ATLANTIC ORTHOPAEDIC SPECIALISTS
Leaders in Orthopaedic Health

Bradley C. Carofino, M.D., FAAOS
Shoulder & Upper Extremity Specialist
230 Clearfield Avenue, Suite 124
Virginia Beach, Virginia 23462-1832
Phone 757-321-3300

Rehabilitation following:
Total Shoulder Arthroplasty (TSA)

Background:

The TSA involves replacing the humeral head with a metal prosthesis made of titanium and cobalt chrome alloy. The glenoid is covered with a plastic socket which is cemented in place. This operation has been performed for over forty years with a great track record of success.

It is important to realize that the subscapularis, a rotator cuff muscle, must be cut and then reattached to complete this operation. It takes approximately twelve weeks for tendons to heal, and the subscapularis should be protected during this time by avoiding external rotation (ER) stretching and internal rotation (IR) strengthening.

Restrictions:

1. Patients should avoid ER Stretching from weeks 0-6 post-op.
2. Patients should avoid excessive ER (>30-35°) stretching of the shoulder weeks 6-12.
3. Patients should not strengthen the shoulder in IR for 12-weeks.
   a. Ok for passive IR at side to tolerance (~ 40-45°).
4. Patients should avoid Abduction stretching for 12wks post-op.
5. Observe **lifelong** weightlifting restrictions of **40-45lbs** to maximize implant life.

Phase I (Weeks 0-6):

Goals:
- Maintain the passive forward elevation obtained at surgery: **>150-160°**
- Promote soft tissue healing. Protect subscapularis repair.
- Teach a HEP and check for understanding.

Restrictions:
- No stretching of the shoulder into external rotation (ER) beyond neutral.
- No active range of motion of shoulder (AAROM/AROM).

Sling Wear/Pain Management:
- Patients should wear the sling at all times except when showering, dressing or stretching the shoulder. (6weeks unless otherwise directed)
- Patients may continue to ice the shoulder 3-5X/day for 20-25 for the first few weeks or as needed.

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

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- Scapular stabilizers
  - Shoulder blade pinches/rows (minimal weight 0-5lbs.)
    - 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 minimum.
    - Adjust patient starting height of counter or table to increase stretch
  - **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 the good arm will do all of the lifting.
    - Goal of **≥ 150-160°** of passive forward elevation immediately post-op!
      - This range needs to be maintained to avoid regression.
      - Maintain range where the hand is close to the table/floor overhead.
      - 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 and pre-op ROM was poor (<120°)
    - 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 II (Weeks 6-12):

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

Precautions/Restrictions:
- No Passive or Active ER stretching >30-35° weeks 6-12.
  - If not tolerable, avoid until 12weeks s/p Sx.
- Avoid aggressive or fast-twitch Active IR.

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

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Exercises:

- Continue Supine Passive Forward Elevation from above; **>160°!**
- Continue doorway pulley from above.
- Continue Passive IR at the side as tolerated.
- Initiate AAROM
  - Flexion
    - Wall walks
    - Finger ladder
    - L-Bar/Cane
  - Ok to begin progressively gentle Active/AAROM ER & IR at side.
    - L-Bar
      - ER no >30-35°
      - IR to tolerance, working to get hand behind and up the back.
- 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 (~10-20lbs) 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 (~10-20lbs) 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

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Phase III (Weeks 12-24 & Beyond):

Goals:

- Maintain PROM **> 170°!**
- Increase PROM for ER and IR as tolerated.
- Increase PROM for Abduction
- 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 actives 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 6months-1yr.
- Discourage shoulder girdle hiking!
- Patient needs to understand how to be gradually **progressive** in their return to weight lifting/activity/work/sport.
- Avoid exercises like lateral raises, especially the empty pitcher position (thumb down).
  - Lateral raises place a significant amount of tension on the rotator cuff.
  - Lateral raises are well documented in the literature to potentially be a cause of rotator cuff tears post shoulder replacement.

Exercises:

- Continue Supine Passive Forward Elevation stretches **>170°!**
- 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 stretch passively in IR as tolerated; no restrictions.
  - May actively IR as tolerated; no restrictions.
  - 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.
    - Lifelong recommendation to avoid heavy weight >10lbs. for lateral raises.
    - Scaption should also be in the no >10-20lbs range.
    - Lateral raises/scaption exercises are recommended for endurance than power.

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- 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.
  - Be progressive about all types of weight room/gym exercises.
  - Focus on technique/form/quality.

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

- You will continue to gradually progress status-post Total Shoulder Arthroplasty for upwards of **1 to 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!

Notify us:

- If you experience any **significant or sharp pain** in the shoulder during the last phase that is persistent and consistent. Please contact myself or Brice Snyder, MSAT, LAT, ATC, OTC.
- On a few occasions I've had patients who progress a little too fast with their active range of motion and incline presses.
- This, to some degree, seems to cause a fair amount of rotator cuff irritation/small strain.
- Patients have reported pain in the shoulder with active forward elevation as they approach the 90° mark, then the pain goes away as they continue to their full end range.
- However, they also experience that same pain as they lower and again approach the 90° mark, but the pain releases as they continue to lower the arm back to the side.
- I typically recommend that if this is happening, you take two weeks off from any incline presses or strengthening above shoulder level, and focus just on maintaining your PROM.
- I also recommend an anti-inflammatory: Aleve, 2tablets twice/day for 2weeks, w/ food.
  - Do this only if **permitted** to take NSAIDs from a general health standpoint!
  - If not permitted, then icing, heat, rest and Tylenol (if permitted) will do.
- Following this short hiatus, you may resume the protocol and gradually build back up.
- Patients have done very well following this recommendation.

-Aside from those final notes, we wish you only the absolute best on your road to recovery!
-We are always here for you if you have any questions or concerns with your recovery.