Total Shoulder Arthroplasty / Hemiarthroplasty Protocol:

The intent of this protocol is to provide the therapist with a guideline for the post-operative rehabilitation course of a patient that has undergone a Total Shoulder Arthroplasty (TSA) or Hemiarthroplasty (Humeral Head Replacement, HHR). It is not intended to be a substitute for appropriate clinical decision-making regarding the progression of a patient’s post-operative course. The actual post surgical physical therapy management must be based on the surgical approach, physical exam/findings, individual progress, and/or the presence of post-operative complications. If a therapist requires assistance in the progression of a post-operative patient they should consult with Dr. Millett.

Please Note:

Those patients with a concomitant repair of a rotator cuff tear and/or a TSA/HHR secondary to fracture should be progressed to the next phase based on meeting the Clinical Criteria (not based on the post-op time frames) as appropriate in collaboration with Dr. Millett.

Phase I – Immediate Post Surgical (0-4 weeks):

Goals:
- Allow healing of soft tissue
- Maintain integrity of replaced joint
- Gradually increase passive range of motion (PROM) of shoulder; restore active range of motion (AROM) of Elbow/Wrist/Hand
- Diminish pain and inflammation
- Prevent muscular inhibition
- Independent with activities of daily living (dressing, bathing, etc.) with modifications while maintaining the integrity of the replaced joint.

Precautions:
- Sling should be worn for 3 weeks for comfort
- Sling should be used for sleeping and removed gradually over the course of the four weeks, for periods throughout the day.
- While lying supine a small pillow or towel roll should be placed behind the elbow to avoid shoulder hyperextension / anterior capsule / subscapularis stretch.
- Avoid Shoulder active range of motion.
- No lifting of objects
- No excessive shoulder motion behind back
- No excessive stretching or sudden movements (particularly external rotation)
- No supporting of body weight by hand on involved side
- Keep incision clean and dry (no soaking for 2 weeks)
- No driving for 3 weeks

Criteria for progression to the next phase:
- Tolerates PROM program
- at least 90 degrees PROM flexion
- at least 90 degrees PROM abduction.
- at least 45 degrees PROM ER in plane of scapula
• at least 70 degrees PROM IR in plane of scapula
• Be able to isometrically activate all shoulder, RC, and upper back musculature

**Postoperative Day #1 (in hospital):**
• Passive Forward Flexion in supine to tolerance
• ER in scapular plane to available gentle PROM (as documented in Operative Note) – usually around 30 degrees.
  (Attention: DO NOT produce undue stress on the anterior joint capsule and subscapularis particularly with shoulder in extension)
• Passive internal rotation to chest
• Active distal extremity exercise (Elbow, Wrist, Hand)
• Pendulums
• Frequent cryotherapy for pain, swelling and inflammation management
• Patient education regarding proper positioning & joint protection techniques

**Postoperative Days # 2-10 (out of hospital)**
• Continue above exercises
• Assisted flexion and abduction in the scapular plane
• Assisted external rotation
• Begin sub-maximal, pain-free shoulder isometrics in neutral
• Begin scapula musculature isometrics / sets
• Begin active assisted Elbow ROM
• Pulleys (flexion and abduction) – as long as greater than 90 degrees of PROM
• Continue Cryotherapy as much as able for pain and inflammation management

**Postoperative Days # 10-21:**
• Continue previous exercises
• Continue to progress PROM as motion allows
• Gradually progress to AAROM in pain free ROM
• Progress active distal extremity exercise to strengthening as appropriate
• Restore active elbow ROM

**Phase II – Early Strengthening (Weeks 3-6):**

Goals:
• Continue PROM progression/ gradually restore full passive ROM
• Gradually restore Active motion
• Control Pain and Inflammation
• Allow continue healing of soft tissue
• Do not overstress healing tissue
• Re-establish dynamic shoulder stability

Precautions:
• Sling should be used as needed for sleeping and removed gradually over the course of the next two weeks, for periods throughout the day.
• While lying supine a small pillow role or towel should be placed behind the elbow to avoid shoulder hyperextension / anterior capsule stretch.
• Begin shoulder AROM against gravity.
• No heavy lifting of objects (no heavier than coffee cup)
• No supporting of body weight by hands and arms
• No sudden jerking motions

Criteria for progression to next phase:
• Tolerates P/AAROM, isometric program
• Has achieved at least 140 degrees PROM flexion
• Has achieved at least 120 degrees PROM abduction.
• Has achieved at least 60+ degrees PROM ER in plane of Scapula
• Has achieved at least 70 degrees PROM IR in plane of Scapula
• Be able to actively elevate shoulder against gravity with good mechanics to 100 degrees.

Week 3:
• Continue with PROM, AAROM, Isometrics
• Scapular Strengthening
• Begin Assisted Horizontal adduction
• Progress Distal Extremity Exercises with light resistance as appropriate
• Gentle Joint Mobilizations as indicated
• Initiate Rhythmic stabilization
• Continue use of cryotherapy for pain and inflammation.

Week 4:
• Begin Active forward flexion, internal rotation, external rotation, and abduction in supine position, in pain free ROM
• Progress scapular strengthening exercises
• Wean from Sling completely
• Begin isometrics of rotator cuff and periscapular muscles

Phase III – Moderate strengthening (week 6-12):

Goals:
• Gradual restoration of shoulder strength, power, and endurance
• Optimize neuromuscular control
• Gradual return to functional activities with involved upper extremity

Precautions:
• No heavy lifting of objects (no heavier than 5 lbs.)
• No sudden lifting or pushing activities
• No sudden jerking motions

Criteria for progression to the next phase (IV):
• Tolerates AA/AROM
• Has achieved at least 140 degrees AROM flexion supine
• Has achieved at least 120 degrees AROM abduction supine.
• Has achieved at least 60+ degrees AROM ER in plane of Scapula supine
• Has achieved at least 70 degrees AROM IR in plane of Scapula supine
• Be able to actively elevate shoulder against gravity with good mechanics to least 120 degrees.

WEEK 6:
• Increase anti-gravity forward flexion, abduction as appropriate
• Active internal rotation and external rotation in scapular plane
• Advance PROM as tolerated, begin light stretching as appropriate
• Continue PROM as need to maintain ROM
• Initiate assisted IR behind back
• Begin light functional activities

**WEEK 8**
Begin progressive supine active elevation (anterior deltoid strengthening) with light weights (1-3 lbs) and variable degrees of elevation.

**WEEK 10-12:**
• Begin resisted flexion, Abduction, External rotation (therabands/sport cords)
• Continue progressing internal and external strengthening
• Progress internal rotation behind back from AAROM to AROM as ROM allows (pay particular attention as to avoid stress on the anterior capsule.)

**Phase IV – Advanced strengthening (weeks 12 to 6 months):**

**Goals:**
• Maintain full non-painful active ROM
• Enhance functional use of UE
• Improve muscular strength, power, and endurance
• Gradual return to more advanced functional activities
• Progress closed chain exercises as appropriate.

**Precautions:**
• Avoid exercise and functional activities that put stress on the anterior capsule and surrounding structures. (example: no combined ER and abduction above 80 degrees of abduction.)
• Ensure gradual progression of strengthening.

**Criteria for discharge from skilled therapy:**
• Patient able to maintain full non-painful active ROM
• Maximized functional use of UE
• Maximized muscular strength, power, and endurance
• Patient has returned to more advanced functional activities

**WEEK 12+:**
• Typically patient is on just a home exercise program by this point 3-4x per week.
• Gradually progress strengthening program
• Gradual return to moderately challenging functional activities.

**4-6 months –**
return to recreational hobbies, gardening, sports, golf, doubles tennis