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Reverse Total Shoulder Arthroplasty Rehabilitation

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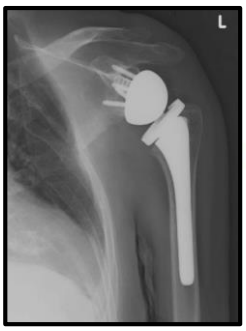
Introduction

A Reverse Total Shoulder Arthroplasty (revTSA) is significantly different than a conventional Total Shoulder Arthroplasty (TSA); therefore, some rehabilitation principals are significantly different and we will cover these in the ensuing pages.




Stable Construct

A revTSA is typically performed in a patient with rotator cuff arthropathy, or arthritis due to an irreparable rotator cuff tear. The function of the rotator cuff to assist with shoulder elevation is absent, and attempts to elevate the arm result in a shrug, or pseudoparalysis – the arm isn't actually paralyzed due to a neurologic problem but instead, because the muscles aren't functioning normally. In fact, it is imperative that the nerve function is normal to support the use of this prosthesis. Other conditions in which a revTSA may be used include severe shoulder fractures or revision of a previous conventional TSA or hemi-arthroplasty in the absence of a normally functioning rotator cuff.

As stated, the rotator cuff is absent or deficient in these cases so the rehabilitation is significantly different than in a conventional TSA.

The important principles to remember when rehabilitating a patient that has undergone a revTSA are as follows:

1. The risk of dislocation is greater after a revTSA than conventional TSA and occurs in a different position.
2. Patients must avoid combined EXTENSION BEYOND NEUTRAL (the coronal plane of the body), ADDUCTION and INTERNAL ROTATION for *at least* 12 weeks.
3. Since the rotator cuff is deficient, strengthening of the deltoid and scapula stabilizers is of the utmost importance.
4. The range of motion (ROM) goals are individualized to each patient, but in general are to regain functional ROM allowing the patient independence. The expectations are the ability to get the hand to the head and to internally rotate for personal hygiene. External rotation is often limited to about neutral because of the rotator cuff deficiency.

Finally, the following timeframes are used as a guideline and it is up the therapist to use their best clinical judgment as to the pace at which each patient's progress proceeds.

Phase I – Immediate Post-Surgical phase (Day 1 – 6 weeks)

 *	**Pendulums** - Bend forward 90 degrees at the waist, using a table for support. Rock body in a circular pattern to move arm clockwise 10 times, then counterclockwise 10 times. Do 3 sessions a day. *From the American Academy of Orthopaedics

Acute Phase (1-2 weeks)

Goals:

1. Diminish pain
2. Patient and family independence with light ADL's
3. Keep incision clean – may shower after initial dressing is changed after 48 hours but dry promptly and cover with a light gauze thereafter.
4. Increase PROM of shoulder.
5. Promote AROM of elbow, wrist, and hand (E/W/H)

Precautions:

1. Maintain arm in brace, remove only for exercise
2. No lifting of objects
3. While in bed, keep elbow in front of body. Place pillow or bolster behind elbow and instruct patient that they must always be able to see their elbow.
4. No excessive or aggressive stretching or sudden movements
5. No/minimal supporting of body weight by hands.

Rehabilitation:

1. PROM
    a. Elevation in scapular plane to 90 degrees. Start while supine.
    b. External rotation (ER) to neutral in scapular plane.
    c. Internal rotation (IR) to chest.
2. Pendulums
3. AA/AROM of neck, E/W/H as tolerated
4. Scapula stabilizer isometrics in scapular plane.
5. Ice 20 minutes per hour as necessary.
6. Assist patient with bed mobility, transfers, and ambulation.
7. Insure proper brace/sling position.
8. May use hand for light ADL's, i.e., eating, drinking, and brushing teeth.

Subacute Phase (Weeks 3-5)

Rehabilitation:

1. Continue with exercises as above.
2. Increase PROM with elevation to 130 degrees and ER as tolerated.
3. E/W/H resistance exercises
4. Sub-maximal deltoid isometrics always keeping elbow in front of coronal plane of body.
5. Ice as necessary
6. Progress to next phase when:
    a. Pain is tolerated with PROM of shoulder and AROM of E/W/H.
    b. Patient has good control of scapular stabilizers.
    c. Patient is able to isometrically contract all 3 heads of deltoid.

Phase II – AROM and Early Strengthening (Weeks 6-11)

Goals:

1. Diminish pain and inflammation.
2. Increase PROM of shoulder.
3. Restore AROM of shoulder with good scapular stabilizer control.

Precautions:

1. Brace may be removed.
2. No lifting of objects heavier than a cup of water.
3. Minimal supporting of body weight the hands.
4. Avoid shoulder hyperextension.

Rehabilitation:

1. PROM continues as above.
2. Begin AA/AROM supine and progress to sitting and standing as tolerated.
3. Begin gentler RTC isometrics (whatever RTC is functioning)
4. Around 9 weeks start gentle resistance in flexion and IR/ER
5. Progress to next phase when:
    a. Improving function of shoulder
    b. Patient can activate all components of deltoid and scapular stabilizers.

Phase III – Strengthening Phase (Weeks 12+)

Goals:

1. Diminish pain and inflammation.
2. Restore shoulder mechanics, strength, and endurance.
3. Independence and discharge to a home exercise program (HEP)

Precautions:

1. No lifting more than 10 pounds.
2. Avoid shoulder hyperextension.

Rehabilitation:

1. Continue to increase strength of shoulder and scapular stabilizers.
2. Ensure patient is independent and progressing toward functional and recreational activities.
3. Discharge to a home exercise program when patient demonstrates pain-free AROM with elevation to around 80-130 degrees and ER to around 20-30 degrees, and the ability to do light housework and work activities.