University Hospitals Rehabilitation Services

University Hospitals Orthopedics

Reverse Total Shoulder Arthroplasty Rehabilitation Post-Operative Guidelines

Reverse total shoulder arthroplasty (TSA) is primarily indicated for massive or irreparable rotator cuff tears, proximal humerus fracture resulting in deficient rotator cuff, and/or revision of total shoulder arthroplasty that has concurrent rotator cuff insufficiency. Significant reduction in pain and improvement in function is expected by 3 months post-operatively but varies based on patient pre-operative status, co-morbidities and specifics of surgical procedure/approach. It is imperative to review operative notes and communicate with the surgeon, as repair of either subscapularis or deltoid may have occurred requiring additional protection. Recovery of forward flexion active range of motion (AROM) may plateau at 6 months while external rotation (ER) may progress for up to 12 months. Limited recovery of internal rotation (IR) is expected compared to pre-operative ability.

Listed below is a suggested Reverse TSA rehabilitation guideline. Please confirm with the surgeon for specific precautions and guidelines if necessary.

Patient Information:

Wound care	Bandage removed at home by homecare staff (can shower but do not submerge) Negative pressure wound vac post-op 7 or 14 days post-op based on model
Assistive Device and Equipment	UH DME will provide pre-operatively or in the hospital Sling – Abduction sling should be worn for 4-6 weeks at surgeon's discretion
Home Health PT	If recommended, will be established with care transitions team prior to discharge (DC) home
Out-patient PT	Will complete following HHC for most patients. 3-4 weeks post-surgery date. Recommended to schedule prior to surgery. **DO NOT DELAY SCHEDULING.**

Reverse Total Shoulder Replacement Recommendations

Precautions (Strictly adhered to first 6 weeks post-op, guarded progression thereafter)
Dislocation of prosthesis is relatively rare, but patient should be advised to avoid shoulder adduction, extension and internal rotation for 12 weeks unless otherwise directed by surgeon. External rotation in coronal plane abduction should be discouraged due to potential for instability. Depending on surgical approach, there may be a limitation of external rotation range of motion (ROM) and active internal rotation for 4-6 weeks. Patient is likely to have a life-long weightlifting restriction, but specific restrictions should be discussed with the surgeon at the final follow-up visit.

Reverse Total Shoulder Replacement Yellow and Red Flags

YELLOW FLAGS
- Unhelpful beliefs about pain
- Expectations of poor outcomes
- Catastrophizing or fear of movement
- Over reliance on passive treatments

RED FLAGS -
Requires immediate referral for re-evaluation
- Severe or unrelenting pain
- Sudden inability to move the arm
- Unresolving numbness and tingling
- Excessive swelling
- Infection:
  - Fever, chills, night sweats
  - Redness, warmth around wound or incision
  - Abnormal pain at the surgical site
  - Drainage

ROM/Manual Therapy
- Early ROM as tolerated within the restricted ranges
- Soft tissue mobilization as needed, scar mobilization once incision heals (2-3 weeks)

Effusion
- Manage swelling and edema with cryotherapy and compression

Therapeutic Exercise
- Proper activation and recruitment of all shoulder and scapular musculature without compensation is required for successful strengthening
- Neuromuscular re-education is required for stabilization and correction of faulty mechanics

Functional Patient Outcomes
- Quick Disabilities of the Arm Shoulder and Hand (QuickDASH)
- Patient Specific Functional Scale (PSFS)

Considerations Regarding Running and Plyometrics
- Patients are advised to participate in low-impact exercise and activity
- Following surgery, goal is to prevent damage to new prosthetic
- High-impact activities are generally not advised

Patient should consult with physician if considering returning to running or other high-impact sport

Criteria for Discharge (Athletic)
- Physician clearance at last check-up
- Strength >90% compared to uninvolved lower extremity
- Demonstrate ability to simulate recreational activities
- Functional Patient Outcome Measures achieves MCID (minimum clinically important difference)

Criteria for Discharge (Non-Athletic)
- Criteria for discharge from PT is less rigorous for those not returning to sport
- Ensure the patient can perform all activities of daily living (ADLs) without pain, reactive effusion and with appropriate functional mechanics

Phase I Functional Mobility and Protection

rTSA PHASE I: Day 0-2 Weeks

Precautions

- Abduction/traditional sling worn when not performing therapy exercises
- Monitor post-op incision healing for excessive bleeding/drainage or separation
- No AROM
- Non-weight bearing through affected upper extremity (UE)
- **Passive range of motion (PROM) limited to 90 degrees flexion and 30 degrees ER (scapular plane)**
- **No IR past neutral**

Sleep posture

- **Avoid operative side, discuss with your therapist**

Goals

- Protection of implant
- Protect healing tissue and subscapularis
- Pain and swelling control
- Maintenance of cervical, elbow and wrist/hand mobility/function
- Patient education regarding modification of ADLs to abide by precautions
- Gradual introduction of glenohumeral and scapulothoracic PROM

Interventions *(Exercise list is not exhaustive)*

Therapeutic Exercise / Activities / NMRE

- AROM of cervical spine, elbow, wrist
- PROM in scapular within above precautions
- Pendulums
- Forward bow
- Instruction in patient performed PROM flexion
- Education: Activity Modification
- Exercises <15% maximum voluntary isometric contraction (MVIC)

Modalities

- Cryotherapy
  - 5x daily for the 1st week
  - 3x daily for weeks 1-6

Criteria to Progress to Phase II *Criteria supersedes time for progression to next phase

1. PROM scaption to 90 degrees
2. Independent with precautions and home exercise program (HEP)

Phase II Range of Motion, Isometrics, DC of Sling

PHASE II: 2 - 6 weeks

Precautions

- Continue using sling up to 4-6 weeks per surgeon discretion – off for exercise
- Avoid active IR, add, and extension (reaching behind back)
- Avoid cross body horizontal adduction
- Avoid supporting body weight through post-op UE
- Avoid lifting weighted objects more than 1-2 pounds, "no heavier than a coffee cup"

Goals

- Protect healing tissue
- Control pain and edema
- Prevent stiffness
- Protect from dislocation or acromial overload
- Continue to progress shoulder PROM
- Initiate active assisted range of motion (AAROM) and pain-free submax isometrics
- Regain independence with ADLs
- Consistent performance of HEP

Interventions *(Exercise list is not exhaustive)*

Therapeutic Exercise

- Continue elbow and wrist AROM
- Pendulums
- Scapular retraction
- Submaximal shoulder isometrics in neutral
  - Caution/avoid IR with subscap repair
- Gentle glenohumeral and scapulothoracic rhythmic stab

Range of Motion

- PROM/AAROM as tolerated within precautions
- AAROM c dowel – begin supine/reclined and progress to seated or standing
- Pulleys in scapular plane

Manual

- Soft tissue mobilizations
- Scar mobilization

Modalities

- **Cryotherapy:** continue as needed
- Neuromuscular electrical stimulation (NMES) and/or biofeedback as needed for recruitment

Criteria to Progress to Phase III *Criteria supersedes time for progression to next phase

1. Good neuromuscular activation without compensation
2. Minimal pain or swelling
3. Shoulder scaption PROM to 120 degrees

Phase III Return to ADLs

PHASE III: 6- 12 weeks

Precautions

- No weight bearing through involved extremity
- No resisted IR x 8-10 weeks
- Avoid shoulder hyperextension and IR behind the back
- No aggressive IR, ER, ~45 degrees
- No aggressive stretching – be careful with acromion stress
- No lifting greater than 5 pounds
- No quick or explosive movements

Goals

- Recruitment of scapulothoracic musculature and proper movement patterns
- Progress with isometrics and initiation of isotonic exercises
- Gradually improve shoulder AROM within precautions
- Wean out of sling
- Protect healing tissue, specifically subscapularis repair
- Progress from AAROM to AROM exercises
- Use of involved extremity for light ADLs Discomfort and stiffness may remain, or some pain with or after over-activity, etc.

Interventions *(Exercise list is not exhaustive)*

Range of Motion

- Continue as per Phase II as needed, Progress with PROM, light GH mobilization, no aggressive stretching

Therapeutic Exercises

- Initiate gentle IR stretching in scapular plane at 10 weeks
- Continue prior exercises including isometrics and AAROM exercises
- Initiate AROM exercise progression from reclined to standing
- Scapular strengthening: rows, shoulder extension to neutral, prone exercises if appropriate, side lying ER
- Resisted deltoid exercises

Manual

- As needed

Modalities

- Cryotherapy, NMES, biofeedback and transcutaneous electrical nerve stimulation (TENS) as needed

Criteria to Progress to Phase IV *Criteria supersedes time for progression to next phase

1. Achieve ~100° active flexion, ~ 50° ER
2. At least good (4+/5) UE strength or <15% deficit bilaterally

Phase IV Pain free ADLs and Return to Lifting

PHASE IV: 12 Weeks and Beyond

Precautions and Considerations for Return to Recreational Activities

This phase is only required for patients who wish to participate in moderate-impact recreational sports and/or return to work that involves heavy lifting, frequent lifting or frequent upper extremity shoulder and overhead movements.

- Patients who wish to return to moderate activities such as doubles tennis, doubles pickle ball or downhill skiing should only be on a case-by-case situation and should be cleared by their surgeon
- Jumping and contact sports are generally not recommended after a TSA; therefore, low- to moderate-impact activities are suggested in place of high-impact sports
- Avoid activities like bench press/push-up; no lifting more than 10 lbs. overhead
- No stretching limitations

Goals

- Correct compensatory movement patterns
- Ongoing interventions to improve neuromuscular control and proprioception
- Progressively return to recreational activities by increasing aerobic participation and restoring cardiovascular fitness
- Increase ROM and strength to align with patient activity level and goals – generally 110-150° flexion
- Progress towards DC to independent HEP addressing individual restrictions
- Initiate IR strengthening and closed-chain exercises as appropriate
- Full return to all ADLs outside heavy overhead lifting

Interventions *(Exercise list is not exhaustive)*

Low-Impact Activities

- Reactive motor control drills
- Progress core stability
- Stretching as needed to achieve goals, initiate IR behind the back with physician approval
- Progression of previous strengthening exercises including scapular, deltoid, rotator cuff and postural musculature
- Add in progressive closed-chain strengthening
- Initiate IR strengthening exercises
- Advance cardio training (bike, elliptical, row)

Therapeutic Exercise and Impact Progressions

- Progress from single to multiplanar movements with emphasis on neuromuscular control
- Sport-specific drills that fit low- to moderate-impact guidelines

Criteria to progress to moderate impact activities* *Physician clearance required

1. Restore to functional, pain-free ROM. Shoulder flexion of 130 degrees goal
2. >85% strength compared to uninvolved UE
3. Patient demonstrates proper UE mechanics with functional testing and moderate impact activities

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