ORTHOPEDICS & SPORTS MEDICINE
BAYCARE CLINIC

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Sternoclavicular Joint Reconstruction

The following document is an evidence-based protocol for sternoclavicular joint reconstruction rehabilitation. The protocol is both chronologically and criterion based for advancement through four post-operative phases:

- Phase 1 – Maximum Protection
- Phase 2 – Active Range of Motion
- Phase 3 – Strength
- Phase 4 – Return-to-Activity

There are numerous principles of shoulder rehabilitation including:

- Initial post-operative immobilization period
- Emphasis on protected early shoulder PROM and joint mobility
- Gradual advancement of shoulder PROM, AAROM, and AROM
- Restoration of neuromuscular stabilization of the shoulder
- Safe, progressive loading of the rotator cuff through shoulder, scapular, and total arm strengthening

There are multiple factors which affect rehabilitation including:

- Time of surgery
- Surgical Technique
- Concomitant repairs
- Individual patient characteristics
- Mechanism of injury

The physician will determine the appropriate rate of progression in rehabilitation for each patient.

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Phase 1- Maximum Protection (0-6 weeks)

Goals for Phase 1

- Minimize pain and inflammation
- Protect integrity of the repair
- Initiate shoulder PROM
- Prevent muscular inhibition

Criteria for Progression to Phase 2

- Minimal pain with Phase 1 exercises
- Passive shoulder flexion ≥90°
- Passive shoulder abduction ≥90°
- Passive shoulder internal at 30° abduction in scapular plane ≥45° each
- Passive shoulder external at 30° abduction in scapular plane ≥0° each
- Avoid all shoulder extension

Immobilization

- Immobilization in sling for 6 weeks

Initial Post-Op Exercises

- Cervical, elbow, forearm, wrist, hand (grip) AROM exercises
- Remove sling 3x/day for performance of HEP
- Cryotherapy to minimize pain and inflammation

Post-Op Physical Therapy

- 1st physical therapy visit to occur 6 weeks post-op
  - Ensure appropriate fit in sling and educate on discharge progression
  - Review initial post-operative exercises and reinforce on proper performance
  - PROM check performed
    - Limit: 90° FLEX, 90° ABD, 30° IR and 0° ER

Aquatics

- Utilize aquatics for patients who are significantly painful, stiff, or guarded
  - Initiate when surgical incisions have healed
  - Initiate buoyancy assisted ROM exercises within limitations
  - Consider alternating land- and aquatic-based physical therapy visits

Manual Therapy

- Initiate pain dominant glenohumeral joint mobilization (grade 1-2)
- Initiate scar mobilization, soft tissue mobilization, lymph edema massage
- Initiate other shoulder, scapular, and cervicothoracic manual therapy techniques as needed

PROM

- Initiate manual shoulder PROM in all planes of motion within limitations
  - Limit 90° FLEX, 90° ABD, 30° IR and 0° ER
  - Avoid sustained end range stretching

AAROM

- Initiate shoulder FLEX and ABD AAROM
  - Table slides, U.E. Ranger, physio-ball, wand, etc.
  - Avoid pulleys

Modalities

- Utilize cryotherapy, thermotherapy, and electrical modalities as needed

Phase 2 – Active Range of Motion (6-12 weeks)

Goals for Phase 2

- Minimize pain and inflammation
- Restore shoulder PROM
- Restore shoulder AROM
- Initiate sub-maximal rotator cuff activation and neurodynamic stabilization exercises
  - No shoulder shrug sign with elevation AROM

Criteria for Progression to Phase 3

- Minimal pain with Phase 2 exercises
- Passive shoulder flexion to 120°
- Passive shoulder abduction to 90°
- Passive shoulder extension to 30°
- Passive shoulder internal rotation at 30° abduction in scapular plane ≥45°
- Passive shoulder external at 30° abduction in scapular plane ≥30° each
- Demonstrate neurodynamic stabilization of the shoulder
  - No evidence of shoulder shrug with elevation AROM

Aquatics

- Continue aquatics for patients who are significantly painful, stiff, or guarded

Stretching

- Initiate shoulder stretching exercises in all planes of motion as tolerated

Manual Therapy

- Continue pain dominant glenohumeral joint mobilization (grade 1-2) as needed
- Initiate stiffness dominant glenohumeral joint mobilization (grade 3-4) as needed
  - Utilize stiffness dominant glenohumeral joint mobilization (grade 3-4) to facilitate specific AROM and PROM deficits
- Continue scar mobilization, soft tissue mobilization, lymph edema massage as needed
- Continue other shoulder, scapular, and cervicothoracic manual therapy techniques as needed

PROM

- Continue manual shoulder PROM in all planes of motion as tolerated
  - Initiate sustained end range stretching

AAROM

- Continue shoulder FLEX and ABD AAROM
  - Table slides, wall slides, U.E. Ranger, physio-ball, wand, pulleys, etc.

AROM

- Initiate shoulder AROM in all planes of motion as tolerated
  - Gradually progress from gravity reduced to full gravity positions
  - Gradually progress from below shoulder height to above shoulder height
  - Consider single-planar and multi-planar movement patterns
- Do **NOT** exercise through shoulder shrug sign

Strengthening

- Initiate sub-maximal shoulder isometrics for FLEX, ABD, EXT, IR, and ER
- Initiate light isotonic scapular strengthening
  - Supine press, serratus press outs, prone row, etc.
- Initiate light isotonic biceps and triceps strengthening
- Do **NOT** exercise through shoulder shrug sign

Neuromuscular Control

- Initiate sub-maximal rhythmic stabilization drills
  - Gradually progress shoulder FLEX from 90° to 120°
  - Gradually progress shoulder internal rotation 30° to 45°
  - Gradually progress shoulder external rotation from 0° to 30°

NMES

- Utilize NMES to facilitate rotator cuff activation and strengthening

Modalities

- Utilize cryotherapy, thermotherapy, and electrical modalities as needed

Phase 3 – Strengthening (12-18 weeks)

Goals for Phase 3

- Minimize pain and inflammation
- Restore full shoulder PROM and AROM
- Improve shoulder, scapular, and total arm strength
- Improve neurodynamic stabilization of the shoulder
- No shoulder shrug sign with strengthening exercises

Criteria for Progression to Phase 4

- Minimal pain with Phase 3 exercises
- Full, pain free shoulder PROM and AROM
- Shoulder, scapular, and total arm strength ≥80% of the uninvolved side (4/5)
- Demonstrate neurodynamic stabilization of the shoulder
- No shoulder shrug sign with strengthening exercises

Stretching

- Continue shoulder stretching exercises as needed

Manual Therapy

- Continue pain dominant glenohumeral joint mobilization (grade 1-2) as needed
- Initiate stiffness dominant glenohumeral joint mobilization (grade 3-4) as needed
  - Utilize stiffness dominant glenohumeral joint mobilization (grade 3-4) to facilitate specific AROM and PROM deficits
- Continue other shoulder, scapular, and cervicothoracic manual therapy techniques as needed

PROM

- Continue manual shoulder PROM in all planes of motion as tolerated
  - Initiate sustained end range stretching

AAROM

- Continue shoulder ER AAROM with wand at 30° ABD
  - Progress from 30° to 45° to 90° ABD
- Continue shoulder FLEX and ABD AAROM
  - Table slides, wall slides, U.E. Ranger, physio-ball, wand, pulleys, etc.

Strengthening

- Initiate gradual progression of isotonic rotator cuff strengthening exercises
  - Gradually progress from gravity reduced to full gravity positions
  - Gradually progress from below shoulder height to above shoulder height
  - Gradually progress internal and external rotation from 30° to 60° abduction and from supported to unsupported conditions
  - Consider single-planar and multi-planar movement patterns
- Progress isotonic scapular strengthening exercises
  - Progress from isolated to functional movement patterns
- Progress isotonic biceps and triceps strengthening exercises
  - Progress from isolated to functional movement patterns
- Initiate sub-body weight closed-chain strengthening exercises
  - Wall press outs, countertop press outs, etc.
- Do **NOT** exercise through shoulder shrug sign

Neuromuscular Control

- Progress rhythmic stabilization exercises to more functional positions and dynamic movement patterns
  - Gradually progress from mid-range to end range positions
  - Gradually progress from open-chain to closed-chain positions
- Initiate gradual progression of other neuromuscular control exercises
  - Body blade, wall dribbles, ball flips, plyoback, etc.

NMES

- Utilize NMES to facilitate rotator cuff and scapular activation and strengthening

Modalities

- Utilize cryotherapy, thermotherapy, and electrical modalities as needed

Phase 4 – Return to Activity (18+ weeks)

Goals for Phase 4

- Minimize pain and inflammation
- Maintain full shoulder PROM and AROM
- Restore shoulder, scapular, and total arm strength, power, and endurance
- Restore neurodynamic stabilization of the shoulder
- Safe and effective return to previous level of function for occupational, sport, or desired activities

Criteria for Return to Activity

- Minimal pain with phase 4 exercises
- Full, pain free shoulder PROM and AROM
- Shoulder, scapular, and total arm strength ≥90% of the uninvolved side (4+/5)

OR

- Shoulder internal and external rotation isokinetic strength ≥90% of the uninvolved side
- 30°/30°/30° position if NOT overhead athlete or physical laborer
- 90°/90° position if overhead athlete or physical laborer
- Demonstrate neurodynamic stabilization of the shoulder
- Successful completion of return- to-sport testing if athlete
- Successful completion of functional capacity evaluation if physical laborer
- Disability Arm Shoulder Hand Index score ≤15% disability

Stretching

- Continue shoulder stretching exercises as needed

Manual Therapy

- Continue stiffness dominant glenohumeral joint mobilization (grade 3-4) as needed
- Continue other shoulder, scapular, and cervicothoracic manual therapy techniques as needed

PROM

- Continue manual shoulder PROM as needed

Strengthening

- Continue Phase 3 strengthening exercises
- Consider specific demands of occupational, sport, or desired activities

Neuromuscular Control

- Continue Phase 3 neuromuscular control exercises
- Consider specific demands of occupational, sport, or desired activities

Core Stabilization

- Continue incorporate core integrated exercises with strengthening and neuromuscular control progression

Sport-Specific Training Program

- Initiate interval sport programs
  - Baseball, softball, football, swimming, volleyball, tennis, golf, etc.
- Transition to strength and conditioning program if competitive or recreational athlete with specific goals for return-to-sport

Weight Lifting

- Initiate traditional weight lifting exercises
  - Educate patient to strengthen prime movers **AND** secondary stabilizers
  - Educate patient to balance anterior **AND** posterior musculature

Work Specialty Rehabilitation Program

- Transition to work re-conditioning if physical laborer
- Transition to work re-conditioning if specific occupational demands
  - Lifting requirements, overhead tasks, repetitive tasks, tool or machine work, etc.

Modalities

- Utilize cryotherapy, thermotherapy, and electrical modalities as needed

HEP

- Establish HEP for long-term self-management

This protocol was reviewed and updated by Harold Schock III, MD and Rebecca Donnay, PT, DPT, SCS on 3/25/2025

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