



TOTAL SHOULDER ARTHROPLASTY with LESSER TUBEROSITY OSTEOTOMY

**Adjunctive exercises

Staged ROM Goals

	PFE	PER at 20° abd	PER at 90° abd	AFE
POW 1	120°	20	NA	NA
POW 3	160°	20°	NA	NA
POW 6	180°	30°	30	90°
POW 9	WNL	WNL	60°	120°+

Phase I (Protective Phase)

- Goals: Maintain stable prosthesis
 Minimize pain and inflammatory response
 Achieve staged ROM goals
 Establish stable scapula
 Initiate pain free rotator cuff and deltoid strengthening

Days 1 to 3

- i. Elbow, wrist and hand AROM (EWH)
- ii. Supine passive forward elevation in plane of scapula (PFE) to tolerance
 1. **10-20 reps, 2 x day**
 2. Supine PFE by family member or using opposite arm
- iii. Supine passive external rotation (PE) to tolerance
 1. T-stick in 0-20° flexion and 20° abduction
 2. 5-10 reps, 2x day
- iv. Codman's pendulum exercises
- v. C-spine AROM
- vi. Ice
- vii. Positioning full time in sling**
- viii. Cautions:
 1. Assure normal neurovascular status
 2. No lifting of involved arm
 3. Shoulder extension is limited. Elbow not to go behind midline of body
 4. Protect the subscapularis repair

Weeks 1 to 4

- i. Continue EWH
- ii. Shoulder shrugs and retractions (no weight)
- iii. PFE for the first 4 weeks**
 1. **Do not start AROM until 4 weeks**
- iv. Continue T-bar PER at 20° abduction
- v. Isometrics, keeping elbow flexed to 90° (sub maximal, pain free)
- vi. **Manual scapula strengthening

- vii. **Pain control modalities PRN / Polar Care
- viii. **Aquatics PROM, AROM activities (pain free)
- ix. Complications/Cautions:
 1. If pain level is not dissipating, decrease intensity and volume of exercises
 2. Continue to limit shoulder extension past midline of body
 3. Protect the subscapularis

Weeks 4 to 6

- i. Heat/Ice PRN to help obtain motion
- ii. **D/C sling as comfortable at week 4 and start AFE**
- iii. Achieve staged PROM goals in FE
- iv. Achieve staged PROM goals in ER at 20° abduction
- v. Theraband scapula retractions
- vi. Progressive serratus anterior strengthening (isolated)
- vii. **AAFE (pulleys)**
- viii. Continue isometric abduction
- ix. **Pain control modalities PRN
- x. **Aquatics AAROM→ AROM
- xi. **Trunk stabilization/strengthening
- xii. Cautions:
 1. Do not initiate dynamic rotator cuff strengthening
 2. Assure normal scapulohumeral rhythm with AAFE
 3. Protect the subscapularis

Phase II (Progressive Strengthening)

- Goals: Maintain stability of prosthesis
 Achieve staged ROM goals
 Eliminate shoulder pain
 Improve strength, endurance and power

Weeks 6 to 9

- i. Theraband ER strengthening (pain free, elbow by side) week 7 or after. Very light with high repetitions. **No IR strengthening until 12 weeks.**
- ii. Continue self stretching all planes to obtain PROM WFL
- iii. Advance scapula strengthening
- iv. **Mobilizations PRN
- v. **Aquatics
- vi. **Trunk stabilization/strengthening
- vii. Cautions:
 1. Strengthening program should progress only without signs of increasing inflammation
 2. Strengthening program should emphasize high repetitions, very light resistance and should be performed a maximum of 2 x day

Weeks 9 to 12

- i. Continue stretches PRN for PROM WFL
- ii. Advance theraband strengthening of cuff and scapula below shoulder level

1. May begin IR strengthening at 12 weeks
- iii. Initiate isotonic dumbbell exercises for deltoid, supraspinatus
 1. Up to 2 lbs max (once nearly full AFE achieved)
- iv. **Mobilizations PRN
- v. **Trunk stabilization/strengthening
- vi. Cautions:

Phase III (Return to activity/Advanced conditioning)

Goals: Maintain stability of prosthesis

Normalize strength, endurance and power for age

Return to full ADL's and recreational activities

Months 3 to 6

- i. Begin IR strengthening
- ii. Light PFN or manual resistance for cuff/deltoid/scapula (rhythmic stabilization or slow reversal hold) in pain free and comfortable range
- iii. Stretching PRN
- iv. Continue deltoid/cuff/scapula strengthening with the following progressions *if needed*:
 1. Decreasing amounts of external stabilization provided to shoulder girdle
 2. Integrate functional patterns
 3. Increase speed of movements
 4. Integrate kinesthetic awareness drills into strengthening activities
 5. Decrease in rest time to improve endurance
 6. Transition to maintenance deltoid/cuff/scapula strengthening program
 7. Once met D/C strength criteria
 8. Upon obtaining 85% of normal active ROM and MMT of a least 4/5 for rotator cuff and deltoid, modified sports activities are allowed (short irons and putting for golf, and ground strokes in tennis)

Discharge/Return to sport criteria

1. PROM WFL for ADL's/work/sports
2. MMT 5/5 shoulder girdle
3. Successful return to functional activities