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PHYSICAL THERAPY PROTOCOL
TOTAL SHOULDER ARTHROPLASTY/HEMIARTHROPLASTY

PROCEDURE	**Date of Surgery:** _____ **R L B/L** Total Shoulder Arthroplasty Hemiarthroplasty [ ] For Glenohumeral OA [ ] For Staged Revision Arthroplasty (HA) **Additional Procedures:**_____	**PLAN** **Physical Therapy for R L B/L** Shoulder 2x Per Week x 12 Weeks
GENERAL GUIDELINES	The intent of this protocol is to provide the physical therapist with a guideline/treatment protocol for the postoperative rehabilitation management for a patient who has undergone a Anatomic Total Shoulder Arthroplasty (TSA) or Hemiarthroplasty (HA). It is not a substitute for a physical therapist's clinical decision making regarding the progression of a patient's postoperative rehabilitation based on the individual patient's physical exam/findings, progress, and/or the presence of postoperative complications. If the physical therapist requires assistance in the progression of a postoperative patient who has had TSA the therapist should consult with the referring surgeon. The *scapular plane* is defined as the shoulder positioned in 30° of abduction and forward flexion with neutral rotation. ROM performed in the scapular plane should enable appropriate shoulder joint alignment. **Shoulder Dislocation Precautions:** ○ No shoulder motion behind back. (NO combined shoulder adduction, internal rotation, and extension.) ○ No glenohumeral (GH) extension beyond neutral. *Precautions should be implemented for 6 weeks postoperatively unless surgeon specifically advises patient or therapist differently. **Surgical Considerations:** The surgical approach needs to be considered when devising the postoperative plan of care. ○ Deltopectoral approach - Unless stated otherwise by the surgeon a TSA is completed via deltopectoral approach, which minimizes surgical trauma to the anterior deltoid. ○ An incision is made from the coracoid, extending 5cm distally along the deltopectoral groove. The cephalic vein is mobilized and the deltoid is gently retracted laterally. Meticulous care is taken to protect injury to the deltoid muscle. The biceps tendon is released and later tenodesed.	

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	○ The subscapularis tendon is released via tenotomy or peel allowing for exposure of the humeral head and always repaired at the end of the case. Refer to the operative note and subscapularis management for specific restrictions regarding external rotation postoperatively. **Delayed Start of Therapy:** The start of this protocol is delayed 2-4 weeks for a revision surgery. In the case of delayed start to physical therapy adjust below timeframes so that day 1 is the first day of physical therapy.	
PHASE I **(Day 1 - Week 5)** Immediate Post Surgery and Initiation of Range of Motion Phase	**GOALS** • Allow healing of soft tissue • Maintain integrity of replaced joint • Gradually increase passive range of motion (PROM) of shoulder; restore active range of motion (AROM) of elbow/wrist/hand • Reduce pain and inflammation • Reduce muscular inhibition • Independent with activities of daily living (ADLs) with modifications while maintaining the integrity of the replaced joint. • Incision clean and dry (no soaking for 4 weeks) Post-Operative Day (POD) #1 (in hospital): • Passive forward flexion in supine to tolerance • Gentle ER in scapular plane to available PROM (as documented in operative note) – usually around 30° (Attention: DO NOT produce undue stress on the anterior joint capsule, particularly with shoulder in extension) • Passive IR to chest	**PRECAUTIONS** Wound Care: • May shower on post op day 1. • Outside of showering, keep the incision clean and dry. • No soaking/submerging for 2 weeks; • No whirlpool, fresh or salt water for 4 weeks. • Sling is worn for 4-6 weeks postoperatively and only removed for exercise, bathing and seated in a chair with arm rests once able. • While lying supine, a small pillow or towel roll should be placed behind the elbow to avoid shoulder hyperextension / anterior capsule stretch / subscapularis stretch. (When lying supine patient should be instructed to always be able to visualize their elbow. This ensures they are not extending their shoulder past neutral.) – This should be maintained for 6-8 weeks post-surgically. • 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. • Avoid shoulder AROM. • No excessive shoulder motion behind back, especially into internal rotation (IR)

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	• Active distal extremity exercise (elbow, wrist, hand)
	• Pendulum exercises
	• Frequent cryotherapy for pain, swelling, and inflammation management
	• Patient education regarding proper positioning and joint protection techniques
	
	ACTIVITY
	• Ensure patient is independent in bed mobility, transfers and ambulation.
	• Insure proper sling fit/alignment/use.
	• Active/Active Assisted ROM (AROM/AAROM) of cervical spine, elbow, wrist, and hand.
	• Continuous cryotherapy for first 72 hours postop, then apply as needed for pain
	• Start home exercise program at postop day 7 (on last page)
	• Passive Range of Motion (PROM) therapy assisted typically begins at 1 weeks:
	  ○ Forward flexion and elevation in the scapular plane in supine is limited to 90° for 1st 4 weeks, 130° for weeks 5-6 then progress as tolerated.
	  ○ ER in scapular plane to 20 deg unless otherwise specified in operative note, respecting soft tissue constraints.
	  ○ No internal rotation
	• Gentle resisted exercise of elbow, wrist, and hand
	• May begin gentle pain free scapular pinches
		• No excessive stretching or sudden movements (particularly external rotation (ER))
		• No supporting of body weight by hand on involved side
		• No driving for 4 weeks

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	• Manual Therapy
	  ○ Soft tissue massage upper trapezius, pec minor, scapular stabilizers
	  ○ Desensitization scar tissue
	• **Begin to wean from sling at 4 weeks post-op (sleep and out of house) with discontinuation of sling after week 6.**
		CRITERIA FOR PROGRESSION TO THE NEXT PHASE (II):
		• If the patient has not reached the below ROM, forceful stretching and mobilization/manipulation is not indicated. Continue gradual ROM and gentle mobilization (i.e. Grade I oscillations), while respecting soft tissue constraints.
		• Tolerates PROM program
		• Has achieved at least 90° PROM forward flexion and elevation in the scapular plane.
		• Has achieved at least 45° PROM ER in plane of scapula
		• Has achieved at least 70° PROM IR in plane of scapula measured at 30° of abduction.

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PHASE II **(Weeks 6 - 8)** Early Strengthening	**GOALS** • ROM goals to be achieved by week 8 • Forward elevation 0- no limit (passive) • ER 0-45° in neutral • Functional external rotation (to mouth and behind head) • Internal rotation – gentle passive • Continue progression of PROM • Gradually restore active motion • Control pain and inflammation • Allow continue healing of soft tissue • Do not overstress healing tissue • Re-establish dynamic shoulder stability • Shoulder isometrics – arm at 0° abduction and neutral rotation • Re-establish dynamic shoulder and scapular stability. • Wand exercises • Core exercises • Control pain and inflammation. **Activity:** • Begin active flexion, IR, ER, elevation in the plane of the scapula pain free ROM • AAROM pulleys (flexion and elevation in the plane of the scapula) – as long as greater than 90° of PROM	**PRECAUTIONS** • Continue to avoid shoulder hyperextension. • In the presence of poor shoulder mechanics avoid repetitive shoulder AROM exercises/activity. • Restrict lifting of objects no more then 1-2 lbs • No weight bearing through involved upper extremity. • In the presence of poor shoulder mechanics avoid repetitive shoulder AROM exercises/activity against gravity in standing. • No heavy lifting of objects (no heavier than coffee cup) • No supporting of body weight by hand on involved side • No sudden jerking motions

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	• Begin shoulder sub-maximal pain-free shoulder isometrics in neutral • Scapular strengthening exercises as appropriate • Begin assisted horizontal adduction • Progress distal extremity exercises with light resistance as appropriate • Gentle glenohumeral and scapulothoracic joint mobilizations as indicated • Initiate glenohumeral and scapulothoracic rhythmic stabilization • Continue use of cryotherapy for pain and inflammation.	***CRITERIA FOR PROGRESSION TO THE NEXT PHASE (III):*** • If the patient has not reached the below ROM, forceful stretching and mobilization/manipulation is not indicated. Continue gradual ROM and gentle mobilization (i.e. Grade I oscillations), while respecting soft tissue constraints. • Tolerates P/AAROM, isometric program • Has achieved at least 140° PROM forward flexion and elevation in the scapular plane. • Has achieved at least 60+° PROM ER in plane of scapula • Has achieved at least 70° PROM IR in plane of scapula measured at 30° of abduction Able to actively elevate shoulder against gravity with good mechanics to 100°.

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PHASE III **(Weeks 8-12)** Moderate Strengthening	**GOALS** • Gradual restoration of shoulder strength, power, and endurance • Optimize neuromuscular control • Gradual return to functional activities with involved upper extremity <u>Early Phase III:</u> • Progress AROM exercise / activity as appropriate • Advance PROM to stretching as appropriate • Continue PROM as needed to maintain ROM • Initiate assisted shoulder IR behind back stretch • Resisted shoulder IR, ER in scapular plane • Begin light functional activities • Wean from sling completely • Begin progressive supine active elevation strengthening (anterior deltoid) with light weights (0.5-1.5 kg.) at variable degrees of elevation	**PRECAUTIONS** • No heavy lifting of objects (no heavier than 3 kg.) • No sudden lifting or pushing activities • No sudden jerking motions

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	Late Phase III: • Resisted flexion, elevation in the plane of the scapula, extension (therabands / sport cords) • Continue progressing IR, ER strengthening • Progress IR stretch behind back from AAROM to AROM as ROM allows (Pay particular attention as to avoid stress on the anterior capsule.)	***CRITERIA FOR PROGRESSION TO THE NEXT PHASE (IV):*** • If the patient has not reached the below ROM, forceful stretching and mobilization/manipulation is not indicated. Continue gradual ROM and gentle mobilization (i.e. Grade I oscillations), while respecting soft tissue constraints. • Tolerates AA/AROM/strengthening • Has achieved at least 140° AROM forward flexion and elevation in the scapular plane supine. • Has achieved at least 60+° AROM ER in plane of scapula supine • Has achieved at least 70° AROM IR in plane of scapula supine in 30° of abduction • Able to actively elevate shoulder against gravity with good mechanics to at least 120°. Note: (If above ROM are not met then patient is ready to progress if their ROM is consistent with outcomes for patients with the given underlying pathology).
PHASE IV **(Weeks 12+)** Advanced Strengthening Phase	**GOALS** • Maintain non-painful AROM • Enhance functional use of upper extremity • Improve muscular strength, power, and endurance • Gradual return to more advanced functional activities • Progress weight bearing exercises as appropriate	**PRECAUTIONS** • Avoid exercise and functional activities that put stress on the anterior capsule and surrounding structures. (Example: no combined ER and abduction above 80° of abduction.) • Ensure gradual progression of strengthening

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	Early Phase IV: • Typically patient is on a home exercise program by this point to be performed 3-4 times per week. • Gradually progress strengthening program • Gradual return to moderately challenging functional activities. Late Phase IV (Typically 4-6 months post-op): • Return to recreational hobbies, gardening, sports, golf, doubles tennis	***CRITERIA FOR DISCHARGE FROM SKILLED THERAPY:*** • Patient able to maintain non-painful AROM • Maximized functional use of upper extremity • Maximized muscular strength, power, and endurance • Patient has returned to advanced functional activities

HOME EXERCISES (Start on Day 7):

Home Stretching Exercises #1 *Table Slides*	• Sit in a sturdy chair at a table, resting the hand/forearm of the injured shoulder on a towel, sheet, or paper plate to aid sliding. • Lean forward slowly, sliding your hand straight ahead to stretch the shoulder, allowing your head/trunk to lower slightly. • **Frequency**: 1 set of 10 reps. 2 times a day; 6-7 days a week

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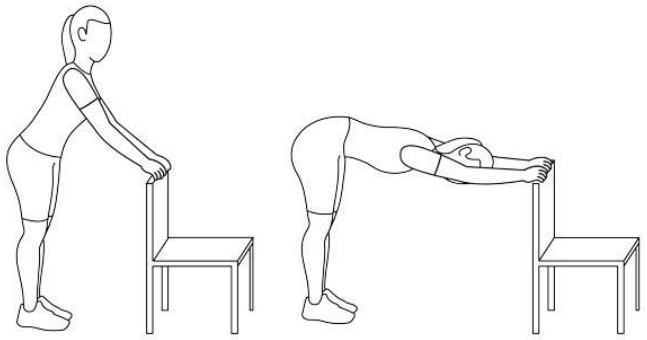
Home Stretching Exercises #2 *Shoulder Flexion Stretch*	• Stand behind a chair or at a countertop with both hands on the back of the chair. • Back up a few steps and bend forward until you feel a stretch in front of your shoulders. Keep your back flat and your elbows softly bent. • Hold for 10 seconds and then return to your starting position. • **Frequency**: 1 set of 10 reps. 2 times a day; 6-7 days a week 

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Home Stretching Exercises #3 Supine Passive Assisted Elevation	• Start by laying comfortably on your back. • Use the well arm to support the operative arm by grabbing firmly at the elbow. • Gently lift arm up as far as comfortable. • Hold 5 seconds then lower back to your starting position. When lowering, gently push the operated arm into the other hand to reduce pain. • Gradually increased range of motion. If more comfortable, you may grab the wrist as your range of motion increases (as shown in the left picture). • **Frequency**: 1 set of 10 reps. 2 times a day; 6-7 days a week