Postoperative Rehabilitation for Total Shoulder Arthroplasty

Neema Pourtaheri, MD

Phase I- Immediate Post-Surgical: 0-6 weeks

Goals:

Allow healing of soft tissue
Maintain integrity of replaced joint
Gradually increase passive range of motion (PROM) of shoulder; restore active range of motion (AROM) of elbow/wrist/hand
Reduce pain and inflammation
Reduce muscular inhibition
Independent with activities of daily living (ADLs) with modifications while maintaining the integrity of the replaced joint.

Precautions:

Sling should be worn continuously for 3-4 weeks
While lying supine, a small pillow or towel roll should be placed behind the elbow to avoid shoulder hyperextension / anterior capsule stretch / subscapularis stretch.

- *(When lying supine patient should be instructed to always be able to visualize their elbow. This ensures they are not extending their shoulder past neutral.) – This should be maintained for 6-8 weeks post-surgically.*

Avoid shoulder AROM.
No lifting of objects
No excessive shoulder motion behind back, especially into internal rotation (IR)
No excessive stretching or sudden movements (particularly external rotation (ER))
No supporting of body weight by hand on involved side
Keep incision clean and dry (no soaking for 2 weeks)
[redacted] No Driving until 6 weeks or until brace is DC by MD

Phase I- Postoperative:

Day 1 (in hospital)

1. Passive forward flexion in supine to tolerance
2. Gentle ER in scapular plane to available PROM (as documented in operative note) – usually around 30°
    - (Attention: DO NOT produce undue stress on the anterior joint capsule, particularly with shoulder in extension)
3. Passive IR to chest
4. Active distal extremity exercise (elbow, wrist, hand)
5. Pendulum exercises

6. Frequent cryotherapy for pain, swelling, and inflammation management
7. Patient education regarding proper positioning and joint protection techniques

Out of Hospital

1. Continue above exercises
2. Begin scapula musculature isometrics / sets (primarily retraction)
3. Continue active elbow ROM
4. Continue cryotherapy as much as able for pain and inflammation management

Late Phase I:

1. Continue previous exercises
2. Continue to progress PROM as motion allows
3. Begin assisted flexion, elevation in the plane of the scapula, ER, IR in the scapular plane
4. Progress active distal extremity exercise to strengthening as appropriate

Criteria to progress to phase II:

******If the patient has not reached the below ROM, forceful stretching and mobilization/manipulation is not indicated. Continue gradual ROM and gentle mobilization (i.e. Grade I oscillations), while respecting soft tissue constraints.***

1. Tolerates PROM program
2. Has achieved at least 90° PROM forward flexion and elevation in the scapular plane.
3. Has achieved at least 45° PROM ER in plane of scapula
4. Has achieved at least 70° PROM IR in plane of scapula measured at 30° of abduction

Phase II- Early Strengthening: 4-6 weeks

Goals:

Restore full passive ROM
Gradually restore active motion
Control pain and inflammation
Allow continue healing of soft tissue
Do not overstress healing tissue
Re-establish dynamic shoulder stability

Precautions:

Sling should only be used for sleeping and removed gradually over the course of the next 2 weeks, for periods throughout the day.
While lying supine a small pillow or towel should be placed behind the elbow to avoid shoulder hyperextension / anterior capsule stretch.

In the presence of poor shoulder mechanics avoid repetitive shoulder AROM exercises/activity against gravity in standing.
No heavy lifting of objects (no heavier than coffee cup)
No supporting of body weight by hand on involved side
No sudden jerking motions

Early Phase II

1. Continue with PROM, active assisted range of motion (AAROM)
2. Begin active flexion, IR, ER, elevation in the plane of the scapula pain free ROM
3. AAROM pulleys (flexion and elevation in the plane of the scapula) – as long as greater than 90° of PROM
4. Begin shoulder sub-maximal pain-free shoulder isometrics in neutral
5. Scapular strengthening exercises as appropriate
6. Begin assisted horizontal adduction
7. Progress distal extremity exercises with light resistance as appropriate
8. Gentle glenohumeral and scapulothoracic joint mobilizations as indicated
9. Initiate glenohumeral and scapulothoracic rhythmic stabilization
10. Continue use of cryotherapy for pain and inflammation

Late Phase II

1. Progress scapular strengthening Exercises

Criteriato progress to phase III:

***** If the patient has not reached the below ROM, forceful stretching and mobilization/manipulation is not indicated. Continue gradual ROM and gentle mobilization (i.e. Grade I oscillations), while respecting soft tissue constraints.**

1. Tolerates P/AAROM, isometric program
2. Has achieved at least 140° PROM forward flexion and elevation in the scapular plane.
3. Has achieved at least 60+° PROM ER in plane of scapula
4. Has achieved at least 70° PROM IR in plane of scapula measured at 30° of abduction
5. Able to actively elevate shoulder against gravity with good mechanics to 100°.

Phase III- Moderate Strengthening: 6 weeks

Goals:

Gradual restoration of shoulder strength, power, and endurance
Optimize neuromuscular control
Gradual return to functional activities with involved upper extremity

Precautions:

No heavy lifting of objects (no heavier than 3 kg.)

No sudden lifting or pushing activities
No sudden jerking motions

Early Phase III

1. Progress AROM exercise / activity as appropriate
2. Advance PROM to stretching as appropriate
3. Continue PROM as needed to maintain ROM
4. Initiate assisted shoulder IR behind back stretch
5. Resisted shoulder IR, ER in scapular plane
6. Begin light functional activities
7. Wean from sling completely
8. Begin progressive supine active elevation strengthening (anterior deltoid) with light weights (0.5-1.5 kg.) at variable degrees of elevation

Late Phase III

1. Resisted flexion, elevation in the plane of the scapula, extension (therabands / sport cords)
2. Continue progressing IR, ER strengthening
3. Progress IR stretch behind back from AAROM to AROM as ROM allows (Pay particular attention as to avoid stress on the anterior capsule.)

Criteria to progress to phase IV:

***** If the patient has not reached the below ROM, forceful stretching and mobilization/manipulation is not indicated. Continue gradual ROM and gentle mobilization (i.e. Grade I oscillations), while respecting soft tissue constraints.**

1. Tolerates AA/AROM/strengthening
2. Has achieved at least 140° AROM forward flexion and elevation in the scapular plane supine.
3. Has achieved at least 60+° AROM ER in plane of scapula supine
4. Has achieved at least 70° AROM IR in plane of scapula supine in 30° of abduction
5. Able to actively elevate shoulder against gravity with good mechanics to at least 120°.

*Note: (If above ROM are not met then patient is ready to progress if their ROM is consistent with outcomes for patients with the given underlying pathology).

Phase IV- Advanced Strengthening: 12 weeks

Goals:

Maintain non-painful AROM
Enhance functional use of upper extremity
Improve muscular strength, power, and endurance
Gradual return to more advanced functional activities
Progress weight bearing exercises as appropriate

Precautions:

Avoid exercise and functional activities that put stress on the anterior capsule and surrounding structures. (Example: no combined ER and abduction above 80° of abduction.)
Ensure gradual progression of strengthening

Early Phase IV

1. Typically patient is on a home exercise program by this point to be performed 3-4 times per week.
2. Gradually progress strengthening program
3. Gradual return to moderately challenging functional activities.

Late Phase IV (Month 4-6)

1. Return to recreational hobbies, gardening, sports, golf, doubles tennis

Criteria for discharge from skilled therapy:

1. Patient able to maintain non-painful AROM
2. Maximized functional use of upper extremity
3. Maximized muscular strength, power, and endurance
4. Patient has returned to advanced functional activities