

### Biceps Tenodesis Rehabilitation Protocol

<b>PHASE I: Generally post-operative weeks 1 - 8</b>	
<b>PRECAUTIONS:</b>	<p>*<b>NO</b> active biceps &gt; 1 lb for 6 weeks after surgery*</p> <p>*<b>NO</b> resistance exercises for elbow flexion or supination, shoulder abduction or flexion *</p> <p>*<b>NO</b> jogging/running*</p>
<b>IMMOBILIZER/SLING:</b>	<p>Sling/immobilizer with abduction pillow is worn for ~4 weeks per ortho/PT</p> <p>Recommend wearing sling as follows:</p> <ul style="list-style-type: none"> <li>o Weeks 1-2: wear sling &gt;75% of the time</li> <li>o Weeks 3-4: wear sling ~25-50% of the time</li> <li>o Weeks 5-6: gradually discontinue all use of sling</li> </ul>
<b>WOUND:</b>	<p>Post-op dressing remains intact until post-op day #3 (~72 hours after surgery)</p> <p>May begin showering after post-op day #3 (no need to cover incision site)</p> <p>*<b>Do NOT</b> submerge shoulder in tub or pool for 4 weeks*</p> <p>Suture/staple removal @ 10-14 days per Ortho/PT</p>
<b>REHABILITATION:</b>	<p>Frequent use of ice in a semi-reclined position is encouraged</p> <p>Exercises should be done as part of a home exercise program 3-4 x per day</p> <p>All ROM exercises should be preceded with a scapular muscle set</p>
~Weeks 1-2	<p>Scapular stabilizer muscle sets</p> <p>Elbow, Wrist, &amp; Hand: ROM exercises, gripping, squeezing, etc.</p> <p>Gentle (“Two Finger”) isometrics (pain free)</p> <p>Supine Assisted Shoulder Flexion</p> <p>Supported pendulum</p>
~Weeks 3-4	<p>Scapular clock – including retraction &amp; protraction</p> <p>Scapular retraction with thoracic extension and rotation</p> <p>Aerobic conditioning on stationary bike (with sling on)</p>
~Weeks 5-6	<p>Shoulder AAROM exercises: wand, pulley, gentle towel stretch, etc. – as needed</p> <p>Bilateral shoulder FF and scaption AROM using good form (without shoulder hiking)</p> <p>Bilateral shoulder ER AROM, only to the point of first resistance</p>
~Weeks 7-8	<p>Lower extremity weight lifting (optional)</p> <p>Gentle weight-bearing shifts: quadruped → tripod, (include tripod thoracic rotation)</p> <p>Upper body ergometer (light resistance)</p> <p>Scapular exercises: rows, shrugs, and “pushouts” using light resistance</p> <p>ER/IR strengthening with light theraband (with towel roll under arm)</p>
<b>FOLLOW-UP:</b>	<p>Supervised rehabilitation: 2-3 x per week as needed; Ortho: ~6-8 weeks</p>
<b>DOCUMENTATION:</b>	<p>Precautions, pain level, medications and modalities</p>

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<b>PHASE I GOALS:</b>	<p>Observation: (incision sites) - Signs/symptoms of infection? Site healing well? Neurovascular status: Distal pulses, motor and sensation intact? Shoulder ROM (forward flexion, ER with shoulder at side)</p> <p>Protect the surgical repair &amp; avoid a “stiff” shoulder Shoulder ROM to approximately 150° elevation (If goals are not met, consider remaining on phase I for 2 additional weeks)</p>
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PHASE II: Generally post-operative months 3 - 4	
<b>PRECAUTIONS:</b>	<p>*<b>NO</b> pushups, heavy lifting, or other sports participation* *<b>NO</b> repetitive overhead use of shoulder*</p>
<b>IMMOBILIZER:</b>	None
<b>REHABILITATION:</b>	<p>Continue phase I exercises as needed Strengthening exercises are only performed if pain free. Exercise progression occurs only when there has been no increase in shoulder pain or stiffness since the previous session</p> <p>~Month 3 Upper body ergometer: forward, reverse, and clockwise &amp; counterclockwise standing at side Shoulder ROM exercises: wand, pulley, towel stretch, sleeper’s stretch, etc. – as needed Supine flexion on bolster (progress to using light weight) Kneeling thoracic reaches Progressive strengthening: ER &amp; IR (arm at side), FF &amp; scaption to 60-90°, prone rows (X,Y,T) (first set: 20 repetitions, then 1 additional set at the same weight to muscle failure) Neuromuscular/functional training exercises - variety of beginning level exercises that do not require &gt; 90° shoulder elevation or 20° ER (see appendix) Aerobic Conditioning: Bike, elliptical, stairmaster as desired. May begin jogging (start with 5 minutes and progress gradually as tolerated)</p> <p>~Month 4 Progressive strengthening: ER/IR (shoulder in 30° elevation), FF/scaption to 90-110°, Scapular retraction strengthening (seated or standing): X,Y,T,90-90 row, etc. (first set: 15 reps, then 2 additional sets at the same weight to muscle failure) Progressive neuromuscular/functional training exercises (see appendix) Lunges holding plyoball overhead</p>
<b>FOLLOW-UP:</b>	Ortho: ~4 months post-op; Supervised rehabilitation: 2-3 x per week as needed
<b>DOCUMENTATION:</b>	Pain level, medications, shoulder and elbow ROM & strength
<b>PHASE II GOALS:</b>	Full elbow and shoulder ROM; Full strength based on manual muscle testing Pain free activities of daily living

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(If goals are not met, consider remaining on phase II for 2-4 additional weeks)

PHASE III: Generally post-operative months 5 - 6	
<b>PRECAUTIONS:</b>	<p>*<b>NO</b> participation in contact/collision sports until 9-12 months post-op or cleared by MD*</p> <p>*All weight training should be modified to avoid the “90/90” position*</p> <p>*Avoid jerking, quick, or sudden movements with shoulder*</p>
<b>REHABILITATION:</b>	<p>Continue phase II exercises as needed</p> <p>Exercise progression occurs only when there has been no increase in shoulder pain or stiffness since the previous rehabilitation session</p>
~Month 5	<p>Warm-up: 5-10 minutes on upper body ergometer or elliptical</p> <p>General upper quarter stretching: 5-10 minutes (shoulder, thoracolumbar spine)</p> <p>Progressive strengthening: ER/IR (shoulder in 45-90° elevation), FF/scaption to 110- 130°, (first set: 10 repetitions, then 2 additional sets at the same weight to muscle failure)</p> <p>May also begin general UE light intensity strengthening with shoulder in “safe” position (avoid heavy overhead lifting, avoid shoulders in the 90° elevation, 90° ER position)</p> <p>Continue progression for neuromuscular/functional training exercises -intermediate level</p>
~Month 6	<p>Warm-up: 5-10 minutes on upper body ergometer or elliptical</p> <p>General upper quarter stretching: 5-10 minutes (shoulder, thoracolumbar spine)</p> <p>Progressive strengthening: ER/IR (shoulder in 60-90° elevation), FF/scaption to 130- 150°, (first set: 6-8 repetitions, then 2 additional sets at the same weight to muscle failure)</p> <p>Continue progression for neuromuscular/functional training exercises –advanced level</p> <p>Progressive sports training: Begin at 25-50% intensity, progress gradually (see appendix)</p>
<b>FOLLOW-UP:</b>	<p>Ortho: ~6 months post-op; Supervised rehabilitation: 1-2 x per week as needed</p>
<b>DOCUMENTATION:</b>	<p>Pain level &amp; medications</p> <p>Shoulder and elbow ROM &amp; strength</p>
<b>PHASE III GOALS:</b>	<p>Pushups at own pace without pain</p> <p>Pain free throwing motion</p>
<b>MISCELLANEOUS:</b>	<p>After 6 months post-op: Exercises in phase III are continued, gradually increasing intensity &amp; duration as tolerated.</p> <p>The recommendation is to wait until 9-12 months post-op to return to contact/collision or overhead sports or aggressive physical training (e.g. CrossFit, etc.). This time period may be adjusted slightly by the surgeon and therapist according to patient progress.</p>

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### APPENDIX: GENERAL SHOULDER EXERCISE PROGRESSIONS

**\*Note to clinician\*** There are many potentially good neuromuscular/functional training exercises that can assist a post-op shoulder during rehabilitation. For all levels, exercises should be pain free. Rather than pick a few favorite ones for a protocol, our strategy is to provide guidelines and examples of several that may be useful. The clinician should stay within the general guidelines to design an individualized, effective program for his/her patient.

**Primary guidelines for beginning level neuromuscular/functional training exercises:**

Light resistance, shoulder ROM not to exceed 90° of shoulder elevation or 20° ER, all weight-bearing exercises should be in the quadruped position with both UEs in contact with a stable surface

**Primary guidelines for intermediate level neuromuscular/functional training exercises:**

Should begin only after completing several weeks of beginning level exercises  
Light to moderate resistance, shoulder ROM should generally not exceed 120° or 40° ER for single arm movements, avoid the full prone push-up position for weight-bearing exercises

**Primary guidelines for advanced level neuromuscular/functional training exercises:**

Should begin only after completing a month or two of intermediate level exercises  
Moderate resistance, full ROM - but generally avoiding the 90° abducted, 90° externally rotated position

Exercise Type	Beginning Level ~months 3-4 post-op	Intermediate Level ~months 4-5 post-op	Advanced Level ~months 5-6 post-op
<b>Body Blade</b>	Flexion/Extension IR/ER Superior/Inferior (arm at side)	FF range to 90° Scaption to 90° IR/ER through ROM Horiz adb/add at 90°	FF range to 150° Scaption to 150° IR/ER through ROM Diagonal motions
<b>Ball toss</b>	Chest pass – 2 handed IR toss – (arm at side)	Overhead toss – (2 handed) Behind back toss	Overhead diagonal toss – (2 handed) Regular throwing toss
<b>Prone stabilization</b>	All fours stabilization on stable surface	All fours stabilization on foam or theraball Tripod on stable surface	Tripod stabilization on unstable surface
<b>Supine stabilization</b>	Supine Shoulder Stabilization @ 90°	Supine Shoulder Stabilization from 60-120°	Supine Shoulder Stabilization (Available ROM)
<b>Pushups</b>	none	Wall pushups – progressing to inclined pushups	Knee pushups – progressing to modified regular pushups
<b>Misc activities for sports training</b>	Basketball: dribbling, chest and bounce pass Golf: putting Volleyball: bumping Pool: jogging, treading Wall ball drawing	Basketball: shooting within the key only Golf: chipping, short irons Volleyball: setting Pool: No overhead strokes Tossing Frisbee Catching drills: below 90°	Basketball: noncontact drills only Golf: gradual return Vball: gradual return ~6 mo Pool: gradual return Forehand, backhand racquet sports (no overhead)



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