



Bradley Smith, MD
 5316 S. Woodrow St. #200
 Murray, UT 84107
 Office: (801) 747-1020
 Fax: (801) 747-1023
bradleysmithmd.com



Rehabilitation Protocol: Anatomic Total Shoulder Arthroplasty

PHASE I: *Immediate Post-Op (0-3 WEEKS AFTER SURGERY)*

Rehabilitation Goals	<ul style="list-style-type: none"> ● Protect surgical repair ● Reduce swelling, minimize pain ● Maintain UE ROM in elbow, hand, and wrist ● Gradually increase shoulder PROM ● Minimize muscle inhibition ● Patient education
Sling	<ul style="list-style-type: none"> ● Neutral rotation ● Use of abduction pillow in 30-45 degrees abduction ● Use at night while sleeping
Precautions	<ul style="list-style-type: none"> ● No shoulder AROM ● No reaching behind back, especially in to internal rotation ● No excessive shoulder external rotation or abduction ● No lifting of objects ● No supporting of body weight with hands ● Place small pillow/towel roll under elbow while lying on back to avoid shoulder hyperextension
Intervention	<p><i>Swelling Management</i></p> <ul style="list-style-type: none"> ● Ice, compression <p><i>Range of motion/Mobility</i></p> <ul style="list-style-type: none"> ● PROM: ER ≤ 30 degrees in the scapular plane, IR to belt line in scapular plane, Flex/Scaption to tolerance, ABD ≤ 90 degrees, pendulums, seated GH flexion table slide, seated horizontal ● table slide ● AAROM: Active assistive shoulder flexion ● AROM: elbow, hand, wrist <p><i>Strengthening (Week 2)</i></p> <ul style="list-style-type: none"> ● Periscapular: scap retraction, prone scapular retraction, standing scapular setting, supported scapular setting, inferior glide, low row ● Ball squeeze
Criteria to Progress	<ul style="list-style-type: none"> ● ≥ 50% shoulder PROM flex, scaption as compared to contralateral side ● ≤ 90 degrees of shoulder ABD PROM ● ≤ 30 degrees of shoulder ER PROM in scapular plane ● ≥ 70 degrees of IR PROM in scapular plane ● Palpable muscle contraction felt in scapular musculature ● Pain < 4/10

PHASE II: Intermediate Post-Op (4-6 WEEKS AFTER SURGERY)

<p>Rehabilitation Goals</p>	<ul style="list-style-type: none"> • Continue to protect surgical repair • Reduce swelling, minimize pain • Gradually increase shoulder PROM • Minimize substitution patterns with AROM and AAROM • Improve periscapular muscle activation/strength • Initiate RTC (external rotators) activation • Patient education
<p>Sling</p>	<ul style="list-style-type: none"> • Use at night while sleeping • Gradually start weaning sling over the next two weeks during the day
<p>Precautions</p>	<ul style="list-style-type: none"> • No excessive shoulder external rotation or abduction • No lifting of objects heavier than a coffee cup • No supporting of body weight with hands • Place small pillow/towel roll under elbow while lying on back to avoid shoulder hyperextension
<p>Intervention -Continue with Phase I interventions</p>	<p><i>Range of motion/Mobility</i></p> <ul style="list-style-type: none"> • PROM: Full with exception of ER ≤ 30 degrees in scapular plane and ≤ 90 degrees ABD • AAROM: shoulder flexion with cane, cane external rotation stretch, washcloth press, seated shoulder elevation with cane • AROM: supine flexion, salutes, supine punch <p><i>Strengthening</i></p> <ul style="list-style-type: none"> • Rotator cuff: external rotation isometrics • Periscapular: Row on physioball, serratus punches • Elbow: Biceps curl, resistance band bicep curls and triceps <p><i>Motor control</i></p> <ul style="list-style-type: none"> • ER in scaption and Flex 90-125 (rhythmic stabilization) <p><i>Stretching</i></p> <ul style="list-style-type: none"> • Sidelying horizontal ADD
<p>Criteria to Progress</p>	<ul style="list-style-type: none"> • $\geq 75\%$ shoulder PROM flex, scaption, as compared to contralateral side • $\geq 75\%$ shoulder PROM IR in scapular plane as compared to contralateral side • 30 degrees of shoulder PROM ER in scapular plane • 90 degrees of shoulder PROM ABD • Minimal substitution patterns with AAROM • AROM shoulder elevation to 100 degrees with minimal substitution patterns • Pain $< 4/10$ • No complications with Phase II

PHASE III: Intermediate Post-Op Continued (7-8 WEEKS AFTER SURGERY)

Rehabilitation Goals	<ul style="list-style-type: none"> • Do not overstress healing tissue (especially the anterior capsule) • Minimize pain • Maintain PROM • Improve AROM • Progress periscapular and RTC strength • Return to full functional activities • Patient education
Sling	<ul style="list-style-type: none"> • Discontinue
Precautions	<ul style="list-style-type: none"> • No lifting of heavy objects (>10 lbs)
Intervention -Continue with Phase I-II interventions	<p><i>Range of motion/Mobility</i></p> <ul style="list-style-type: none"> • Full ROM in all planes • AAROM: incline table slides, ball roll on wall, wall climbs, pulleys • AROM: seated scaption, seated flexion, supine forward elevation with elastic resistance to 90 deg <p><i>Strengthening</i></p> <ul style="list-style-type: none"> • Rotator cuff: internal rotation isometrics, side-lying external rotation • Standing external rotation w/ resistance band, standing internal rotation w/ resistance band, internal rotation, external rotation • Periscapular: Resistance band shoulder extension, resistance band seated rows, rowing, lawn mowers, robbery <p><i>Motor Control</i></p> <ul style="list-style-type: none"> • IR/ER and Flex 90-125 (rhythmic stabilization) • Quadruped alternating isometrics and ball stabilization on wall • PNF-D1 diagonal lifts, PNF-D2 diagonal lifts <p><i>Stretching</i></p> <ul style="list-style-type: none"> • IR behind back with towel, sidelying horizontal ADD, sleeper stretch, triceps and lats
Criteria to Progress	<ul style="list-style-type: none"> • Minimal to no substitution patterns with shoulder AROM • Pain < 4/10

PHASE IV: Transitional Post-Op (9-11 WEEKS AFTER SURGERY)

Rehabilitation Goals	<ul style="list-style-type: none"> • Do not overstress healing tissue (especially the anterior capsule) • Maintain pain-free PROM • Continue improving AROM • Improve dynamic shoulder stability • Gradually restore shoulder strength and endurance
Precautions	<ul style="list-style-type: none"> • No lifting of heavy objects (> 10 lbs) • Avoid exercises that put stress on the anterior shoulder capsule (ie: shoulder ER above 80 degrees of ABD)

<p>Intervention -Continue with Phase I-III interventions</p>	<p><i>Range of motion/Mobility</i></p> <ul style="list-style-type: none"> ● Full ROM in all planes <p><i>Strengthening</i></p> <ul style="list-style-type: none"> ● Rotator cuff: increase resistance rotator cuff exercise ● Periscapular: Push-up plus on knees, “W” exercise, resistance band Ws, dynamic hug, resistance band dynamic hug, prone shoulder extension Is, resistance band forward punch, forward punch, tripod, pointer <p><i>Motor Control</i></p> <ul style="list-style-type: none"> ● Resistance band PNF pattern, PNF – D1 diagonal lifts w/ resistance, diagonal-up, diagonal-down Wall slides w/ resistance band
<p>Criteria to Progress</p>	<ul style="list-style-type: none"> ● Supine AROM Flex \geq 140 degrees ● Supine AROM ABD \geq 120 degrees ● Supine AROM ER in scapular plane \geq 60 degrees ● Supine AROM IR in scapular plane \geq 70 degrees ● AROM shoulder elevation to 120 degrees with minimal substitution patterns ● Performs all exercises demonstrating symmetric scapular mechanics ● Pain $<$ 2/10

PHASE V: Advanced Strengthening Post-Op (12-16 WEEKS AFTER SURGERY)

<p>Rehabilitation Goals</p>	<ul style="list-style-type: none"> ● Maintain pain-free ROM ● Improve shoulder strength and endurance ● Enhance functional use of upper extremity
<p>Precautions</p>	<ul style="list-style-type: none"> ● No lifting of objects $>$ 10 lbs. ● No overhead lifting. ● No sudden pushing or lifting activities. ● No progression into activities that are painful.
<p>Intervention -Continue with Phase II-IV interventions</p>	<p><i>Strengthening</i></p> <ul style="list-style-type: none"> ● Rotator cuff: External rotation at 90 degrees, internal rotation at 90 degrees, resistance band standing external rotation at 90 degrees, resistance band standing internal rotation at 90 degrees ● Periscapular: T and Y, “T” exercise, push-up plus knees extended, wall push up <p><i>Motor Control</i></p> <ul style="list-style-type: none"> ● Progress ball stabilization on wall to overhead alternating isometrics/rhythmic stabilization
<p>Criteria to Progress</p>	<ul style="list-style-type: none"> ● Clearance from MD and ALL milestone criteria have been met ● Maintains pain-free PROM and AROM ● Performs all exercises demonstrating symmetric scapular mechanics

Protocol adapted from Mass General Sports Medicine Physical Therapy Rehabilitation Protocols. See <https://www.massgeneral.org/orthopaedics/sports-medicine/physical-therapy/sports-rehab-protocols>