



After Shoulder Arthroplasty

Rehabilitation Protocol

Phase 1: Weeks 0-6

Restrictions

- ❖ Shoulder motion
 - ✓ Week 1
 - ✓ 120 degrees of forward flexion
 - ✓ 20 degrees of external rotation with the arm at the side
 - ✓ 75 degrees of abduction with 0 degrees of rotation
- ❖ Week 2
 - ✓ 140 degrees of forward flexion
 - ✓ 40 degrees of external rotation with the arm at the side
 - ✓ 75 degrees of abduction with 0 degrees of rotation
- ❖ No active internal rotation
- ❖ No backward extension

Immobilization

- ❖ Sling
 - ✓ After 7-10 days, sling used for comfort only

Pain Control

- ❖ Reduction of pain and discomfort is essential for recovery
- ❖ Medications
 - ✓ Narcotics for 7-10 days following surgery
 - ✓ NSAIDs for patients with persistent discomfort following surgery.

Therapeutic modalities

- ❖ Ice, ultrasound, HVGS
- ❖ Moist heat before therapy after week 4 as needed, ice at end of session

Motion: Shoulder

Goals

- ❖ 140 degrees of forward flexion
- ❖ 40 degrees of external notation
- ❖ 75 degrees of abduction

Exercises

- ❖ Begin with Codman pendulum exercises to promote early motion
- ❖ Passive ROM exercises

- ❖ Capsular stretching for anterior, posterior, and inferior capsule, by using the opposite arm to assist with motion
- ❖ Active-assisted motion exercises
 - ✓ Shoulder flexion
 - ✓ Shoulder extension
 - ✓ Internal and external rotation
- ❖ Progress to active ROM exercises

Motion: Elbow

- ❖ Passive - progress to active
 - ✓ 0 to 130 degrees
 - ✓ Pronation and supination as tolerated

Muscle Strengthening

- ❖ Grip strengthening only

Phase 2: Weeks 6-12

Criteria for Progression to Phase 2

- ❖ Minimal pain and tenderness
- ❖ Nearly complete motion
- ❖ Intact subscapularis without evidence of tendon pain on resisted internal rotation

Restrictions

- ❖ Increase ROM goals
 - ✓ 160 degrees of forward flexion
 - ✓ 60 degrees of external rotation with the arm at the side
 - ✓ 90 degrees of abduction with 40 degrees of internal and external rotation

Immobilization

- ❖ None

Pain Control

- ❖ NSAIDs for patients with persistent discomfort following surgery
- ❖ Therapeutic modalities
 - ✓ Ice, ultrasound, HVGS
 - ✓ Moist heat before therapy as needed, ice at end of session

Motion: Shoulder

- ❖ Goals
 - ✓ 160 degrees of forward flexion
 - ✓ 60 degrees of external rotation with the arm at the side
 - ✓ 90 degrees of abduction with 40 degrees of internal and external rotation
- ❖ Exercises
 - ✓ Upper extremity ergometer (an instrument for measuring the amount of work done by human muscles)
 - ✓ Increase active ROM in all directions
 - ✓ Focus on passive stretching at end ranges to maintain shoulder flexibility

- ✓ Utilize joint mobilization techniques for capsular restrictions, especially the posterior capsule

Muscle Strengthening

- ❖ Rotator cuff strengthening. Only three times per week to avoid rotator cuff tendinitis, which will occur with overtraining
- ❖ Begin with closed-chain isometric strengthening
 - ✓ External rotation
 - ✓ Abduction
- ❖ Progress to open-chain strengthening with Therabands
 - ✓ Exercises performed with the elbow flexed to 90 degrees.
 - ✓ Starting position is with the shoulder in the neutral position of 0 degrees of forward flexion, abduction, and external rotation
 - ✓ Exercises are performed through an arc of 45 degrees in each of the five planes of motion
 - ✓ Six color-coded bands are available; each provides increasing resistance from 1 to 6 pounds at increments of one pound
 - ✓ Progression to the next band occurs usually in 2 to 3 week intervals. Patients are instructed not to progress to the next band if there is any discomfort at the present level.
- ❖ Theraband exercises permit concentric and eccentric strengthening of the shoulder muscles and are a form of isotonic exercises (characterized by variable speed and fixed resistance)
 - ✓ External rotation
 - ✓ Abduction
 - ✓ Forward flexion
- ❖ Progress to light isotonic dumbbell exercises
 - ✓ External rotation
 - ✓ Abduction
 - ✓ Forward flexion
- ❖ Scapular stabilizer strengthening
- ❖ Closed-chain strengthening exercises.
 - ✓ Scapular retraction (rhomboides, middle trapezius)
 - ✓ Scapular protraction (serratus anterior)
 - ✓ Scapular depression (latissimus dorsi, trapezius serratus anterior)
 - ✓ Shoulder shrugs (trapezius, levator scapulae)

Phase 3: Months 3-12

Criteria for Progression to Phase 3

- ❖ Full painless ROM
- ❖ Satisfactory physical examination

Goals

- ❖ Improve shoulder strength, power, and endurance
- ❖ Improve neuromuscular control and shoulder proprioception
- ❖ Prepare for gradual return to functional activities
- ❖ Home maintenance exercise program
 - ✓ ROM exercises two times a day
 - ✓ Rotator cuff strengthening three times a week
 - ✓ Scapular stabilizer strengthening three times a week

Motion

- ❖ Achieve motion equal to contralateral side.
- ❖ Utilize both active and passive ROM exercises to maintain motion.

Muscle Strengthening

- ❖ Shoulder
 - ✓ Begin internal rotation and extension strengthening.
 - ✓ First closed-chain isometric strengthening and advance to Theraband and light weight isotonic strengthening
- ❖ Scapular stabilizers
 - ✓ Progress to open and closed-chain strengthening
- ❖ Deltoid strengthening
- ❖ Eight to 12 repetitions for each exercise, for three sets
- ❖ Strengthening only three times per week to avoid rotator cuff tendinitis

Functional Strengthening

- ❖ Plyometric exercises

Maximum improvements by 12-18 months

Warning Signs

- ❖ Loss of motion
- ❖ Continued pain

Treatment of Complications

- ❖ These patients may need to move back to earlier routines
- ❖ May require increased use of pain control modalities as outlined above