

Rehabilitation following: **Reverse Total Shoulder Arthroplasty (RTSA)**

Background:

The RTSA is a specific type of shoulder replacement. It involves reversing the normal anatomy of the shoulder by placing the ball on the socket, and the socket is placed in the position of the humeral head. This is biomechanically allowing shoulder motion even when the rotator cuff is not working.

The indications for a RTSA include: shoulder arthritis associated with a massive rotator cuff tear, irreparable rotator cuff tears, complex proximal humerus fractures, revisions of previous shoulder replacements.

The reverse shoulder replacement was originally introduced by Dr. Gramont in France in 1985. These operations have been performed in the United States since FDA approval in 2004. The results of this operation are very promising but its use is still approached with caution.

Restrictions:

The RTSA does not have significant long term follow up greater than 10-15yrs at present, but just like most all joint replacement surgeries, complications when they occur can be severe. Therefore, we try to avoid them. The following are life-time restrictions:

1. Patients should observe a lifelong weightlifting restriction of no more than **20-25lbs.**
 2. Patients should not use the operated arm for upper extremity weight bearing.
 - a. i.e. pushing hard through the arm to help stand up from a chair.
 - b. Leaning hard on the operative arm when using a platform walker/walker.
 3. Patients should not forcefully stretch the arm into adduction/internal rotation
 - a. i.e. reaching up the back. Expect to no reach higher than the waist line.
 4. Patients should not forcefully stretch the arm in extension/external rotation.
 - a. i.e. reaching to the back seat of a car.
 5. Dr. Carofino at the time of surgery will notify if ok to begin shoulder rehab at the 2week or 6week post-op time points. Bone quality is a limiting factor, as well fracture RTSA.
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Phase I (Weeks 0-2):

Goals:

- Soft tissue healing
- Pain reduction

Sling Wear:

- Wear sling for 6wks following surgery.
- Showering, dressing or exercising the shoulder is the only time to not wear sling.
- When the sling is removed to shower, the hand should rest across the stomach.

Modalities:

- Ice 3-5x/day for 20-25mins.
- “GameReady”
- Sensory E-stim

Exercises:

- PROM/AROM of elbow, wrist, and hand
 - Elbow curls with 0-5lbs. dumbbells
 - Ball squeezes
 - Finger web exercises
 - Forearm curls
- Scapular stabilizers
 - Shoulder blade pinches/rows (minimal weight 0-2lbs.)
 - Ok to complete multiple sets/reps
 - Focus on shoulder blade retraction and inferior rotation.
 - Avoid shoulder shrugs/hiking.
- Stretching exercises should be performed **4-5X/day!**
 - Pendulums (A/P, M/L, Clockwise, Counter-Clockwise)
 - 30sec. minimum each direction. 2min. minimum total for all directions.
 - ***If in formal therapy complete Table Slides*** If not in formal PT, avoid.
 - Table slides sitting parallel to table edge. 10-15reps; 20-30sec hold.
 - 0-90° only for the first 2 weeks.

Phase II (Weeks 2-6):

Goals:

- Progress PROM **>140°**
- Promote soft tissue healing.
- Teach a HEP and check for understanding.

Precautions:

- Stretching exercises should not be overly forceful, but progressive.
 - Each patient will achieve a different range of motion.
- Avoid AROM
- PROM/AAROM ER stretches at the side should be limited to < 30-35°.
- Reaching behind back should be limited to the back pocket at most.

Sling Wear:

- Continue Sling wear until 6wks post-surgery.
- You are ok to take it off if you are resting in a chair.
 - Support arm with pillows. When getting up, return to sling wear.

Modalities:

- Ice 3-5x/day for 20-25mins.
- “GameReady”
- Sensory E-stim

Exercises:

- PROM/AROM of elbow, wrist, and hand
 - Elbow curls with 0-5lbs. dumbbells
 - Ball squeezes
 - Finger web exercises
 - Forearm curls

- Scapular stabilizers
 - Shoulder blade pinches/rows (minimal weight 0-2lbs.)
 - Ok to complete multiple sets/reps
 - Focus on shoulder blade retraction and inferior rotation.
 - Avoid shoulder shrugs/hiking.
- Stretching exercises should be performed **4-5X/day!**
 - Pendulums (A/P, M/L, Clockwise, Counter-Clockwise)
 - 30sec. minimum each direction. 2min. minimum total for all directions.
- Table slides sitting parallel to table edge. 10-15reps; 20-30sec hold.
 - $\geq 130-140^\circ$, progress as tolerated.
- **Supine Passive Forward Elevation.** 10-15reps; 20-30sec hold minimum.
 - This should be done with the patient using their good arm/hand to move the operated extremity.
 - Or the therapist will perform the stretching while in session.
 - Teach HEP technique.
 - Grabbing the back of the wrist/hand, the good arm will do all of the lifting.
 - Goal of at least **$> 140^\circ$** of passive forward elevation.
 - This range needs to be maintained to avoid regression.
 - Instruct patient on changing hand position from the wrist by sliding down to the elbow to apply pressure through the elbow past 90° of flexion to give overpressure if tight.
 - Keep elbow in full extension. Avoid bending of the elbow.
- Doorway pulley if tight. (No earlier than 4wks s/p Sx)
 - Key in on proper posture.
 - Sit up straight
 - Don't slouch
 - Avoid shoulder hiking
 - Center pulley wheel directly under shoulder joint, if not even posterior to the joint, to maximize elevation.

Phase III (Weeks 6-12):

Goals:

- Transition to AAROM/AROM, and light strengthening.
- Continue to increase/maintain PROM fairly **aggressively!**
- Teach a HEP and **check for understanding.**

Precautions:

- PROM/AROM IR no further than the back pocket/buttock area.
- Avoid combined extension and ER.

Sling Wear:

- Patients may discontinue (D/C) sling wear at 6wks s/p Sx.
- Focus on regaining normal shoulder swing with gait.

Exercises:

- Continue Supine Passive Forward Elevation from above; **>140-150°**.
- Continue doorway pulley from above.
- Initiate AAROM
 - Flexion
 - Wall walks
 - Finger ladder
 - L-Bar/Cane
 - Ok to begin progressively gentle A/AAROM ER & IR at side.
 - L-Bar
 - ER no >30-35°
 - IR to buttock.
- Begin posterior RC isometrics (submaximal, non-painful)
 - Flexion/Scaption
 - ER
 - IR
- Prone rows/scapular retraction; 10-15reps, 3-5sec hold.
 - progress weight/resistance.
- Initiate bench press plus maneuvers; 10-15reps, 3-5sec hold.
 - Supine flexion to 90° followed with plus maneuver for serratus anterior activation.
 - Under control, focus on technique and quality.
- **Initiate progressive incline bench presses (0, 20, 40, 60, 80°)**
 - Begin on flat bench (0°) with no weight (L-bar or broom handle).
 - When able to complete 20reps for 3sets increase weight gradually.
 - Focus on technique and quality.
 - Increase weight to a moderate amount (~10-15lbs) at 0° incline before next step.
 - Increase incline to ~ 20°.
 - Decrease weight and focus on technique and quality.
 - Patient able to complete 20reps for 3sets, then increase weight gradually.
 - Increase weight to a moderate amount (~10-15lbs) at 20° incline.
 - Progress incline and decrease weight, and then build up again.
 - Repeat these steps over and over working from 20° incline to ~ 80° incline with decreasing and increasing weight at each new incline angle.
 - Once patient has reached 80°, ok to work at shallower angles with higher weights.
 - Maintain good form/technique and quality throughout

Phase IV (Weeks 12-24 & Beyond):

Goals:

- Maintain PROM **> 140-150°**.
- Increase PROM for ER, IR, Abduction as tolerated.
 - IR no higher than the middle of the lumbar spine region (~L4-2)
- Increase AROM of shoulder all directions (Flexion, Extension, ER, IR[^], Abduction).
- Continue to increase strength gradually.

- Gradual return to Functional Activity/Sport:
 - Please discuss return to these types of activities with Dr. Carofino prior to return.
- Teach a HEP and check for understanding.

Precautions:

- You may find that you need to continue stretching daily for upwards of 6 months-1 yr.
- Discourage shoulder girdle hiking!
- Patient needs to understand how to be gradually **progressive** in their return to weight lifting/activity/work/sport.

Exercises:

- Continue Supine Passive Forward Elevation stretches **>140-150°**.
- Continue AAROM, AROM exercises all planes.
- May stretch passively into ER as tolerated; no restrictions.
 - May actively ER as tolerated; no restrictions.
 - May strengthen ER as tolerated.
 - Cables/bands at side as well as 90/90 position.
- May strengthen IR as tolerated
 - Cables/bands at side as well as 90/90 position.
- Abduction PROM/AROM stretching:
 - Abduction table slides
 - Abduction wall walks
 - Abduction wall slides
- Abduction Strengthening:
 - Lateral raises **Thumb Up/Full Can** position.
 - Prefer “Scaption” strengthening over lateral raises in the thumb up position.
 - Minimal weight, 5-10lbs.; prefer resistance bands.
 - Focus on form and higher reps.
- Continue with progressive incline bench presses and bench press plus maneuvers.
- Continue seated/standing low-rows/scapular retraction exercises.
- Seated/standing high rows.
- Begin shoulder blade rhythmic stabilization exercises.
 - Ball on wall
 - Body Blade through the UE PNF patterns
- Ok for Lat pull-downs and other cable machines.

Phase V (Lifetime)

Things to be aware of as you move further out from surgery (> 4-6 months) :

- You will continue to gradually progress status-post Reverse Total Shoulder Arthroplasty for upwards of **1½ years**.
- This has been well documented in the literature as well as my experience with past patients.
- You need to dedicate time throughout each week to make your shoulder as best as it can be!
- You will have some great weeks, while other weeks may not seem as outstanding.
- As long as you are making progress month to month, you know you’re on the right track.