

### **TOTAL SHOULDER ARTHROPLASTY (REPLACEMENT) PROTOCOL**

This rehabilitation protocol has been developed for the patient following total shoulder arthroplasty. This protocol will vary in length and aggressiveness depending on factors such as:

- Quality of the rotator cuff
- Level of preoperative function
- Preoperative strength and range of motion
- Duration of prior symptoms
- Strength/pain/swelling/range of motion status
- Rehabilitation goals and expectations

Early passive range of motion is highly beneficial to enhance circulation within the joint to promote healing. The protocol is divided into phases. Each phase is adaptable based on the individual and special circumstances. The **overall goals** of the surgical procedure and rehabilitation are to:

- Control pain, inflammation, and swelling
- Maximize upper extremity strength and endurance
- Maximize shoulder range of motion
- Achieve the level of function based on the orthopedic and patient goals

The physical therapy will be started in the hospital and outpatient therapy should be initiated within 1-2 weeks of discharge. The supervised rehabilitation program is to be supplemented by a home fitness program where the patient performs the given exercises at home or at a gym facility. **Important post-op signs** to monitor:

- Swelling of the arm or shoulder and surrounding soft tissue
- Abnormal pain response, hypersensitivity, increasing night pain
- Severe range of motion limitations
- Weakness in the upper extremity musculature
- Improper mechanics or scapular dyskinesia
- Core and peri-scapular strength deficits

**Optimal outcome** requires both time and clinical evaluation. To safely and most efficiently return high level functional activity, the patient requires adequate strength, conditioning, and endurance. Return to intense activities following shoulder replacement is generally not advisable. Return to recreational sports requires both a period of time to allow for tissue healing along with a graduated strengthening and range of motion program. Symptoms such as pain or swelling should be closely monitored by the patient and therapist. Specific exercises

may be added, substituted, or modified where clinically appropriate by experienced sports/shoulder therapist who has expertise in the care of post-operative shoulder replacement. While patients may be "cleared" to resume regular activities at 6+ months following surgery, additional time spent in full activity is often necessary to achieve maximal recovery.

Suggestions during rehab:

1. The RC gets a better blood supply when the shoulder is slightly away from the body; therefore, advocate the use of a towel roll under the arm when in a resting position.
2. The RC muscles are very small; therefore, we use lower intensities to isolate each muscle without recruitment from surrounding larger muscles. Focus on hypertrophy initially by high volume ( $V = \text{Reps} \times \text{intensity/weight}$ ). Following the hypertrophy phase, strength is the focus with lower reps and higher intensities/weight.
3. Closed chain rotator cuff exercises facilitate cuff strength and shoulder proprioception. Like closed chain exercises for the knee, these can be safely initiated early in the post op course.

### **PHASE 1: WEEK 1-6**

Shoulder immobilizer for first 4-6 weeks—out of sling to do home exercise program (pendulums) three times daily

#### **ROM LIMITATIONS**

- PROM, AAROM, AROM as tolerated except No Active Internal Rotation,
- **Week 1 Goal:** 90° Forward Flexion, 20° External Rotation at the Side, Maximum 75° Abduction
- **Week 2 Goal:** 120° Forward Flexion, 20° External Rotation at the Side, Maximum 75° Abduction
- **Weeks 3-4:** limit ER to 30, FF as tolerated
- **Weeks 4-6:** limit ER to 40, FF as tolerated

#### **EXERCISE**

- Grip Strengthening
- Pulleys/Canes within ROM limits
- Elbow/Wrist/Hand Exercises
- Teach Home Exercises – Pendulums (small circles), Table slides
- Isometric scapular stabilizers

#### **MODALITIES**

- Heat before and ice after exercise

## **PHASE 2: WEEK 6-12**

Discontinue sling if still being worn

ROM

- AAROM/AROM - increase as tolerated with gentle passive stretching at end ranges
- Begin Active Internal Rotation and Backward Extension as tolerated

STRENGTH

- Begin light resisted exercises for Forward Flexion, External Rotation and Abduction – isometrics and bands – Concentric Motions Only
- **No Resisted Internal Rotation, Backward Extension or Scapular Retraction**

MODALITIES

- per PT discretion

## **PHASE 3: MONTHS 3-6**

ROM

- Progress to full AROM without discomfort

STRENGTH

- Begin resisted Internal Rotation and Backward Extension exercises
- Advance strengthening as tolerated – Rotator Cuff, Deltoid and Scapular Stabilizers
- Begin eccentric motions, plyometrics and closed chain exercises

## **PHASE 4: MONTHS 6-12)**

ROM

- Full, painless ROM

STRENGTH

- Begin functional work, recreational and sport specific activities
- Return to previous activity level