REVERSE TOTAL SHOULDER ARTHROPLASTY POST-OPERATIVE GUIDELINES

The following Reverse 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 reverse 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 SURGEON MODIFICATIONS AS PRESCRIBED.

REVERSE TOTAL SHOULDER ARTHROPLASTY POST-OPERATIVE GUIDELINES

Pre-Operative Phase

PRECAUTIONS

- Avoid severe pain with strengthening and range of motion exercises
- Modify or minimize activities that increase pain or compensatory motions of the shoulder complex

ASSESSMENT

- Quick Disabilities of the Arm, Shoulder and Hand Score (QuickDASH)
- Numeric Pain Rating Scale (NPRS)
- Pre-op ROM
- Limb symmetry index (LSI)

TREATMENT RECOMMENDATIONS

- Educate on post-operative plan of care and available institutional resources
- Instruct patient in:
    - Post-operative precautions
    - Use of sling
    - Necessary activities of daily living (ADL) and self-care
    - Cryotherapy and edema management
    - Proper sleeping position
    - Transfer training
- Provide appropriate pre-operative exercises with focus on:
    - Pain-free shoulder range of motion (ROM)
    - Deltoid and scapular strengthening
- Gait training with assistive device using non-operative upper extremity (UE) if required

CRITERIA FOR ADVANCEMENT

- Patient verbalizes post-operative plan of care
- Independent with donning/doffing sling
- Independent with home exercise program (HEP)

EMPHASIZE

- Familiarize with post-operative plan of care
- Familiarize with available institutional resources
- Independence with donning/doffing sling
- Independence with HEP

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Acute Phase (Weeks 0-1)

PRECAUTIONS

- Avoid weight bearing and lying on operative UE
- Use sling at all times except when bathing, dressing, icing, or performing exercises
- Use pillows to support operative arm when sitting or sleeping
- No shoulder external rotation past 0-30° depending on surgeon preference
- No active shoulder motion
- Avoid pain during ROM exercises
- Elbow active range of motion (AROM) as per surgeon if biceps tenodesis was performed

ASSESSMENT

- NPRS
- Mental status
- Wound status
- Edema
- Post-anesthesia sensory motor screening
- Functional status
- PROM forward flexion in scapular plane up to 90 degrees and ER 0-30 degrees unless surgeon specified otherwise

TREATMENT RECOMMENDATIONS

- Instruct in semi-reclined sleeping position, avoiding lying on operative side
- Educate on donning/doffing and proper positioning in sling
- ADL training
- Transfer training: in and out of bed, sit to stand, and stair training while maintaining non-weight bearing on operative UE
- Gait training with assistive device while maintaining UE non-weight bearing
- Pain-free distal AROM
- Shoulder passive range of motion (PROM) exercises in scapular plane forward flexion up to 90 degrees, external rotation 0-30 degrees unless surgeon specified otherwise (e.g., Codman's pendulum exercises, passive external rotation, supine self PROM with contralateral limb)
- Cryotherapy and edema management of UE to prevent edema
- Instruct on HEP until initiation of outpatient physical or occupation therapy

CRITERIA FOR ADVANCEMENT

- Safely transfers unassisted
- Independent ambulation with/without assistive device on level surfaces and stairs
- Independent with sling management and ADLs
- Appropriately tolerates acute phase interventions
- Caregiver independent with ADLs and sling management as needed
- Independent with HEP

EMPHASIZE

- Proper sling positioning
- Compliance with post-operative precautions
- Independent transfers, ambulation, and stair negotiation
- Pain and edema control
- Pain-free HEP

REVERSE TOTAL SHOULDER ARTHROPLASTY POST-OPERATIVE GUIDELINES

Post-Operative Phase 1 (Weeks 2-6)

PRECAUTIONS

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

ASSESSMENT

- QuickDASH
- Numeric Pain Rating Scale (NPRS)
- Wound status
- Sensation
- Edema
- Cervical AROM
- Shoulder PROM
- Distal UE AROM
- Sling management
- Scapular mobility and stability
- Contralateral strength

TREATMENT RECOMMENDATIONS

- ROM/mobility:
    - Codman's pendulum exercises
    - Cervical AROM and stretching exercises
    - PROM shoulder elevation in scapular plane (supine self PROM with contralateral limb, seated table slides)
    - Supine AAROM shoulder elevation in scapular plane (supine with wand, progress incline as indicated)
    - Supine active assisted range of motion (AAROM) shoulder ER with wand in scapular plane within prescribed limits
    - Initiate shoulder pulleys with good humeral head control

    - Initiate shoulder AROM when cleared by surgeon
    - Distal UE AROM exercises
- Manual Therapy:
    - Supine PROM shoulder elevation in scapular plane
    - Soft tissue mobilization (STM) as needed (prn)
    - Scar mobilization prn when incision healed
    - Scapular mobility
- Strengthening:
    - Sub-maximal deltoid/scapular isometrics, per surgeon preference
    - Scapular manual resistance
- Modalities for pain and edema

CRITERIA FOR ADVANCEMENT

- Independent with ADL
- Edema and pain controlled
- Passive shoulder ER to 30°
- Passive shoulder elevation in plane of scapula to 120°
- Independent with HEP

EMPHASIZE

- Proper donning/doffing of sling and use, per surgeon instruction
- Protect integrity of surgery
- Importance of patient compliance with HEP and ADL
- Control edema

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Post-Operative Phase 2 (Weeks 7-12)

PRECAUTIONS

- Avoid pain with ADLs and therapeutic exercise
- Avoid reaching behind back
- Lift no more than 5 lbs.
- Avoid supporting full body weight on operative UE

ASSESSMENT

- QuickDASH
- NPRS
- Scar status
- Cervical AROM
- Shoulder AROM and PROM
- Strength: manual muscle testing (MMT)/Dynamometry
- Functional mobility

TREATMENT RECOMMENDATIONS

- Discharge sling if still in use
- ROM/mobility: continue shoulder ROM exercises progressing from PROM to AAROM to AROM
    - Forward flexion, ER, abduction, and extension in supine progressing to standing
    - AROM in all planes
- Manual therapy prn:
    - scapular mobilization
    - STM
    - shoulder PROM
- Strengthening exercises
    - Continue sub-maximal shoulder isometrics as needed
    - Multi-planar deltoid strengthening
    - General UE strengthening (e.g., periscapular strengthening)
    - Core strengthening within precautions
- Neuromotor re-education
    - Humeral head control exercises (e.g., rhythmic stabilization in supine starting at 90° of elevation and progressing through available arc of motion)
    - Closed kinetic chain exercises (e.g., ball stabilization)
    - Re-education of movement patterns (e.g., without compensatory shrug)

    - Scapular stabilization
- Upper body ergometry
- ADL training
- Cervical AROM and upper trapezius stretching
- Pool therapy, if available
- Progression of HEP

CRITERIA FOR ADVANCEMENT

- Pain controlled
- Shoulder AROM in plane of scapula: elevation to 150°, ER to 45°
- Independent with HEP

EMPHASIZE

- Gradually restore shoulder AROM
- Initiate strengthening of shoulder girdle including gradual deltoid strengthening while monitoring for deltoid tendonitis
- Reduce compensatory movements (e.g., overuse of upper trapezius)

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Post-Operative Phase 3 (Weeks 13-18)

PRECAUTIONS

- Avoid supporting full body weight on operative UE
- No heavy overhead lifting

ASSESSMENT

- QuickDASH
- NPRS
- Thoracic spine mobility
- Sternoclavicular joint mobility
- Scapulohumeral rhythm
- Shoulder AROM and PROM
- UE and periscapular strength: MMT/ Dynamometry
- Functional mobility

TREATMENT RECOMMENDATIONS

- Functional training to address patient's goals
- ROM/mobility:
    - Progress shoulder ROM and flexibility to within normal limits
    - Thoracic spine mobility
- Manual therapy prn:
    - Restore shoulder girdle range of motion
    - Shoulder PROM
    - Joint mobilization: thoracic spine, sternoclavicular joint
    - STM
- Strengthening:
    - Progressive resistive exercises for UE, shoulder girdle, and core
    - Shoulder strengthening through progressive ranges of motion
    - Progress closed chain upper body exercises with gradual loading (avoid full body weight)
- Neuromotor re-education
    - Humeral head rhythmic stabilization exercise progression: (e.g., closed chain, upright position)
    - Proprioceptive neuromuscular facilitation (PNF) patterning
- Upper body ergometry and general conditioning
- Progression of HEP

CRITERIA FOR DISCHARGE (OR ADVANCEMENT TO PHASE 4 IF RETURNING TO SPORT)

- Fully independent with ADLs with minimal pain
- Restore normal shoulder motion and flexibility with internal rotation sufficient enough to reach into back pocket and for self-care
- UE and periscapular muscle strength 4+/5 MMT for control with functional movements: consider dynamometry if appropriate
- Independent with HEP

EMPHASIZE

- Restore functional ROM and flexibility
- Restore strength
- Reduce compensatory patterning

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Phase 4 Return to Sport (if applicable)

Return to sport is a highly individualized process with less literature establishing evidence for return to sport criteria. The research does recognize somewhere between 60-93% of these individuals should be able to return to sport with a mean average time of 5.3-7.9 months. Results from studies suggest that care should be taken when returning to moderate and high demand sporting activities following shoulder arthroplasty surgeries in the younger population, such as tennis and golf and the low-impact sports should be privileged (cycling, swimming, jogging).

PRECAUTIONS

- Note that expert opinion varies widely on allowable sports - consult with surgeon
- Caution with high impact (e.g., contact sports)
- Monitor exercise/activity dosing: avoid too much, too soon

ASSESSMENT

- Quick DASH, including Sports Module
- Quality of movement throughout kinetic chain
- Scapulothoracic coupling
- UE ROM and flexibility
- Strength: MMT and Dynamometry
- Cardiovascular endurance
- Balance Assessment (e.g., functional reach, mini BEST, Berg Balance Test, Dynamic Gait Index)

TREATMENT RECOMMENDATIONS

- Dynamic sports-specific neuro muscular shoulder re-education exercises (e.g., glenohumeral and scapular control and stability, progressive plyometrics, progressive isotonics)
    - Neutral to overhead positions
    - Double arm to single arm
    - Slow to fast tempo
    - Short to long lever arm
    - Stable to unstable support
- Cardiovascular conditioning
- Progress total body multidirectional motor control exercises to meet sport-specific demands
    - Static to dynamic balance
    - Core strength and retraining
- Collaboration with appropriate Sports Performance Expert

CONSIDERATIONS FOR RETURN TO SPORT

- Movement patterns, strength, flexibility, motion, power, and accuracy to meet demands of sport
- No increase in pain with sports activities
- Independent in long-term, sport-specific exercise program

EMPHASIZE

- Monitoring of load progression and volume of exercise
- Neuromuscular patterning
- Collaboration with appropriate Sports Performance expert

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TOTAL SHOULDER ARTHROPLASTY POST-OPERATIVE GUIDELINES

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