MUSC Rehabilitation Guidelines - Distal Bicep Tendon Repair

Note: Revision surgery or cases involving allograft procedures may undergo modifications to the below guideline. Additional restrictions or modifications will be listed in the last paragraph of the Operative Report and the therapy instructions.

The intent of this protocol is to provide the clinician/therapist with a guideline of the postoperative rehabilitation course for a patient that has undergone a distal biceps tendon repair. It is not intended to be a substitute for one's clinical decision making regarding the progression of a patient's post-operative course based on their physical exam/findings, individual progress, and/or the presence of post-operative complications. If a clinician/therapist has questions or concerns regarding the progression of a post-operative patient they should consult with Dr. Eichinger.

Josef K. Eichinger, MD

- <u>General Information</u>
 - Total Recovery time is between 4-6 months depending on factors such as injury severity, patient sport/activity/age and type of repair.
 - Adherence to rehab protocol guidelines and restrictions is critical in avoiding reinjury or failures.
- <u>Immobilization</u>
 - Sling should be worn for a minimum of 2 weeks.
 - Sling may be removed in controlled environments for light activity after 2 weeks.
 - Discontinue sling completely at 2 weeks.
- <u>Personal Hygiene / Showering</u>
 - Avoid getting incision/portal sites wet for 72 hours (unless in splint)
 - Ok to begin showering 72 hours after surgery (if no wound related issues).
 - Avoid baths, saunas, pools, lakes, etc. for four weeks.

Expectations for outcomes

Distal Biceps tendon repairs performed acutely (within 3 weeks of injury) generally require only a short period of sling immobilization followed by a gradual return to full, unrestricted activity. While superficial sensory nerve disturbances are common along with restricted motion, the vast majority of patients undergoing this surgery can expect a full return of painless, normal function.

The following are *general rehabilitation management concepts* to consider for a postoperative physical therapy rTSA program:

- **Joint protection:** There is still a small but higher risk of shoulder dislocation following rTSA than a conventional TSA. Patient directed motion is still key. Forced manipulation by the therapist is forbidden.
- **Biceps function & range of motion:** The biceps is a flexor of the elbow and responsible for power supination of the forearm therefore these activity are generally performed passively while the opposite motions of extension and pronation are performed actively in the early rehabilitation process. Range of motion expectation is set on a case-by-case basis depending upon underlying

pathology.

• **Method of Repair:** A variety of methods have been used for distal biceps repair. Dr. Eichinger will typically use a single incision, transverse volar forearm repair. Occasionally a more proximal transverse incision in the distal brachium is required to retrieve retracted tendons or graft chronically torn or shortened tendon. Fixation consists of a titanium button with suture augmented with a headless interference screw.

Post-operative rehabilitation- Acute, uncomplicated repair with advanced recovery protocol

Immobilization/Range of Motion

- Simple sling, elbow immobilization at 90° for 10-14 days with forearm in neutral (Unless otherwise indicated by surgeon)
- Weeks 2-3:
 - Passive ROM for elbow flexion and supination (with elbow at 90°)
 - Assisted ROM for elbow extension and pronation (with elbow at 90°)
 - Shoulder ROM as needed based on evaluation, avoiding excessive extension.
- Weeks 3-4:
 - Initiate active-assisted ROM elbow flexion
 - Continue assisted extension and progress to passive extension ROM
 - Week 4: May begin combined/composite motions (i.e. extension with pronation).
- If at 8 weeks post-op the patient has significant ROM deficits therapist may consider more aggressive management, after consultation with referring surgeon, to regain ROM.

Strengthening Program

- Week 1: Sub-maximal pain free isometrics for triceps and shoulder musculature. Week 2 Sub-maximal pain free biceps isometrics with forearm in neutral.
- Week 3-4: Single plane active ROM elbow flexion, extension, supination, and pronation.
- Week 8: Progressive resisted exercise program is initiated for elbow flexion, extension, supination, and pronation. Progress shoulder strengthening program
- Weeks 12-14: May initiate light upper extremity weight training. o Non-athletes initiate endurance program that simulates desired work activities/requirements.
- Weeks 16-20: Return to unrestricted activity/sports activities.

Post-operative rehabilitation- Delayed repair or chronic reconstruction with allograft tendon

• Immobilization/Range of Motion

- Revision surgery or delayed repair performed under tension may be placed in a formal splint at 90 degree of elbow flexion for 10-14 days.
- Elbow placed in a hinged ROM brace at 10-14 days postoperative.
- Brace set unlocked at between 45°-90 degrees to full flexion.
- Hinged Brace Range of Motion Progression (ROM progression may be adjusted base on Surgeon's assessment of the surgical repair.):
 - Week 2: 45° to full elbow flexion
 - Week 3: 45° to full elbow flexion
 - Week 4: 30° to full elbow flexion
 - Week 5: 20° to full elbow flexion
 - \circ $\;$ Week 6: 10° to full elbow flexion
 - Week 8: Full ROM of elbow; discontinue brace if adequate motor control Range of Motion Exercises (to above brace specifications)
- Weeks 2-3: Passive ROM for elbow flexion and supination (with elbow at 90°) Assisted ROM for elbow extension and pronation (with elbow at 90°) Shoulder ROM as needed based on evaluation, avoiding excessive extension.
- Weeks 3-4: Initiate active-assisted ROM elbow flexion Continue assisted extension and progress to passive extension ROM
- Week 4: Active ROM elbow flexion and extension
- Weeks 6-8: May begin combined/composite motions (i.e. extension with pronation).
- If at 8 weeks post-op the patient has significant ROM deficits therapist may consider more aggressive management, after consultation with referring surgeon, to regain ROM.

• Strengthening Program

- Week 1: Sub-maximal pain free isometrics for triceps and shoulder musculature. Week 2 Sub-maximal pain free biceps isometrics with forearm in neutral.
- Week 3-4: Single plane active ROM elbow flexion, extension, supination, and pronation.
- Week 8: Progressive resisted exercise program is initiated for elbow flexion, extension, supination, and pronation. Progress shoulder strengthening program
- Weeks 12-14: May initiate light upper extremity weight training. o Non-athletes initiate endurance program that simulates desired work activities/requirements.

