

Biceps Tenodesis (Open / Subpectoral)

Physical Therapy Protocol · Tenodesis-Protective, Criterion-Based Progression

Synthesized from the Ohio State University Wexner Medical Center Biceps Tenodesis Clinical Practice Guideline (2020) and Massachusetts General Hospital / Boston Shoulder Institute rehabilitation protocols. Core principle: protect the tenodesis fixation from biceps tension for 6 weeks while restoring shoulder motion early.



AT A GLANCE

TIMELINE	12–16+ weeks; criterion-based progression through 4 phases
IMMOBILIZATION	Sling 2–4 weeks per surgeon; sleep in sling early with towel under elbow to prevent shoulder extension
KEY MILESTONES	Full PROM by ~2 weeks · full pain-free AROM by ~6 weeks · resisted biceps loading begins week 6 · 5/5 cuff and scapular strength before return to sport
RETURN TO ACTIVITY	Running, biking, golf with sound mechanics ~week 8; sport-specific/overhead progression from week 12 once strength and kinematic criteria are met

KEY PRECAUTIONS

- No resisted elbow flexion or forearm supination for 6 weeks; no isolated biceps activation (curls, straight-arm resisted flexion/supination) and no excessive biceps loading before 8 weeks.
- Weeks 0–4: limit shoulder ER to $\leq 40^\circ$ and avoid shoulder extension / horizontal extension past neutral (both tension the tenodesis).
- No cross-friction or aggressive scar massage over the incision for 6 weeks; monitor the subpectoral incision for healing.
- With concomitant procedures (cuff repair, labral repair), progress per the most restrictive protocol.

PHASED REHABILITATION

PHASE 1 — PROTECTION & PASSIVE MOTION		Weeks 0–2
GOALS	• Protect tenodesis fixation; control pain and edema • Restore full passive shoulder, elbow, and forearm motion within limits • Prevent stiffness of uninvolved joints	
INTERVENTIONS	• Sling per surgeon (2–4 weeks); sleep in sling with towel under elbow to block extension • Passive pendulums; PROM flexion and scapular-plane elevation; ER limited to $\leq 40^\circ$ • PROM elbow flexion/extension and forearm rotation — strictly passive, no elbow AROM • Scapular retraction and scapular clock exercises • AROM wrist and hand; edema management (ace wrap, elevation, cryotherapy)	
CRITERIA TO ADVANCE	• Full PROM of shoulder, elbow, and forearm within protected limits • Pain and swelling controlled • Incision clean and dry	

PHASE 2 — ACTIVE MOTION		Weeks 2–6
GOALS	• Progress AAROM to full AROM of shoulder and elbow without biceps tension • Establish scapular control and scapulohumeral rhythm • Begin light waist-level functional use of the arm	
INTERVENTIONS	• Wean from sling per surgeon (typically by weeks 2–4) • AAROM to AROM progression: table slides, wand exercises, supine flexion to upright elevation • ER remains $\leq 40^\circ$ until week 4, then progress as tolerated; limit shoulder extension • Submaximal shoulder isometrics (IR, ER, abduction, adduction) • Unresisted elbow AROM and forearm rotation — no biceps tension for 6 weeks • Scar mobilization without cross-friction; scapular stabilization drills	
CRITERIA TO ADVANCE	• Pain-free full shoulder and elbow AROM • Proper scapular control without substitution patterns	

PHASE 3 — PROGRESSIVE STRENGTHENING		Weeks 6–12
GOALS	- Initiate and progress resisted biceps loading (curls, supination) from week 6 - Restore rotator cuff and periscapular strength (target 5/5 MMT) - Return to low-impact conditioning	
INTERVENTIONS	- Weeks 6–8: light isotonic IR/ER with wrist neutral; supine serratus punches; prone scapular stability series (high repetition, low resistance) - Week 6+: initiate resisted biceps curls, supination, and pronation with light resistance; progress per tolerance - Weeks 8–12: resisted IR/ER progressing from 30° toward 90° abduction; standing resisted punches and row variations - Push-up progression (wall to counter to floor); PNF diagonals; closed-chain stabilization - Week 8+: running, biking, stair climber, golf with proper mechanics	
CRITERIA TO ADVANCE	- Pain-free full AROM with normal scapulohumeral rhythm 5/5 MMT rotator cuff and scapulothoracic strength - No anterior shoulder or bicipital groove pain with resisted elbow flexion/supination	

PHASE 4 — RETURN TO SPORT / ACTIVITY		Weeks 12–16+
GOALS	- Progress strength and power without compensation - Return to overhead, throwing, or swimming demands - Independent maintenance HEP	
INTERVENTIONS	- Plyometric progression: two-hand chest and overhead throws advancing to single-arm drills - Low- to high-velocity strengthening in sport-specific patterns; minimize anterior capsule stress with gradual progression - Interval throwing or swimming program as applicable - Kinematic-chain training: hip/core to shoulder sequencing during dynamic movement	
CRITERIA TO ADVANCE	- Pain-free stability and control with higher-velocity movements - Strength ~90% of uninvolved side - Patient-reported outcomes (DASH, KJOC) ≥90% of target / low disability scores	

GUIDING PRINCIPLES

This protocol follows criterion-based progression over rigid time-based advancement; phased rehabilitation balancing tissue healing with controlled stress application; objective milestones (ROM, strength LSI, functional testing) to guide phase transitions; individualization based on surgical findings, tissue quality, and patient factors; and ongoing surgeon–therapist communication throughout recovery.

REFERENCES

1. Ohio State University Wexner Medical Center Sports Medicine. Biceps Tenodesis Clinical Practice Guideline. 2020. <https://medicine.osu.edu/-/media/files/medicine/departments/sports-medicine/medical-professionals/shoulder-and-elbow/bicep-tenodesis-2020.pdf>
2. Massachusetts General Hospital Sports Physical Therapy. Rehabilitation Protocol for Biceps Tenodesis. <https://www.massgeneral.org/assets/mgh/pdf/orthopaedics/sports-medicine/physical-therapy/rehabilitation-protocol-for-biceps-tenodesis.pdf>
3. Boston Shoulder Institute (Massachusetts General Hospital). Biceps Tenodesis Protocol. <https://bostonshoulderinstitute.com/wp-content/uploads/2017/03/Biceps-Tenodesis.pdf>

For clinical use by licensed physical therapists treating patients of Robert Pettit, MD. This document is a rehabilitation guideline, not a substitute for clinical judgment. Progression must be individualized based on intraoperative findings, tissue quality, and patient response. Scan the QR code for the current version of this protocol.