



Total Shoulder Arthroplasty

Surgical Overview: Total shoulder arthroplasty (TSA) is a standard operative intervention for patients with OA, RA, rotator cuff tear arthropathy, osteonecrosis, and fractures of the humeral head who have persistent pain and loss of function despite conservative management. The surgical procedure replaces the humeral head with a metal prosthesis and the glenoid with a plastic component. Cement is the fixation most commonly used on both components. The subscapularis is excised to allow access to the shoulder and then repaired after. The primary goal of this procedure is to decrease pain and restore functional ROM and strength for independent ADLs. However, overall outcomes are determined by the underlying pathology and the tissue quality of the rotator cuff. Communication with the MD is important to identify specific patient needs that will affect rehab.

REHAB CONSIDERATIONS:

- Shoulder immobilizer/sling/swathe worn continuously, including sleeping, for 4 weeks. Gradually remove over the course of the next 2 weeks, starting with in home and progressing to out in the community.
- Ice 3-4 times per day for 15 minutes for the first 2 weeks, and then as needed for pain and inflammation.
- No driving until out of the sling, and with MD approval.
- Protect subscapularis. Avoid aggressive ER stretching and vigorous IR strengthening. Limit passive ER to 30 degrees for first 3 weeks and NO active/isometric IR until 4-6 weeks.
- Rotator cuff repair in conjunction with TSA should not start strengthening until 10-12 weeks.

EXPECTATIONS:

- Functional ROM (if rotator cuff is intact and good quality tissue): Flexion= 140+ degrees, ER= 55+ degrees, Abduction= to comb one's hair easily, IR= mid to lower thoracic level. **Note: TSA in conjunction with RCR will result in less ROM and lower functional level.
- TSA for RA: Goal is pain relief and strength and ROM sufficient to perform functional activities below 90 degrees flexion, as overhead motion may not be achieved.
- Worse prognosis if pre-op ROM is restricted, previous infections, previous rotator cuff or stability surgery, or previous fracture.
- Strength ~3/4 normal at 6 mos, and pt will continue to improve in all aspects through 12 mos post op.
- Return to golf and tennis at 4-6 mos with sufficient strength and ROM.

PHASE I: (0-4 weeks)

Precautions:

- While lying supine, place small pillow or towel under elbow to avoid shoulder hyperextension /subscapularis stretch
- Educate on correct sling positioning and proper posture
- Avoid shoulder AROM

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- No lifting objects
- No WBing on involved side

Early Phase I:

- AROM of hand/wrist/elbow
- Pendulum exercises
- PROM of shoulder: Forward flexion 90, Abduction 45, ER 30 in scapular plane, IR to belly
- Instruct family members in PROM and have them perform supervised demonstration (to be done 2-3X/day at home)
- Scapular isometrics (esp retraction and depression)
- Scar massage once staples are removal and incisions are closed

Late Phase I:

- Continue previous exercises
- PROM of shoulder: Abduction 90, ER 45 in scapular plane
- Begin AAROM **within ROM limits** (ex. Wand exercises)
- Gentle scapulothoracic mobilizations as indicated

Criteria for progression to Phase II:

- Tolerates PROM program
- PROM: Flexion 90, Abduction 90, ER 45 in scapular plane

PHASE II: (4-6 weeks) Early Strengthening

Precautions:

- No lifting heavier than a coffee cup
- No WBing on involved side
- No sudden jerking motions
- In the presence of poor shoulder mechanics resulting in compensatory hiking, avoid repetitive shoulder AROM against gravity in standing
- Continue icing

Early Phase II:

- Continue with PROM and AAROM
- Pulleys in flexion/scaption as long as >90 flexion PROM
- Begin AROM in pain-free ROM (ex. forward flexion, S/L ER)
- Initiate scapular strengthening (ex. S/L flexion, serratus punches, prone ext and rows to midline and prone horizontal abd pain-free)
- Begin submaximal shoulder isometrics in all planes
- Initiate gentle GH and scapulothoracic rhythmic stabilization

Late Phase II:

- Continue to progress previous exercises

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Criteria for progression to Phase III:

- **PROM: Flexion 140, Abduction 120, ER 60 in scap plane, IR 70 in scap plane**
- **Actively elevate shoulder against gravity to 100 with good mechanics**

PHASE III: (6-12 weeks) Moderate Strengthening

Goals:

- Gradual restoration of shoulder strength, power and endurance
- Optimize neuromuscular control
- Gradual return to functional activities using involved UE

Precautions:

- No sudden lifting or pushing activities
- No sudden jerking motions

Early Phase III:

- PROM and AAROM to tolerance (functional ROM, avoid aggressive ER)
- Initiate assisted IR behind the back (limit stress on anterior capsule)
- Initiate resisted RTC strengthening
- Progress resisted scapular strengthening

Late Phase III:

- Progress RTC and scapular strengthening
- Initiate closed chain exercises against wall or in quadruped (no push-ups)
- PNF
- Initiate bicep curls

Criteria for progression to Phase IV:

- Tolerate AROM and strengthening
- AROM (supine): Flexion 140, Abduction 120, ER 60 in scapular plane, IR 70 in scapular plane
- Actively elevate shoulder against gravity to 120 with good mechanics
- ****Note: If above ROM are not met, then pt is ready to progress when the ROM is consistent with outcomes for pts with the given underlying pathology**

PHASE IV: (12+ weeks) Advanced Strengthening

Precautions:

- Should maintain pain-free AROM
- Avoid activities that stress anterior capsule and surrounding structures (ex. No combined ER and abd > 80 of abd)
- Avoid military press, pull downs behind head, and wide grip bench press

Early Phase IV:

- Gradual return to moderately challenging functional activities

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- Pt is typically progressing to an HEP to be performed 3-4x/week
- Continue progressing strengthening program

Late Phase IV: (typically 4-6 mos)

- Return to recreational hobbies, gardening, golf, doubles tennis

Criteria for discharge from skilled therapy:

- Pt able to maintain nonpainful AROM
- Maximized functional use of UE
- Pt has returned to advanced functional activities as indicated

REFERENCES:

1. Wilcox R, Arslanian L, Millett P. Rehabilitation Following Total Shoulder Arthroplasty. J of Orthopaedic & Sports Physical Therapy. 2005:Vol 35: Number 12: 821-836.

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