



## ***Distal Biceps Repair***

### *Rehabilitation Guideline*

This rehabilitation program is designed to return the individual to their activities as quickly and safely as possible. It is designed for rehabilitation following surgical repair of distal biceps tendon. Modifications to the protocol may be necessary dependent on location and size of repair, chronicity of tear, age, weight, comorbidities, and concomitant injuries or procedures performed. This evidence-based guideline for repair of distal biceps tendon is criterion-based and time frames in each phase will vary depending on many factors including patient demographics, goals, and individual progress. This protocol is designed to progress the individual through rehabilitation to full sport/ activity participation. The therapist must modify the program appropriately depending on the individual's goals for activity.

This protocol is intended to provide the treating clinician with a guideline for rehabilitation. It is not intended to substitute for making sound clinical decisions regarding the patient's post-operative care based on exam/treatment findings, individual progress, and/or the presence of concomitant procedures or post-operative complications. If the clinician should have questions regarding post-operative progression, they should contact the referring physician.

## General Guidelines/Precautions:

- Elbow bracing x 6 weeks or per physician
- Early limitations in elbow extension passive range of motion (dependent on surgeon and operative procedure)
- Avoid active elbow flexion and supination during acute phase of rehab
- Gravity assisted elbow flexion and extension begins 2 weeks post operatively
- Isometric elbow extension, isotonic wrist flex/ext, and strengthening of shoulder girdle at post op week 8
- Isometric bicep strengthening at post op week 12
- Isotonic biceps strengthening at post op week 16

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PHASE	SUGGESTED INTERVENTIONS	GOALS/MILESTONES FOR PROGRESSION
<p><b>Phase I</b> Patient Education Phase</p>	<p><b>Discuss:</b> Anatomy, existing pathology, post-op rehab schedule, and expected progressions</p> <p><b>Immediate Post-Operative instructions:</b></p> <ul style="list-style-type: none"> <li>• Wrist and hand AROM (no supination)</li> <li>• Bracing</li> <li>• Post-operative precautions and contraindications</li> </ul>	<p><b>Goals of Phase:</b></p> <ol style="list-style-type: none"> <li>1. Improve ROM and strength to tolerance prior to surgery</li> <li>2. Appropriate expectation from post-operative rehabilitation</li> </ol> <p><b>Criteria to Advance to Next Phase:</b></p> <ol style="list-style-type: none"> <li>1. Progress to Phase II post-operatively</li> </ol>
<p><b>Phase II</b> Acute phase Weeks 0-6 weeks</p> <p>Expected visits: t6-12 visits</p>	<p><b>Specific Instructions:</b></p> <ul style="list-style-type: none"> <li>• Hand and wrist range of motion to begin immediately (no active elbow flexion and wrist supination)</li> <li>• Passive range of motion of elbow limited 0-90 for 2 weeks then progress as tolerates. No aggressive or painful passive range of motion to elbow</li> <li>• No pushing, pulling, lifting to include transfers</li> <li>• Elbow hinged brace wear x 6 weeks</li> </ul> <p><b>Suggested Treatments:</b></p> <ul style="list-style-type: none"> <li>• Wrist and hand active range of motion</li> <li>• Passive elbow, forearm, and wrist range of motion</li> <li>• Gravity eliminated elbow flexion and extension allowed at week 2</li> <li>• Cardiovascular fitness without UE use</li> <li>• Shoulder girdle range of motion</li> </ul> <p><b>Exercise Examples:</b></p> <ul style="list-style-type: none"> <li>• Passive elbow passive range of motion (per ROM limitations)</li> <li>• Gravity eliminated long duration low load stretching</li> <li>• Active wrist flexion and extension</li> <li>• Hand and finger gripping/putty activities</li> <li>• Passive and active assisted range of motion for shoulder girdle to prevent joint stiffness</li> <li>• Elliptical and treadmill without UE use for cardiovascular fitness</li> </ul>	<p><b>Goals of Phase:</b></p> <ol style="list-style-type: none"> <li>1. Protect repair site</li> <li>2. Prevent elbow and shoulder contractures</li> <li>3. Manage inflammation and pain</li> <li>4. Progress Passive elbow ROM per guideline and physician's request</li> </ol> <p><b>Criteria to Advance to Next Phase:</b></p> <ol style="list-style-type: none"> <li>1. Controlled post-operative pain and swelling</li> <li>2. Full and pain free range of motion expected by 6 weeks.</li> </ol>

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<p><b>Phase III</b>  <i>Post-acute phase</i>  <i>Weeks 6-12</i></p> <p><i>Expected visits:</i>  <i>6-12 visits</i></p>	<p><b>Specific Instructions:</b></p> <ul style="list-style-type: none"> <li>• No lifting with operative extremity</li> <li>• No active elbow flexion and supination</li> </ul> <p><b>Suggested Treatments:</b></p> <ul style="list-style-type: none"> <li>• Isometrics Triceps exercises begins at week 6</li> <li>• Isotonic Triceps strength exercise begins at week 8</li> <li>• Strengthening of wrist flexion/extension and shoulder girdle begins at week 8</li> </ul> <p><b>Exercise Examples:</b></p> <ul style="list-style-type: none"> <li>• Isometric triceps strengthening</li> <li>• Isotonic triceps strengthening (weeks 8) <ul style="list-style-type: none"> <li>o Free weight against gravity</li> <li>o Resistance band exercise</li> </ul> </li> <li>• Resisted wrist exercises (week 8)</li> <li>• Postural control and global shoulder resistance exercises <ul style="list-style-type: none"> <li>o Activities focused on thoracic extension and scapular retraction</li> <li>o Rotator cuff strengthening</li> </ul> </li> <li>• Cardiovascular Fitness - bike, elliptical, treadmill</li> </ul>	<p><b>Goals of Phase:</b></p> <ol style="list-style-type: none"> <li>1. Initiate upper extremity strengthening</li> <li>2. Maintain proper scapular and shoulder mechanics and strength</li> <li>3. Gain remaining limitations in elbow or shoulder range of motion</li> </ol> <p><b>Criteria to Advance to Next Phase:</b></p> <ol style="list-style-type: none"> <li>1. Full and painless range of motion of the shoulder, elbow, wrist, and hand</li> <li>2. Proper scapulothoracic kinematics.</li> </ol>
<p><b>Phase IV</b>  <i>Advanced strengthening phase</i>  <i>Weeks 12-16</i></p> <p><i>Expected visits: 4-8+</i></p>	<p><b>Specific Instructions:</b></p> <ul style="list-style-type: none"> <li>• Increase strength</li> <li>• Avoid compensations</li> <li>• Return to sport/activity/work</li> </ul> <p><b>Suggested Treatments:</b></p> <ul style="list-style-type: none"> <li>• Isometric biceps strengthening (week 12)</li> <li>• Isotonic biceps strengthening (week 16)</li> </ul> <p><b>Exercise Examples:</b></p> <ul style="list-style-type: none"> <li>• Exercise Examples:</li> <li>• Isometrics/isotonic Biceps strengthening <ul style="list-style-type: none"> <li>o Traditional, hammer, and reverse forearm positioning</li> </ul> </li> <li>• Triceps isotonic extension <ul style="list-style-type: none"> <li>o Cable pulley elbow extension</li> <li>o Skull crusher free weight</li> <li>o Bent over triceps extension</li> </ul> </li> <li>• Rotator cuff and periscapular strengthening exercises</li> <li>• Sport specific activities</li> <li>• Closed chained UE stability activities <ul style="list-style-type: none"> <li>o Full plank, side plank, plank on elbow, push up, etc</li> </ul> </li> <li>• Cardiovascular fitness - Bike, elliptical with arm use, treadmill</li> </ul>	<p><b>Goals of Phase:</b></p> <ol style="list-style-type: none"> <li>1. Improve UE functional strength</li> </ol> <p><b>Criteria to Advance to Next Phase:</b></p> <ol style="list-style-type: none"> <li>1. Full and painless range of motion of elbow, shoulder, wrist, and hand</li> <li>2. Full biceps strength against gravity (5/5 MMT vs HHA dynamometer 10% or less discrepancy)</li> <li>3. Proper scapulothoracic mechanics</li> <li>4. Functional/return to sport testing for discharge</li> <li>5. Overhead throwing program progression if needed</li> </ol>

**REFERENCES:**

1. Logan, C., Shahien, A., Haber, D., Foster, Z., Farrington, A. and Provencher, M., Rehabilitation Following Distal Biceps Repair. International Journal of Sports Physical Therapy. 2019; 14(2):308-315.
2. Jenk, D., & Battaglia, T. Repair and rehabilitation of Distal Biceps Tendon Ruptures. Techniques in Shoulder & Elbow Surgery. 2014; 15(1), 25-27.

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