Rehabilitation Guidelines for Biceps Tenodesis

This protocol is intended to guide clinicians through the post-operative course for biceps tenodesis. This protocol is time based (dependent on tissue healing) as well as criterion based. Specific intervention should be based on the needs of the individual and should consider exam findings and clinical decision making. The timeframes for expected outcomes contained within this guideline may vary based on surgeon's preference, additional procedures performed, and/or complications. If a clinician requires assistance in the progression of a post-operative patient, they should consult with the referring surgeon.

The interventions included within this protocol are not intended to be an inclusive list of exercises. Therapeutic interventions should be included and modified based on the progress of the patient and under the discretion of the clinician.

Considerations for the Post-operative Biceps Tenodesis
Many different factors influence the post-operative biceps tenodesis rehabilitation outcomes, including pre-operative tissue quality, shoulder range of motion, arm strength, and function. Other individual considerations include patient age and co-morbidities, such as: increased BMI, smoking, and diabetes. It is recommended that clinicians collaborate closely with the referring physician regarding specific range of motion or loading guidelines for each individual case.

If the patient develops a fever, unresolving numbness/tingling, excessive drainage from the incision, uncontrolled pain, or any other symptoms you have concerns about you should contact the referring physician.

PHASE I: IMMEDIATE POST-OP: Passive Range of Motion Phase (1-4 WEEKS AFTER SURGERY)

Rehabilitation Goals	• Protect repaired biceps tendon. • Minimize shoulder pain and inflammatory response. • Keep incisions clean and dry. • Restore passive range of motion (PROM) of shoulder and elbow. • Adequate scapular function.
Sling	• Wear sling as directed by surgeon. • Wean out of sling starting 3 weeks post-op
Precautions	• No active range of motion (AROM) of the elbow or shoulder. • No shoulder external rotation beyond 40 degrees. • No shoulder extension or horizontal abduction past neutral. • Place a towel roll or pillow under elbow while laying supine to avoid shoulder extension • No lifting objects. • No friction massage to the proximal biceps/tenodesis site.
Intervention	*Range of motion/Mobility* • PROM of elbow for flexion/extension, supination/pronation. • AROM of wrist/hand • Shoulder PROM: avoid shoulder ER past 40 degrees and no shoulder extension beyond neutral *Strengthening* • Scapular retractions and mobility exercises • Ball squeezes
Criteria to Progress	• Appropriate healing of surgical incision. • Adequate pain control. • Full PROM of shoulder and elbow.

PHASE II: INTERMEDIATE POST-OP: ACTIVE RANGE OF MOTION PHASE (4-6 WEEKS AFTER SURGERY)

Rehabilitation Goals	• Minimize shoulder pain and inflammatory response. • Achieve gradual restoration of shoulder and elbow AROM. • Begin light waist-level functional activities. • Initial submaximal shoulder isometrics • Return to light computer or desk work.
Precautions	• No lifting with affected upper extremity. • No loading to biceps, elbow flexors, supinators. • No friction massage to the proximal biceps tendon/tenodesis site. • No running. • Avoid over stressing repaired tissue with stretching or manual therapy

Additional Intervention **Continue with Phase I interventions*	*Range of motion/Mobility*
	• Shoulder AAROM
	  ○ Lawn chair AAROM
	  ○ Shoulder ER
	  ○ Rail slides
	  ○ Wall slides
	• Shoulder AROM
	  ○ Supine shoulder flexion
	  ○ Standing scaption
	  ○ Shoulder ER in neutral
	  ○ Shoulder ER @ 90 degrees supported on table
	• Elbow AROM
	  ○ Active elbow flexion
	  ○ Active elbow extension
	  ○ Forearm supination
	  ○ Forearm pronation
	
	Strengthening
	• Shoulder Isometrics
	  ○ Flexion, extension, ER, IR, abduction
	
	Manual Therapy
	• Glenohumeral, scapulothoracic, and trunk joint mobilizations as indicated (Grade I-IV)
	• Posterior capsule stretching
	  ○ Cross body stretching
	  ○ Sleeper Stretch
	
	Cardiovascular exercise
	• Walking or stationary bike - **avoid excessive weight bearing through affected arm. No distractive forces on shoulder**

Criteria to Progress	• Full AROM of shoulder and elbow. • Proper scapular mechanics with ROM and functional activities. • Adequate pain control.

PHASE III: LATE POST-OP: INITIAL STRENGTHENING PHASE (6-8 WEEKS AFTER SURGERY)

Rehabilitation Goals	• Normalize strength, endurance, neuromuscular control. • Return to chest-level activities.
Precautions	• No strengthening or functional activities until near full ROM is achieved. • Avoid long-lever arm resistance for elbow flexion and supination.
Additional Intervention	*Strengthening* • Continue shoulder and elbow PROM and AROM • Initiate Resisted Biceps curls

**Continue with Phase I-II Interventions*	• Initiate Resisted supination • Resisted Triceps extension • Resisted wrist extension/Resisted wrist flexion • Continue shoulder isometrics ○ Progress resistance as tolerated • Rhythmic stabilizations
Criteria to Progress	• Full shoulder and elbow AROM. • Good tolerance to initial strengthening without increase in symptoms.

PHASE IV: Advanced Strengthening (8-12 WEEKS AFTER SURGERY)

Rehabilitation Goals	• Maintain full pain-free shoulder and elbow AROM. • Progress shoulder and elbow strength. Focus on low load, high repetitions (30-50). Open and closed chain strengthening.
Additional Intervention **Continue with Phase I-III interventions*	*Strengthening* • Resisted IR in neutral • Resisted ER in neutral • Resisted shoulder IR in elevation • Resisted shoulder ER in elevation • Full can scapular plane arm elevation • Side-lying ER • Prone Rowing ○ 30/45/90 degrees abduction • Push up plus progression (wall, counter, knees on floor, floor) • Resisted PNF Diagonals *Cardiovascular exercise* • Can initiate return to running • **No swimming**
Criteria to Progress	• 5/5 shoulder and elbow strength. • Full shoulder AROM in all planes. • Good tolerance to strengthening exercise without increase in symptoms.

PHASE V: RETURN-TO-SPORT (12-16 MONTHS AFTER SURGERY)

Rehabilitation Goals	• Progress strength and function of involved upper extremity. • Return to normal sport or work activities. • Maintain pain-free ROM. • Avoid excessive anterior capsule stress.
Additional Intervention **Continue with Phase II-IV interventions*	*Strengthening/Sport Specific training* • Initiate plyometric training starting with below shoulder level and progressing to overhead: Weighted ball drop/catch in standing, chest pass, overhead ball dribble against wall, prone 90/90 ball drop/catch, prone Y ball drop/catch, prone T ball drop/catch • Multi joint/compound strengthening • Interval return to sport specific training
Criteria to Progress	• No pain with progressive strengthening. • 90% strength of involved extremity compared to uninvolved side with dynamometry testing • Within normal limits with field testing if applicable (e.g. closed kinetic chain upper extremity stability test, single arm seated shot-put test, ASH test/Modified ASH test). • Low level to no disability with patient reported outcome measure (e.g. Quick DASH).

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Contact	Please email MGHSportsPhysicalTherapy@partners.org with questions specific to this protocol

References:

1. Galasso, O., Gasparini, G., De Benedetto, M., Familiari, F., & Castricini, R. (2012). Tenotomy versus Tenodesis in the treatment of the long head of biceps brachii tendon lesions. BMC Musculoskeletal Disorders, 13, 2005. doi:10.1186/1471-2474-13-205
2. Krupp RJ, Kevern MA, Gaines MD, Kotara S, Singleton SB. Long Head of the Biceps Tendon Pain: Differential Diagnosis and Treatment. Jour Ortho & Sports PT. Feb 2009; 39(2): 55-70
3. Ryu JH, Pedowitz RA. Rehabilitation of biceps tendon disorders in athletes. Clin Sports Med. 2010 Apr;29(2):229- 46, vii-viii. doi: 10.1016/j.csm.2009.12.003