Rehabilitation Guidelines for Pectoralis Major Repair/Pectoralis Major Reconstruction

Note: Revision surgery or cases involving allograft or autograft augmentation procedures may undergo modifications to the below guideline. Additional restrictions or modifications will be listed in the last paragraph of the Operative Report and the therapy instructions.

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- General Information
  - Total Recovery time is between 4-6 months depending on factors such as injury severity, patient sport/activity/age and type of repair.
  - Adherence to rehab protocol guidelines and restrictions is critical in avoiding re-injury or failures.
- Immobilization
  - Shoulder Abduction Immobilizer Sling should be worn for 8 weeks in uncontrolled environments (around dogs, kids, in crowds, etc.).
  - Sling should be worn while sleeping for 2 weeks.
  - Sling may be removed in controlled environments for light seated activity such as eating, watching television and typing after 2 weeks.
  - Discontinue sling completely at 8 weeks.
- Personal Hygiene / Showering
  - Avoid getting incision/portal sites wet for 72 hours.
  - Ok to begin showering 72 hours after surgery (if no wound related issues).
  - Avoid baths, saunas, pools, lakes, etc. for four weeks.
  - DO NOT remove Dermabond Prineo adhesive dressing underneath primary dressing. This dressing should remain in place for a minimum of three weeks.

Expectations for outcomes

Most patients with acute repairs (less than 4-6 weeks from time of injury) of complete or partial pectoralis major tendon tears experience complete recovery with appropriate surgical repair and rehabilitation. Even repairs of chronic tears with or without graft augmentation can expect substantial, if not complete or near complete restoration of function.

The following are *general rehabilitation management concepts* to consider for a postoperative physical therapy

program:

- **Joint protection:** Keeping the arm in the sling and in internal rotation is key. Keeping the hand adjacent to the belly button is keep to keep from pulling the repaired tendon off of the humerus.
- **Range of motion:** Early range of motion is not recommended. Sling immobilization is essential for the first 8 weeks.

Pectoralis Anatomy & Biomechanics

The pectoralis major is the power internal rotator of the arm. The pectoralis has two heads the sternal head and the clavicular head. Usually the sternal head is torn but both heads can be torn.

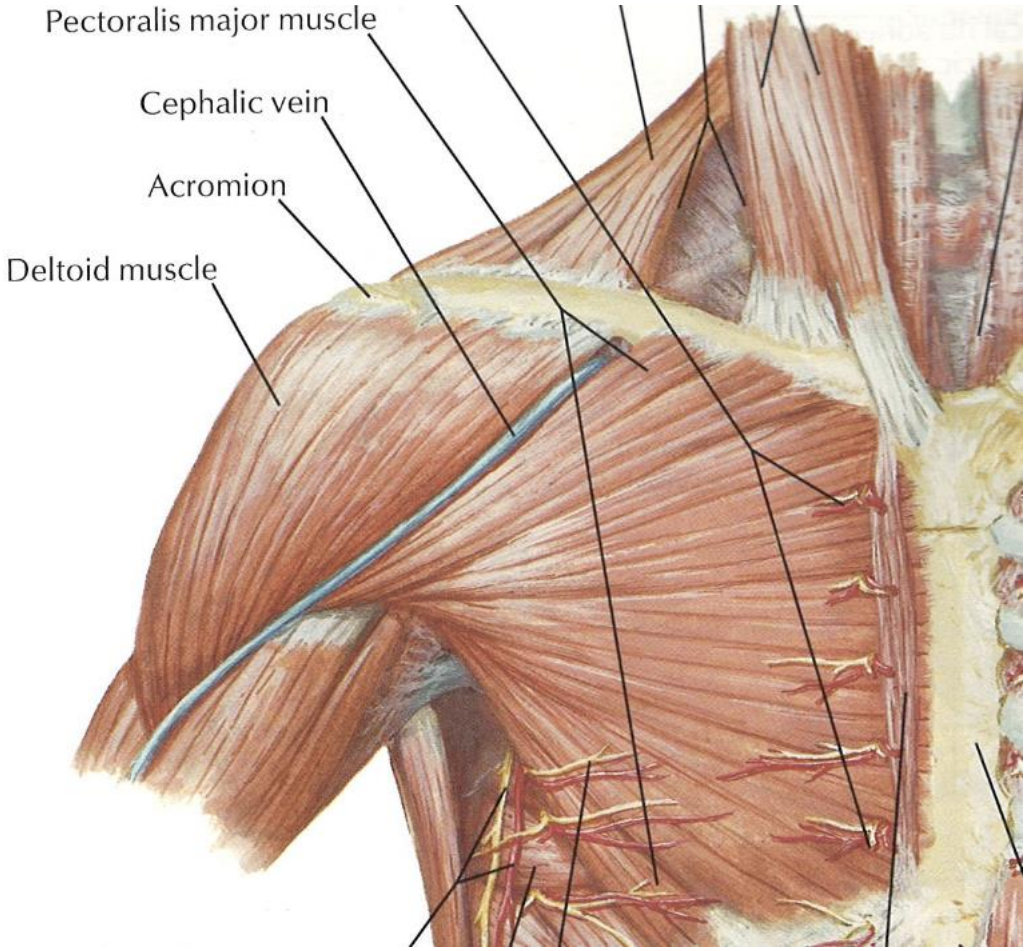

Figure 1. Pectoralis Major

Pectoralis Repair Surgery

The pectoralis major repaired by attaching the tendon back to the humerus by using non-absorbable heavy permanent suture through drill holes in the humerus. Sometimes an allograft or autograft tendon is

needed in the case of a chronic retracted tear.

Pectoralis Major Repair/Reconstruction Protocol:

The intent of this rehabilitation protocol is to provide the physical therapist with a guideline/treatment protocol for the postoperative rehabilitation management for a patient who has undergone a Pectoralis Major Tendon Repair/Reconstruction. It is not intended to substitute for a physical therapist's clinical decision making regarding the progression of a patient's postoperative rehabilitation based on the individual patient's physical exam/findings, progress, and/or the presence of postoperative complications. If the physical therapist has questions or requires assistance in the progression of a postoperative patient who has had Pectoralis Repair/Reconstruction the therapist should consult with the referring surgeon.

The scapular plane is defined as the shoulder positioned in 30 degrees of abduction and forward flexion with neutral rotation. Range of motion (ROM) performed in the scapular plane should enable appropriate shoulder joint alignment.

Surgical Considerations:

- The surgical approach needs to be considered when devising the postoperative plan of care.
- Traditionally rTSA procedure is done via a typical **deltopectoral approach**, which minimizes surgical trauma to the anterior deltoid.
- The start of this protocol is intended to start 8 weeks following pectoralis repair/recon. In the case of a delayed start to physical therapy adjust below timeframes so that day 1 is the first day of physical therapy.

Progression to the next phase is based on Clinical Criteria and Time Frames as appropriate

Phase I – Immediate Post-Surgical Phase/Joint Protection (Day 1-4 weeks):

Goals:

- Patient and family independent with:
- Joint protection
- No shoulder range of motion (PROM)
- Elbow, wrist and hand motion only.
- Assisting with putting on/taking off sling and clothing
- Cryotherapy
- Promote healing of soft tissue / maintain the integrity of the repaired tendon.
- Independent with activities of daily living (ADL's) with modifications.

Phase I Precautions:

- Sling is worn for 8 weeks postoperatively and only removed for exercise and bathing once able or light seated exercise. The use of a sling often may be extended for a total of 10-12 weeks, if there are concerns about tissue quality or healing potential.
- No shoulder active ROM.
- No lifting of objects with operative extremity greater than a weight similar to glass of milk.
- No supporting of body weight with involved extremity.
- Keep incision clean and dry (no soaking/wetting for 4 weeks)
- No whirlpool, Jacuzzi, ocean/lake wading for 4 weeks.
- **Acute Care Therapy (Day 1 to week 4):**
    - Active/Active Assisted ROM (A/AAROM) of cervical spine, elbow, wrist, and hand.
    - Continuous cryotherapy for first 72 hours postoperatively, then frequent application (4-5 times a day for about 20 minutes).
    - Ensure patient is independent in bed mobility, transfers and ambulation
    - Ensure proper sling fit/alignment/ use.
    - Instruct patient in proper positioning, posture, initial home exercise program
    - Provide patient/ family with written home program including exercises and protocol information.
- **Day 5 to 14:**
    - Continue all exercises as above (typically 2-3 times per day).
    - Begin sub-maximal pain-free deltoid isometrics in scapular plane (avoid shoulder extension when isolating posterior deltoid.)
    - Frequent (4-5 times a day for about 20 minutes) cryotherapy.
- **4Weeks to 8 Weeks:**
    - Progress exercises listed above.
    - Progress PROM:
        - Initiate pendulums only
        - Gentle resisted exercise of elbow, wrist, and hand.
        - Continue frequent cryotherapy.
- **Criteria for progression to the next phase (Phase II):**
    - Tolerates shoulder PROM and, AROM - minimally resistive program for elbow, wrist, and hand.
    - Patient demonstrates the ability to isometrically activate all components of the deltoid and periscapular musculature in the

scapular plane.

Phase II –Active Range of Motion / Early Strengthening Phase (Week 2 to 12):

Goals:

- Continue progression of PROM (full PROM is not expected).
- Gradually restore AROM.
- Control pain and inflammation.
- Allow continued healing of soft tissue / do not overstress healing tissue.
- Re-establish dynamic shoulder and scapular stability.

Phase II Precautions:

- Due to the potential of an acromion stress fracture one needs to continuously monitor the exercise and activity progression of the deltoid. A sudden increase of deltoid activity during rehabilitation could lead to excessive acromion stress. A gradually progressed pain free program is essential.
- In the presence of poor shoulder mechanics avoid repetitive shoulder AROM exercises/activity.
- Restrict lifting of objects to no heavier than a glass of milk.
- No supporting of body weight by involved upper extremity.
- **Week 8 to Week 12:**
    - Discontinue sling.
    - At 6 weeks post op start PROM IR to tolerance (not to exceed 50 degrees) in the scapular plane.
    - Begin shoulder AA/AROM as appropriate.
    - Forward flexion and elevation in scapular plane in supine with progression to sitting/standing.
    - ER and IR in the scapular plane in supine with progression to sitting/standing.
    - Initiate gentle scapulothoracic rhythmic stabilization and alternating isometrics in supine as appropriate. Minimize deltoid recruitment during all activities / exercises.
    - Progress strengthening of elbow, wrist, and hand.
    - Gentle glenohumeral and scapulothoracic joint mobilizations as indicated (Grade I and II).
    - Continue use of cryotherapy as needed.
- **Week 12 to Week 16:**
    - Continue with above exercises and functional activity progression.
    - Begin gentle glenohumeral IR and ER sub-maximal pain free isometrics.

- Begin gentle periscapular and deltoid sub-maximal pain free isotonic strengthening exercises. Begin AROM supine forward flexion and elevation in the plane of the scapula with light weights (1-3lbs. or .5-1.4 kg) at varying degrees of trunk elevation as appropriate. (i.e. supine lawn chair progression with progression to sitting/standing).
- Progress to gentle glenohumeral IR and ER isotonic strengthening exercises in sidelying position with light weight (1-3lbs or .5-1.4kg) and/or with light resistance resistive bands or sport cords.
- Criteria for progression to the next phase (Phase III):
- Improving function of shoulder.
- Patient demonstrates the ability to isotonically activate all components of the deltoid and periscapular musculature and is gaining strength.

Phase III – Moderate strengthening (Week 16 +)

Goals:

- Enhance functional use of operative extremity and advance functional activities.
- Enhance shoulder mechanics, muscular strength and endurance.
- Precautions:
- No lifting of objects heavier than 20 lbs with the operative upper extremity
- No sudden lifting or pushing activities.
- Week 12 to Week 16:
- Continue with the previous program as indicated.
- Progress to gentle resisted flexion, elevation in standing as appropriate.

Phase IV – Continued Home Program (Typically 4 + months postop):

- Continued progression toward a return to functional and recreational activities within limits as identified by progress made during rehabilitation and outlined by surgeon and physical therapist.
- Light strengthening with elastic bands with gradually increasing resistance, push-up progression [Wall, table, chair and regular] with light weight training.
- Gradual return to full unrestricted weight lifting or bench-press activity at 6 months.