</p> <ul style="list-style-type: none"> Initiate throwing program if necessary Pull-ups, dips 	<p>Selected Criteria for Discharge:</p> <ol style="list-style-type: none"> Sport dependent <ol style="list-style-type: none"> Push/pull with force (tackling, swimming) Throwing without pain Shock absorption (boxing, MMA)

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REFERENCES:

- Manske, R. (2007). Pectoralis major tendon repair post surgical rehabilitation. N AM J Sports Phys Ther. 2(1), 22-33.
- Vasiliadis A. (2016). Rehabilitation exercise program after surgical treatment of pectoralis major rupture. A case report. Phys Ther Sport. (20). 32-39.

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