

## TOTAL SHOULDER ARTHROPLASTY GUIDELINES

The following total shoulder arthroplasty guidelines were developed by HSS Rehabilitation. **Progression is both criteria-based and patient specific. Phases and time frames are designed to give the clinician a general sense of progression.** The rehabilitation program following total shoulder arthroplasty emphasizes early, controlled motion to prevent shoulder stiffness and avoid disuse atrophy of distal musculature while respecting post-operative precautions. The program should balance the aspects of tissue healing and appropriate interventions to maximize flexibility, strength, and pain-free performance of functional activities. This model should not replace clinical judgment.

**FOLLOW PHYSICIAN'S MODIFICATIONS AS PRESCRIBED.**



## TOTAL SHOULDER ARTHROPLASTY GUIDELINES:

### Pre-Operative Phase

PRECAUTIONS	<ul style="list-style-type: none"> <li>▪ Avoid severe pain with strengthening and range of motion exercises</li> <li>▪ Modify or minimize activities that increase pain or compensatory motions of the shoulder complex</li> </ul>
ASSESSMENT	<ul style="list-style-type: none"> <li>▪ Quick Disabilities of the Arm, Shoulder and Hand Score (QuickDASH)</li> <li>▪ Pain</li> </ul>
TREATMENT RECOMMENDATIONS	<ul style="list-style-type: none"> <li>▪ Instruct patient in:             <ul style="list-style-type: none"> <li>○ Post-operative precautions</li> <li>○ Use of sling</li> <li>○ Necessary ADLs and self-care</li> <li>○ Cryotherapy and edema management</li> <li>○ Proper sleeping position</li> <li>○ Transfer training</li> </ul> </li> <li>▪ Provide appropriate pre-operative exercises with focus on:             <ul style="list-style-type: none"> <li>○ Pain-free shoulder range of motion</li> <li>○ Deltoid and scapular strengthening</li> </ul> </li> <li>▪ Gait training with assistive device using non-operative upper extremity if required</li> <li>▪ Familiarize with post-operative plan of care and available institutional resources</li> </ul>
CRITERIA FOR ADVANCEMENT	<ul style="list-style-type: none"> <li>▪ Independent with donning/doffing sling</li> <li>▪ Independent with home exercise program (HEP)</li> <li>▪ Patient verbalizes post-operative plan of care</li> </ul>
EMPHASIZE	<ul style="list-style-type: none"> <li>▪ Independence with donning/doffing sling</li> <li>▪ Independence with HEP</li> <li>▪ Familiarize with post-operative plan of care</li> <li>▪ Familiarize with available institutional resources</li> </ul>

### MODIFICATIONS TO PRE-OPERATIVE PHASE



## TOTAL SHOULDER ARTHROPLASTY GUIDELINES: Acute Care Phase (Weeks 0-1)

<p>PRECAUTIONS</p>	<ul style="list-style-type: none"> <li>▪ Avoid weight bearing on operative upper extremity</li> <li>▪ No active shoulder motion</li> <li>▪ Avoid pain during ROM exercises</li> <li>▪ No shoulder external rotation past 0-30° depending on surgeon preference</li> <li>▪ Avoid lying on operative side</li> <li>▪ Use sling at all time except when bathing, dressing, icing or performing exercises</li> <li>▪ Use pillows to support operative arm when sitting or sleeping</li> </ul>
<p>ASSESSMENT</p>	<ul style="list-style-type: none"> <li>▪ Mental status</li> <li>▪ Pain</li> <li>▪ Wound status</li> <li>▪ Swelling</li> <li>▪ Post-anesthesia sensory motor screening</li> <li>▪ Functional status – ADLs and mobility</li> </ul>
<p>TREATMENT RECOMMENDATIONS</p>	<ul style="list-style-type: none"> <li>▪ Transfer training: in and out of bed, sit to stand, and stair training while maintaining non-weight bearing on operative upper extremity</li> <li>▪ Gait training with assistive device while maintaining new upper extremity non-weight bearing status as needed</li> <li>▪ Pain-free distal AROM: note that MD may specify no resisted elbow flexion if biceps tenodesis was performed</li> <li>▪ Shoulder PROM exercises according to surgeon’s preference, e.g. Codman’s pendulum exercises, passive external rotation to neutral</li> <li>▪ Instruct in semi-reclined sleeping position, avoiding lying on operative side</li> <li>▪ Educate on donning/doffing and proper positioning in sling</li> <li>▪ ADL training</li> <li>▪ Cryotherapy and edema management of upper extremity to prevent swelling</li> <li>▪ Initiate and emphasize importance of HEP to be continued until initiation of outpatient PT or OT</li> </ul>
<p>CRITERIA FOR ADVANCEMENT</p>	<ul style="list-style-type: none"> <li>▪ Safely transfers unassisted</li> <li>▪ Independent ambulation with/without device on level surfaces and stairs</li> <li>▪ Independent with sling management, or caregiver independent to assist</li> <li>▪ Independent with ADLs, or caregiver independent to assist</li> <li>▪ Independent with HEP</li> <li>▪ Discharge home within 1-2 days when goals have been achieved and with MD clearance</li> </ul>
<p>EMPHASIZE</p>	<ul style="list-style-type: none"> <li>▪ Pain and edema control</li> <li>▪ Proper sling positioning</li> <li>▪ Compliance with post-operative precautions</li> <li>▪ Independent transfers, ambulation and stair negotiation</li> <li>▪ Pain-free HEP</li> </ul>

**MODIFICATIONS TO  
ACUTE CARE PHASE**



## TOTAL SHOULDER ARTHROPLASTY GUIDELINES: Post-Operative Phase 1 (Weeks 1-6)

- PRECAUTIONS**
- Follow precautions until cleared by MD
  - Sling to be worn at all times except when bathing, dressing, icing or performing exercises or until cleared by MD to discontinue use
  - Limit shoulder PROM based on pain and MD guidelines, with emphasis on limiting external rotation to protect subscapularis repair
  - No shoulder AROM until cleared by MD or at week 6
  - Avoid severe pain with therapeutic exercise and functional activities
  - Avoid weight bearing through operative upper extremity
  - Avoid holding items greater than 1 lb.

- ASSESSMENT**
- QuickDASH
  - American Shoulder and Elbow Surgeons Score (ASES)
  - Pain
  - Wound status
  - Sensation
  - Shoulder PROM
  - Distal AROM

- TREATMENT RECOMMENDATIONS**
- PROM shoulder elevation in scapular plane
  - AAROM shoulder external rotation with wand in scapular plane within prescribed limits
  - Sub-maximal deltoid/scapular isometrics
  - Scapular mobility and stability exercises with progression to manual resistance
  - Codman’s pendulum exercises
  - Distal AROM exercises
  - Core strengthening
  - Modalities for pain and edema

- CRITERIA FOR ADVANCEMENT**
- Swelling and pain controlled
  - Passive shoulder external rotation to 30°
  - Passive shoulder elevation in plane of scapula to 120°
  - Independent with ADLs
  - Independent with HEP

- EMPHASIZE**
- Control swelling
  - Proper donning/doffing of sling and use per MD instruction
  - Protect integrity of surgery
  - Importance of patient compliance with HEP and ADLs

### MODIFICATIONS TO POST-OP PHASE 1



## TOTAL SHOULDER ARTHROPLASTY GUIDELINES: Post-Operative Phase 2 (Weeks 7-12)

PRECAUTIONS	<ul style="list-style-type: none"> <li>▪ Avoid pain with ADLs and therapeutic exercise</li> <li>▪ No shoulder external rotation &gt;45°</li> <li>▪ No combined shoulder abduction and external rotation (pitch motion)</li> <li>▪ No lifting &gt;5 lbs</li> <li>▪ Avoid supporting full body weight on operative upper extremity</li> </ul>
ASSESSMENT	<ul style="list-style-type: none"> <li>▪ QuickDASH</li> <li>▪ ASES</li> <li>▪ Pain</li> <li>▪ Shoulder AROM and PROM</li> <li>▪ Strength</li> <li>▪ Functional Mobility</li> </ul>
TREATMENT RECOMMENDATIONS	<ul style="list-style-type: none"> <li>▪ D/C sling if still in use</li> <li>▪ Continue shoulder ROM exercises             <ul style="list-style-type: none"> <li>○ AA/PROM using wand: forward flexion, external rotation, abduction and extension</li> <li>○ Pulleys with good humeral head control</li> <li>○ Initiate AROM in all planes except combined abduction and external rotation</li> <li>○ Internal rotation stretch using straps</li> </ul> </li> <li>▪ Stabilization exercises             <ul style="list-style-type: none"> <li>○ Humeral head control exercises, e.g. rhythmic stabilization in supine starting at 90° of elevation and progressing through available arc of motion</li> <li>○ Closed kinetic chain exercises, e.g. ball stabilization</li> <li>○ Scapular stabilization</li> </ul> </li> <li>▪ Strengthening exercises             <ul style="list-style-type: none"> <li>○ Continue sub-maximal shoulder isometrics, e.g. flexion, extension, external and internal rotation</li> <li>○ Multi-planar deltoid strengthening</li> <li>○ General upper extremity strengthening</li> <li>○ Core strengthening</li> </ul> </li> <li>▪ Cervical AROM and upper trapezius stretching</li> <li>▪ Upper body ergometry</li> <li>▪ Re-education of movement patterns</li> <li>▪ Taping to reduce compensatory movements as needed</li> <li>▪ Manual therapy as needed, e.g. scapular mobilization, soft tissue mobilization</li> <li>▪ ADL training</li> <li>▪ Pool therapy if available</li> <li>▪ Progression of HEP</li> </ul>
CRITERIA FOR ADVANCEMENT	<ul style="list-style-type: none"> <li>▪ Pain controlled</li> <li>▪ Shoulder AROM in plane of scapula: elevation to 150°, external rotation to 45°</li> <li>▪ Independent with HEP</li> </ul>

*(continued)*

## TOTAL SHOULDER ARTHROPLASTY GUIDELINES:

### Post-Operative Phase 2 (Weeks 7-12) (continued)

#### EMPHASIZE

- Gradually restore shoulder AROM
- Initiate strengthening of shoulder girdle
- Reduce compensatory movements, e.g. overuse of upper trapezius

#### MODIFICATIONS TO POST-OP PHASE 2

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## TOTAL SHOULDER ARTHROPLASTY GUIDELINES: Post-Operative Phase 3 (Weeks 13-18)

PRECAUTIONS	<ul style="list-style-type: none"> <li>▪ Avoid supporting full body weight on operative upper extremity</li> <li>▪ No heavy overhead lifting</li> </ul>
ASSESSMENT	<ul style="list-style-type: none"> <li>▪ QuickDASH</li> <li>▪ ASES</li> <li>▪ Pain</li> <li>▪ Shoulder AROM and PROM</li> <li>▪ Scapulohumeral rhythm</li> <li>▪ Thoracic spine mobility</li> <li>▪ Sternoclavicular joint mobility</li> <li>▪ UE and periscapular strength – MMT</li> <li>▪ Functional mobility</li> </ul>
TREATMENT RECOMMENDATIONS	<ul style="list-style-type: none"> <li>▪ Progress shoulder ROM and flexibility to WNL</li> <li>▪ Manual therapy to restore shoulder girdle range of motion</li> <li>▪ Address flexibility of thoracic spine</li> <li>▪ Address flexibility of sternoclavicular joint</li> <li>▪ PNF patterning</li> <li>▪ Progressive resistive exercises for UE, shoulder girdle and core</li> <li>▪ Shoulder strengthening through progressive ranges of motion</li> <li>▪ Progress closed chain upper body exercises with gradual loading (avoid full body weight)</li> <li>▪ Progress humeral head rhythmic stabilization exercises, e.g. closed chain, upright position</li> <li>▪ Motor re-education</li> <li>▪ Upper body ergometry and general conditioning</li> <li>▪ Functional training to address patient's goals</li> <li>▪ Progress to more advanced long-term HEP</li> </ul>
CRITERIA FOR DISCHARGE (OR ADVANCEMENT TO PHASE 4 IF RETURNING TO SPORT)	<ul style="list-style-type: none"> <li>▪ Restore normal/near normal shoulder motion and flexibility</li> <li>▪ UE and periscapular muscle strength 4+/5 for control with functional movements</li> <li>▪ Fully independent with ADLs with minimal pain</li> <li>▪ Independent with HEP</li> </ul>
EMPHASIZE	<ul style="list-style-type: none"> <li>▪ Restore normal ROM and flexibility</li> <li>▪ Restore strength</li> <li>▪ Avoid posterior capsule tightness</li> <li>▪ Reduce compensatory patterning</li> </ul>

### MODIFICATIONS TO POST-OP PHASE 3



## TOTAL SHOULDER ARTHROPLASTY GUIDELINES:

### Phase 4 Return to Sport (if applicable)

PRECAUTIONS	<ul style="list-style-type: none"> <li>▪ Avoid high impact, e.g. contact sports</li> <li>▪ Avoid too much too soon - monitor exercise dosing</li> <li>▪ Note that expert opinion varies widely on allowable sports - consult with MD</li> </ul>
ASSESSMENT	<ul style="list-style-type: none"> <li>▪ QuickDASH including Sports Module</li> <li>▪ ASES</li> <li>▪ UE ROM and flexibility</li> <li>▪ Strength</li> <li>▪ Cardiovascular endurance</li> <li>▪ Quality of movement throughout kinetic chain</li> <li>▪ Scapulothoracic coupling</li> </ul>
TREATMENT RECOMMENDATIONS	<ul style="list-style-type: none"> <li>▪ Progress humeral head control exercises in a variety of overhead positions</li> <li>▪ Progress isotonic exercises to higher loads as indicated</li> <li>▪ Sustained single arm holds with perturbations</li> <li>▪ Closed kinetic chain progression exercises</li> <li>▪ Cardiovascular conditioning</li> <li>▪ Sport-specific multidirectional core retraining</li> <li>▪ Dynamic balance activities</li> <li>▪ Neuromuscular shoulder reeducation for control with dynamic sports-specific exercises</li> <li>▪ Progress total body multidirectional motor control exercises to meet sport-specific demands</li> <li>▪ Collaboration with trainer, coach or performance specialist</li> </ul>
CRITERIA FOR RETURN TO SPORT	<ul style="list-style-type: none"> <li>▪ Independent in long-term, sport-specific exercise program</li> <li>▪ Movement patterns, strength, flexibility, motion, power and accuracy to meet demands of sport</li> <li>▪ No increase in pain with sports activities</li> </ul>
EMPHASIZE	<ul style="list-style-type: none"> <li>▪ Monitoring of load progression and volume of exercise</li> <li>▪ Neuromuscular patterning</li> <li>▪ Collaboration with appropriate Sports Performance expert</li> </ul>

### MODIFICATIONS TO PHASE 4





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