

Reverse Total Shoulder Arthroplasty

Sling	What can I do from day 1?	Restrictions?	Commence strengthening?
Elective: Up to 3 Weeks Fracture/revision: Up to 6 weeks	Active assisted/active supported within safe zone* Mobilise unaffected joints e.g. elbow/wrist/hand/ Cx sp/shoulder girdle	Combined abduction/external rotation Weight bearing through operated arm e.g. getting out of a chair/bed Hand behind back/extension	Dependent on dynamic control, ROM, pain level and functional demand:- Elective: Generally 6-12 weeks Fracture: 6- 12 weeks +

* Safe zone will be stipulated by the Surgeon in the operation notes- standard guideline = Elevation to 90 ° anterior to scapula plane, external rotation to 30 °

Pre-operatively

- Teach active assisted mobilisation programme within safe zone
- Advice re postural awareness / movement pattern correction
- Patient education regarding procedure and expectations
- Check re compensatory muscle patterns
- Check deltoid function
- Occupational therapy assessment to consider care needs post-operatively.
- Provide education regarding activities of daily living, including sling management, personal care and unilateral tasks.

Factors that may affect progression rate & outcome:

- Pre-operative status
- Age
- Elective versus fracture versus revision
- Integrity of deltoid
- Tuberosity reconstruction
- Co-morbidity
- Poor deltoid function causing poor movement pattern

Protective phase (0- 6 weeks¹)

¹Timescales are general guidelines and are dependent on pre-operative functional level, status of the rotator cuff and co-morbidities. Pre-operative assessment is an essential component of establishing those patients who should have limited goals.

Patients are seen by the occupational therapy team with regards to re-assessing activities of daily living and ensuring effective discharge planning.

Avoid:

- X** Combined abduction/external rotation
- X** Extension
- X** Hand behind back
- X** Weight bearing through operated arm e.g. getting out of a chair/bed
- X** Lifting (limit to cup/ eating utensils/toothbrush/hairbrush)

Sling

The sling is worn purely for comfort. Patients usually wear the sling for 2 to 3 weeks until post-operative pain starts to settle. However in the case of fracture or poor deltoid function/integrity patients may wear the sling for up to 6 weeks. There is no formal period of immobilisation but patients should only mobilise within the safe zone in the first 6 weeks post-op. The sling is removed to allow axillary hygiene and when the patient is doing their exercises. It should be worn for comfort at night. It is also advised to sleep with a pillow behind arm to prevent arm falling into extension.

It is advisable for patients to wear the sling when they are out in crowds to avoid the arm being knocked.

Goals:

- Protect the prosthesis
- Diminish pain and inflammation
- Re-educate optimal deltoid function
- Prevent compensatory movement patterns that may compromise recovery

Rehabilitation:

Safe zone = Elevation to 90 ° anterior to scapula plane, external rotation to 30°

N.B. Patients must only mobilise through range that is well controlled in terms of deltoid function and movement pattern.

Treatment Note:

NB. The following are considerations for exercise inclusion however in reality these can be incorporated in 2-4 key exercises. Clinical reasoning of the patient's key issues will inform which factors are priorities. It is important not to prescribe too many exercises as this has been shown to impact adherence.

- Elbow, wrist and hand exercises
- Active assisted mobilisation within safe zone (e.g. ball rolls, table slides etc.)
- Cuff compensation programme
- External rotation control exercises
- Scapula dissociation/mobility exercises
- Movement pattern correction
- Encourage use of hand in sling
- Cryo-therapy if tolerated

Criteria for progression;

- Pain controlled
- Deltoid function
- No signs of instability
- No abnormal patterns that may compromise prosthesis

Treatment Note: The principles of cross-education can be used early in the rehabilitation phase. Isometrics targeting deltoid of the un-operated arm e.g. external & internal rotation with the arm supported at 30 degrees of abduction in the scapula plane will help facilitate muscle activation patterns and cortical activation together with small strength gains in the operated limb.

Intermediate stage (6-12 weeks¹)

Avoid:

- X Combined abduction/external rotation
- X Weight bearing through arm especially in extension
- X Heavy lifting

Goals:

- Restoration active range of movement shoulder girdle/glenohumeral joint
- Optimise dynamic control through range
- Prevent compensatory movement patterns that may compromise recovery
- Transfer movement pattern correction to functional activity

Rehabilitation:

- Progress cuff compensation programme against gravity
- Progress external rotation exercises
- Continue scapula dissociation exercises if indicated
- Active assisted to active GHJ movement through range i.e. no elevation restrictions*
- Functional extension and hand behind back*

* N.B. dependent on quality of movement and movement pattern and stability.

Criteria for progression:

- Pain-controlled functional range of movement
- Quality of movement pattern
- Deltoid function through range
- Active external rotation control
- No signs of instability of prosthesis

Late stage (12 weeks +¹)

Avoid:

- X Combined abduction/external rotation
- X Weight bearing through arm especially in extension
- X Heavy lifting

Aims:

- Rehabilitate function specific strength and endurance
- Transference movement pattern correction functional tasks through full range of movement
- Educate regarding long term management strategies

Rehabilitation:

- Function specific strengthening and endurance exercises
- Loaded cuff compensation programme
- Internal and external rotation resistance exercises plus kinetic chain if appropriate
- Functional movement pattern re-education specific to patients functional demands

Expected Outcomes

These reported outcomes are derived from a review of recent literature of Reverse Total Shoulder Replacement (RTSR). All data represents the mean from the data reported in the literature reviewed. In addition, data represents long-term follow up

OUTCOME Primary Elective procedures			
ROM	Flexion	Abduction	External Rotation
Total	122.5°	117.6°	32.1
Average increase in ROM	64°	63°	14.5
ON Average ROM increased by a factor of.....	2.8	2.1	2.1
Pain Scores	1.5/10		
Patient Satisfaction	93%		

OUTCOME Revision Procedures			
ROM	Flexion	Abduction	External Rotation
Total	105.6°	96°	32.1
Average increase in ROM	57.6°	54°	18.6°
Pain Scores	2.7/10		
Patient Satisfaction	79%		

OUTCOME		Acute Trauma Procedures		
ROM	Flexion	Abduction	External Rotation	
Total	119.42	102.25	25.6	
Pain Scores	2.2/10			
Patient Satisfaction	73%			

