

## Reverse Shoulder Arthroplasty Protocol

The intent of this protocol is to provide the clinician with a guideline of the postoperative rehabilitation course of a patient that has undergone a Reverse Total Shoulder Arthroplasty (RTSA or RSA). Please Note: the rehabilitation for a patient following the rTSA for fracture is delayed following a traditional reverse.

Important rehabilitation management concepts to consider for a postoperative physical therapy RTSA program are:

- Joint protection: There is a higher risk of shoulder dislocation following RTSA than a conventional TSA.
- **Avoidance of shoulder extension past neutral and the combination of shoulder adduction and internal rotation should be avoided for 12 weeks postoperatively.**
- They typically dislocate with the arm in internal rotation and adduction in conjunction with extension. As such, tucking in a shirt or performing bathroom / personal hygiene with the operative arm is an especially dangerous activity particularly in the immediate peri-operative phase.
- Deltoid function: Stability and mobility of the shoulder joint is now dependent upon the deltoid and periscapular musculature. This concept becomes the foundation for the postoperative physical therapy management for a patient that has undergone RTSA. Those patients with concomitant repair of a **rotator cuff tuberosity repair, secondary to fracture,** should be progressed more slowly to the next phase. Initiation of this protocol will generally be delayed in those patients and time frames can be dialed back to progress more slowly. As patients wean out of sling **monitor for bony pain around the acromion process** - any sharp / severe / increasing pain in that region as they get acromial stress fractures

Phase I – Immediate Post-Surgical (0-6 weeks):

Goals:

- Joint protection
- Passive range of motion (PROM)
  - Assisting with putting on/taking off sling and clothing
- Assisting with home exercise program (HEP)
- Cryotherapy
- Promote healing of soft tissue / maintain the integrity of the replaced joint.
- Enhance PROM.
- Restore active range of motion (AROM) of elbow/wrist/hand.
- **Formal physical therapy starts around 3 weeks**

### **Precautions:**

- Sling is worn for 4-6 weeks postoperatively and only removed for exercise and bathing once able.
  - If subscapularis repaired sling is for 6 weeks; if no subscapularis repaired then is for 4 weeks.
  - The use of a sling often may be extended for a total of 6-8 weeks, if the RTSA procedure is for fracture case.

- While lying supine, the distal humerus / elbow should be supported by a pillow or towel roll to avoid shoulder extension. Patients should be advised to “always be able to visualize their elbow while lying supine.”
- No lifting of objects with operative extremity.
- No supporting of body weight with involved extremity.
- Keep incision clean and dry (no soaking/wetting for 2 weeks); No whirlpool, Jacuzzi, ocean/lake wading for 3 weeks.

### **Acute care period to 3 weeks:**

Continuous cryotherapy for first 72 hours postoperatively, then frequent application (4-5 times a day for 10-15 minutes).

- Ensure proper sling fit/alignment/ use.
- Instruct patient in proper positioning, posture, initial home exercise program
  - Active/Active Assisted ROM (A/AAROM) of cervical spine, elbow, wrist, and hand.
  - Begin PROM in supine after complete resolution of interscalene block.
    - Forward flexion and elevation in the scapular plane in supine to 90 degrees.
    - External rotation (ER) in scapular plane to available ROM as indicated by operative findings. **Typically around 20 degrees.**
  - No Internal Rotation (IR) range of motion (ROM).
  - Begin periscapular sub-maximal pain-free isometrics in the scapular plane.

### **3 Weeks to 6 Weeks:**

- Progress exercises listed above.
- Progress PROM:
  - Forward flexion and elevation in the scapular plane in supine to 120 degrees.
  - ER to 30 degree at 4weeks and 45 at 6weeks, respecting soft tissue constraints.
- Gentle resisted exercise of elbow, wrist, and hand.

Criteria for progression to the next phase (Phase II):

- Tolerates shoulder PROM and isometrics; and, AROM- minimally resistive program for elbow, wrist, and hand.
- Patient demonstrates the ability to isometrically activate all components of the deltoid and periscapular musculature in the scapular plane.

### **Phase II -Active Range of Motion / Early Strengthening Phase (Week 6 to 12):**

Goals:

- Continue progression of PROM (full PROM is not expected).
- Gradually restore AROM.
- Re-establish dynamic shoulder and scapular stability.

### **Precautions:**

- Due to the potential of an acromion stress fracture one needs to continuously monitor the exercise and activity progression of the deltoid. A sudden increase of deltoid activity

during rehabilitation could lead to excessive acromion stress. A gradually progressed pain free program is essential.

- Continue to avoid shoulder hyperextension.
- Restrict lifting of objects to no heavier than a coffee cup.
- No supporting of body weight by involved upper extremity.

#### **Week 6 to Week 8:**

- Continue with PROM program.
- At 6 weeks post op start PROM IR to tolerance (not to exceed 50 degrees) in the scapular plane.
- Begin shoulder AA/AROM as appropriate.
- Forward flexion and elevation in scapular plane in supine with progression to sitting/standing. • ER and IR in the scapular plane in supine with progression to sitting/standing.
- Initiate gentle scapulothoracic rhythmic stabilization and alternating isometrics in supine as appropriate. Minimize deltoid recruitment during all activities / exercises.
- Progress strengthening of elbow, wrist, and hand.
- Gentle glenohumeral and scapulothoracic joint mobilizations as indicated (Grade I and II).
- Patient may begin to use hand of operative extremity for feeding and light activities of daily living including dressing, washing.

#### **Week 9 to Week 12:**

- Continue with above exercises and functional activity progression.
- Begin gentle glenohumeral IR and ER sub-maximal pain free isometrics.
- Begin gentle periscapular and deltoid sub-maximal pain free isotonic strengthening exercises. Begin AROM supine forward flexion and elevation in the plane of the scapula with light weights (1-3lbs. or .5-1.4 kg) at varying degrees of trunk elevation as appropriate. (i.e. supine lawn chair progression with progression to sitting/standing).
- Progress to gentle glenohumeral IR and ER isotonic strengthening exercises in sidelying position with light weight (1-3lbs or .5-1.4kg) and/or with light resistance resistive bands or sport cords.

Criteria for progression to the next phase (Phase III):

- Improving function of shoulder.
- Patient demonstrates the ability to isotonicly activate all components of the deltoid and periscapular musculature and is gaining strength.

#### **Phase III - Moderate strengthening (Week 12 +): Goals:**

- Enhance functional use of operative extremity and advance functional activities.
- Enhance shoulder mechanics, muscular strength and endurance.

Precautions:

- No lifting of objects heavier than (6 lbs) with the operative upper extremity
- No sudden lifting or pushing activities.

**Week 12 to Week 16:**

- Continue with the previous program as indicated.
- Progress to gentle resisted flexion, elevation in standing as appropriate.

**Phase IV - Continued Home Program (Typically 4 + months postop):**

- Typically the patient is on a home exercise program at this stage to be performed 3-4 times per week with the focus on:
  - Continued strength gains
  - Continued progression toward a return to functional and recreational activities within limits as identified by progress made during rehabilitation and outlined by surgeon and physical therapist.

Criteria for discharge from skilled therapy:

- Patient is able to maintain pain free shoulder AROM demonstrating proper shoulder mechanics. (Typically 90 – 120 degrees of elevation with functional ER of about 30 degrees.)
- Typically able to complete light household and work activities.