

Biceps Tenodesis Protocol

Phase 1: Immediate Post-Op (3–5 days to 3 weeks post-op)

Rehabilitation Goals	<ul style="list-style-type: none"> Educate patient on physical therapy and recovery Pain/surgical sequelae management via passive and active modalities Protect repair, promote tendon to bone healing Wean out of sling Maintain and progress shoulder PROM within tolerable range Maintain UE and periscapular PROM and AROM
Sling	<ul style="list-style-type: none"> 7–10 days, discontinue sling after post-op visit and suture removal
Precautions	<ul style="list-style-type: none"> UE for very light AROM activities up to elbow height while in sling Avoid anything heavier than a coffee mug. Do not support your weight through affected UE. Avoid loading/stretching biceps/anterior shoulder
Interventions	<p>Modalities: heat prior to PT, ice after PT</p> <p>Manual Therapy:</p> <ul style="list-style-type: none"> STM to shoulder/irritable soft tissue of brachium, antebrachium, periscapular muscles and cervical spine. Scapular mobilizations, thoracic and cervical mobilizations/manipulation. <p>Range of Motion/Mobility:</p> <ul style="list-style-type: none"> PROM: by therapist – relatively pain free range at this time, address all planes of motion Stretching: pendulums, ER in neutral, Table slides/walk outs flexion, scaption, abduction <p>AROM:</p> <ul style="list-style-type: none"> Elbow/wrist, gripping (ball or towel), shoulder rolls, scapular squeezes, cervical AROM all planes Thoracic extension/rotation in chair Prone scapular AROM > prone row ~2 weeks <p>Strength:</p> <ul style="list-style-type: none"> Scapular stabilization (scapular clock and manual resisted scapular PNF patterns) Submaximal isometrics in neutral for shoulder and elbow ~3 weeks **No elbow flexion**
Progression Criteria	<ul style="list-style-type: none"> Adequate management of surgical sequelae (pain, ecchymosis, edema) PT weaning out of sling >/=90 degrees of passive elevation of shoulder (flexion/scaption/abduction) Shoulder ER/IR PROM ~50% of unaffected side PT consistent with HEP and able to tolerate PROM shoulder exercises

Phase 2: Early Rehab (weeks 4–6)

Rehabilitation Goals	<ul style="list-style-type: none"> Progress shoulder PROM Minimize pain Protect repair Initiate AAROM Initiate AROM
Precautions	<ul style="list-style-type: none"> Very gradual introduction of load across anterior shoulder/biceps

Phase 2: Early Rehab (weeks 4–6) (continued)

<p>Interventions</p>	<p>Modalities: Heat/Ice as needed</p> <ul style="list-style-type: none"> Manual Therapy: STM/cervical and thoracic mobilizations as needed, rhythmic stabilization <p>Range of Motion/Mobility:</p> <ul style="list-style-type: none"> PROM: address limitations within tolerance Stretching: supine ER progressive abduction, IR behind the back, posterior capsule stretch <p>AAROM:</p> <ul style="list-style-type: none"> Pulleys, supine wand AAROM to 90 (press), side-lying flexion with ball AAROM, standing AAROM flexion/abduction/extension/IR with wand. Wall walks > wall slides <p>AROM: prone scap retraction > prone row</p> <ul style="list-style-type: none"> Supine press toward ceiling to ~90 degrees of flexion, scapular punches, figure 8, salutes (hand to forehead), SL ER Initiate flexion/scaption to shoulder height in front of mirror for biofeedback to avoid shoulder hiking <p>Isometrics:</p> <ul style="list-style-type: none"> Reactive isometrics in neutral with light band resistance
<p>Progression Criteria</p>	<ul style="list-style-type: none"> Adequate tolerance to progressions, min-mod pain, good muscle activity AAROM elevation to 90 degrees with min-mod scapular hiking at most >/=120 degrees of passive elevation of shoulder (flexion/scaption/abduction) >/=60 degrees of passive ER and IR

Phase 3: Mid-Stage Rehab (weeks 6–12)

<p>Rehabilitation Goals</p>	<ul style="list-style-type: none"> Normalize PROM Progress AROM Assess strength Initiate resistive exercises Minimal complaints of pain Pending progress and PT confidence, d/c to self-management appropriate in this phase
<p>Precautions</p>	<ul style="list-style-type: none"> Avoid lifting more than 10 pounds, continue to avoid weight bearing through affected UE
<p>Interventions</p>	<p>Modalities: Heat/Ice: As Needed</p> <p>Manual Therapy: As Needed</p> <p>Range of Motion/Mobility:</p> <ul style="list-style-type: none"> PROM: restore end ranges of motion Stretching: doorway/TRX pec stretch low/mid/high, foam roller pec stretch/snow angel, bar flexion stretch pro/sup, PWB hang, wall slide to OP stretch flx/abd, sleeper IR stretch <p>AROM:</p> <ul style="list-style-type: none"> Progression of prone exercises, neutral rot T's, Y's Progress to abd/flx AROM past shoulder height (mirror biofeedback) Wall clocks/wall snow angels <p>Reactive isometrics:</p> <ul style="list-style-type: none"> ER/IR/extension/flexion (can progress into flexion/abduction ranges at this time) Addition of body blade, addition of wall ball activities <p>Resistive exercises:</p> <ul style="list-style-type: none"> Neutral/pulling motions (extension, mid rows), progress to gentle resistance of flexion in supine and then standing, resisted ER and IR, resisted horizontal abduction in neutral Light loop band resistance to active motions such as Sharapova's Resisted biceps curls by end of stage
<p>Progression Criteria</p>	<ul style="list-style-type: none"> Adequate tolerance to progressions, minimal pain, good muscle activity Full PROM all planes Progressive improvement in AROM in all planes Trace scapular compensation with active motions

Phase 4: Late-Stage Rehab (weeks 13–16)	
Rehabilitation Goals	<ul style="list-style-type: none"> • Normalize AROM • Progress resistive exercises • Progressive introduction of activities that appropriately stress repair site
Precautions	<ul style="list-style-type: none"> • Avoid repetitive overhead tasks (painting the ceiling), no throwing/plyometric activities
Interventions	<p>Modalities: d/c or decrease frequency of heat/ice/MT. Dry needling for persistent soft tissue dysfunction</p> <p>Range of Motion/Mobility:</p> <ul style="list-style-type: none"> • PROM/mobility – continue to address limitations as needed <p>AROM: Continuous Articular Rotation (CAR) exercises (full functional IR to full functional ER) in various positions (standing, prone, on ball, sidelying)</p> <p>Reactive isometrics: Time based oscillation training w/band, body blade, weighted ball etc. in multi-planar patterns</p> <p>Resistive exercises:</p> <ul style="list-style-type: none"> • Progressive introduction of resistance via bands and dumbbells • ER/IR in neutral > flx/abd positions • Band resisted PNF patterns in supine and standing • Keiser resisted exercises such as lat pulldowns and chopping <p>Weight bearing:</p> <ul style="list-style-type: none"> • Bird dog UE only, to UE/LE alt • Front plank on wall > table > stair > flat • Side plank on knees > legs straight > adductor side plank • Wall push up > table push up > stair push up > flat push up > band/bosu/physioball push up <p>Therapist resisted:</p> <ul style="list-style-type: none"> • Supine, side lying and prone. Single plane and then multiple plane motions
Progression Criteria	<ul style="list-style-type: none"> • Adequate tolerance to progressions, minimal pain, good muscle activity • Full PROM/AROM all planes • ER/IR strength LSI \geq 80%

Phase 5: Return to Sport/Manual Labor (4–6 months post-op)	
Rehabilitation Goals	<ul style="list-style-type: none"> • Progress resistive exercises • Maintain end range PROM/AROM • Begin eccentrically resisted motions, plyometrics, proprioception • Initiate sports/work specific rehab ~4 months
Interventions	<p>Initial plyometrics:</p> <ul style="list-style-type: none"> • Keiser: split stance/half kneeling down chops>upchops • Med ball: both arms forward pass/bent over press slam to ground>single arm, lateral pass/wall slam <p>Progressive plyometrics:</p> <ul style="list-style-type: none"> • Med ball: overhead slams > supine chest pass > supine overhead pass > standing windmill slam • Weighted ball: reverse throw > wall ball ER in abd > straight arm wall ball in flx/abd • Body weight: assisted plyo push up, hands on table plyo push up, plyo eccentric <p>Return to racket sport/golf/swimming/throwing:</p> <ul style="list-style-type: none"> • Consider interval return to sport protocols
Return-to-Sport	<ul style="list-style-type: none"> • Min pain with progressive plyometrics and interval programs • Shoulder strength LSI \geq 90% • Return to throwing at 4 months • Collision sports at 6 months • Full Recovery ~ 12 months' post op