Phase I – Passive Range of Motion Phase (postop week 1- 2)

Goals:
• Minimize shoulder pain and inflammatory response
• Achieve gradual restoration of gentle active range of motion
• Enhance/ensure adequate scapular function

Precautions/Patient Education:
• Gentle (AROM) of the elbow against gravity only.
• No excessive external rotation range of motion (ROM) / stretching. Stop when you feel the first end feel.
• Use of a sling to minimize activity of biceps
• Ace wrap upper forearm as needed for swelling control
• No lifting of objects with operative shoulder
• Keep incisions clean and dry
• No friction massage to the proximal biceps tendon / tenodesis site
• Patient education regarding limited use of upper extremity despite the potential lack of or minimal pain or other symptoms

Activity:
• Shoulder pendulum hang exercise
• Gentle AROM elbow flexion/extension and forearm supination/pronation
• AROM wrist/hand
• Begin shoulder PROM all planes to tolerance /do not force any painful motion
• Scapular retraction and clock exercises for scapula mobility progressed to scapular isometric exercises
• Ball squeezes
• Sleep with sling as needed supporting operative shoulder, place a towel under the elbow to prevent shoulder hyperextension
• Frequent cryotherapy for pain and inflammation
• Patient education regarding postural awareness, joint protection, positioning, hygiene, etc.
• May return to computer based work

Milestones to progress to phase II:
• Appropriate healing of the surgical incision
• Full PROM of shoulder and elbow
Open Biceps Tenodesis Rehab Protocol

- Completion of phase I activities without pain or difficulty

**Phase II – Active Range of Motion Phase (postop week 4)**

**Goals:**
- Minimize shoulder pain and inflammatory response
- Achieve gradual restoration of AROM
- Begin light waist level functional activities
- Wean out of sling by the end of the 2-3 postoperative week
- Return to light computer work

**Precautions:**
- No lifting with affected upper extremity
- No friction massage to the proximal biceps tendon / tenodesis site

**Activity:**
- Begin gentle scar massage and use of scar pad for anterior axillary incision
- Progress shoulder PROM to active assisted range of motion (AAROM) and AROM all planes to tolerance
- Lawn chair progression for shoulder
- Continue active elbow flexion/extension and forearm supination/pronation (No resistance)
- Glenohumeral, scapulothoracic, and trunk joint mobilizations as indicated (Grade I - IV) when ROM is significantly less than expected. Mobilizations should be done in directions of limited motion and only until adequate ROM is gained.
- Begin incorporating posterior capsular stretching as indicated
- Cross body adduction stretch
- Side lying internal rotation stretch (sleeper stretch)
- Continued Cryotherapy for pain and inflammation
- Continued patient education: posture, joint protection, positioning, hygiene, etc.

**Milestones to progress to phase III:**
- Restore full AROM of shoulder and elbow
- Appropriate scapular posture at rest and dynamic scapular control with ROM and functional activities
- Completion of phase II activities without pain or difficulty
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Phase III - Strengthening Phase (starts approximately post op week 6-8)

Goals:
• Normalize strength, endurance, neuromuscular control
• Return to chest level full functional activities

Precautions:
• Do not perform strengthening or functional activities in a given plane until the patient has near full ROM and strength in that plane of movement
• Patient education regarding a gradual increase to shoulder activities

Activity:
• Continue A/PROM of shoulder and elbow as needed/indicated
• Initiate biceps curls with light resistance, progress as tolerated
• Initiate resisted supination/pronation
• Begin rhythmic stabilization drills
• External rotation (ER) / Internal Rotation (IR) in the scapular plane
• Flexion/extension and abduction/adduction at various angles of elevation
• Initiate balanced strengthening program
• Initially in low dynamic positions
• Gain muscular endurance with high repetition of 30-50, low resistance 1-3lbs)
• Exercises should be progressive in terms of muscle demand / intensity, shoulder elevation, and stress on the anterior joint capsule
• Nearly full elevation in the scapula plane should be achieved before beginning elevation in other planes
• All activities should be pain free and without compensatory/substitution patterns
• Exercises should consist of both open and closed chain activities
• No heavy lifting should be performed at this time
• Initiate full can scapular plane raises with good mechanics
• Initiate ER strengthening using exercise tubing at 30° of abduction
  (use towel roll)
• Initiate sidelying ER with towel roll
• Initiate manual resistance ER supine in scapular plane (light resistance)
• Initiate prone rowing at 30/45/90 degrees of abduction to neutral arm position
Open Biceps Tenodesis Rehab Protocol

• Begin subscapularis strengthening to focus on both upper and lower segments
  • Push up plus (wall, counter, knees on the floor, floor)
  • Cross body diagonals with resistive tubing
  • IR resistive band (0, 45, 90 degrees of abduction
  • Forward punch
  • Continued cryotherapy for pain and inflammation as needed

Milestones to progress to phase IV:
• Appropriate rotator cuff and scapular muscular performance for chest level activities
• Completion of phase III activities without pain or difficulty

Phase IV – Advanced Strengthening Phase (starts postop week 10)
Goals:
• Continue stretching and PROM as needed/indicated
• Maintain full non-painful AROM
• Return to full strenuous work activities
• Return to full recreational activities
Precautions:
• Avoid excessive anterior capsule stress
• With weight lifting, avoid military press and wide grip bench press.
Activity:
• Continue all exercises listed above
• Progress isotonic strengthening if patient demonstrates no compensatory strategies, is not painful, and has no residual soreness
• Strengthening overhead if ROM and strength below 90 degree elevation is good
• Continue shoulder stretching and strengthening at least four times per week
• Progressive return to upper extremity weight lifting program emphasizing the larger, primary upper extremity muscles (deltoid, latissimus dorsi, pectoralis major)
• Start with relatively light weight and high repetitions (15-25)
• May initiate pre injury level activities/ vigorous sports if appropriate / cleared by MD

Milestones to return to overhead work and sport activities:
Open Biceps Tenodesis Rehab Protocol

• Clearance from MD
• No complaints of pain
• Adequate ROM, strength and endurance of rotator cuff and scapular musculature for task completion
• Compliance with continued home exercise program