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Rehabilitation Protocol for Total Shoulder Arthroplasty and Hemiarthroplasty

PHASE I: IMMEDIATE POST-OP (0-3 WEEKS AFTER SURGERY)

Rehabilitation Goals	• 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	• Neutral rotation • Use of abduction pillow in 30-45 degrees abduction • Use at night while sleeping
Precautions	• 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	*Swelling Management* • Ice, compression *Range of motion/Mobility* • PROM: ER </= 30 degrees in the scapular plane, IR to belt line in scapular plane, Flex to 120, ABD to 90 degrees, pendulums, seated GH flexion table slide, seated horizontal table slide • AROM: elbow, hand, wrist *Strengthening (Week 2)* • Periscapular: scap retraction, prone scapular retraction, standing scapular setting, supported scapular setting, inferior glide, low row
Criteria to Progress	• >/= 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 • No complications with Phase I

PHASE II: INTERMEDIATE POST-OP (4-6 WEEKS AFTER SURGERY)

Rehabilitation Goals	• Continue to protect surgical repair • Reduce swelling, minimize pain • Gradually increase shoulder PROM • Improve periscapular muscle activation/strength •
Sling	• May remove at night • Gradually start weaning sling over the next two weeks during the day
Precautions	• No excessive shoulder external rotation or abduction • No lifting of arm • No supporting of body weight with hands
Intervention **Continue with Phase I interventions*	*Range of motion/Mobility* • 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 *Strengthening* • Rotator cuff: external rotation isometrics • Periscapular: Row on physioball, serratus punches • *Motor control* • ER in scaption and Flex 90-125 (rhythmic stabilization) *Stretching* • Sidelying horizontal ADD
Criteria to Progress	• >/=75% shoulder PROM flex, scaption, as compared to contralateral side • >/=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 CONTD (7-8 WEEKS AFTER SURGERY)

Rehabilitation Goals	• 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	• Discontinue
Precautions	• No lifting of heavy objects (>5 lbs)
Intervention **Continue with Phase I-II interventions*	*Range of motion/Mobility* • 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

	Strengthening • 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 *Motor control* • IR/ER and Flex 90-125 (rhythmic stabilization) • Quadruped alternating isometrics and ball stabilization on wall • PNF-D1 diagonal lifts, PNF-D2 diagonal lifts *Stretching* • IR behind back with towel, sidelying horizontal ADD, sleeper stretch, triceps and lats
Criteria to Progress	• Minimal to no substitution patterns with shoulder AROM • Pain < 4/10

PHASE IV: TRANSITIONAL POST-OP (9-11 WEEKS AFTER SURGERY)

Rehabilitation Goals	• 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	• 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)
Intervention **Continue with Phase II-III interventions*	*Range of motion/mobility* • Full ROM in all planes *Strengthening* • 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 *Motor control* • Resistance band PNF pattern, PNF – D1 diagonal lifts w/ resistance, diagonal-up, diagonal-down Wall slides w/ resistance band
Criteria to Progress	• Supine AROM Flex >/=140 degrees • Supine AROM ABD >/=120 degrees • Supine AROM ER in scapular plane >/= 60 degrees • Supine AROM IR in scapular plane >/= 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)

Rehabilitation Goals	• Maintain pain-free ROM • Improve shoulder strength and endurance • Enhance functional use of upper extremity
Intervention **Continue with Phase II-IV interventions*	*Strengthening* • 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 *Motor Control* • Progress ball stabilization on wall to overhead alternating isometrics/rhythmic stabilization

Criteria to Progress	• Clearance from MD and ALL milestone criteria have been met • Maintains pain-free PROM and AROM • Performs all exercises demonstrating symmetric scapular mechanics • QuickDASH • PENN
Return-to-Sport	• For the recreational or competitive athlete, return-to-sport decision making should be individualized and based upon factors including level of demand on the upper extremity, contact vs non-contact sport, frequency of participation, etc. We encourage close discussion with the referring surgeon prior to advancing to a return-to-sport rehabilitation program.

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