ORTHOPEDICS & SPORTS MEDICINE
BAYCARE CLINIC®

Dr. Klika & Dr. Kirkpatrick
Distal Bicep Repair

Phase 1 – Early Protection of Repair 0-4 Weeks

Goals for phase 1

- Protect weakened tendon
- Minimize pain and edema
- Educate patient in home program, importance of wearing splint at all times and avoiding use of involved arm

Other considerations:

- Address associated nerve symptoms as appropriate and educate patient
- **All bicep repairs are different in terms of integrity of repair and length of the tendon so some patients may need to move more slowly through protocol. Always check MD orders and progress notes for deviations in the protocol.**

Orthosis

- Patient fitted with a hinged elbow brace locked at 90 degrees, forearm in neutral
- If patient unable to be fitted with a hinged orthosis, a custom elbow gutter with elbow at 90 degrees and forearm neutral may be fabricated.
- If the patient has wrist drop form a concurrent nerve injury, the patient should be fitted with a WHO with the hinged elbow brace or a long arm orthosis with forearm and wrist in neutral.

Edema Management

- Light compressive dressing or sleeve may be applied to elbow, forearm, and wrist
- Manual Edema Mobilization (MEM) as needed

Scar Management

- Scar mobilization may be initiated two days following suture removal if incision is well-healed with no open areas and no drainage, 3-4x/day as appropriate
- Apply scar remodeling products as needed

ROM

Week 2:

- Passive elbow flexion 30 to 130 degrees, active elbow extension to -30 degrees
- Passive supination and active pronation, pain-free range, elbow flexed at 90 degrees

Week 3:

- Full passive elbow flexion and active elbow extension to -20 degrees
- Full passive supination and full active pronation with elbow flexed at 90 degrees

Weeks 2-3 HEP:

- Single-plane AROM, no composite ROM
- A/PROM wrist and digits as needed to promote motion
- Scapular retraction and shoulder AROM within splint/brace, avoid excessive shoulder extension
- A/PROM within above limitations performed 25x each, 5-6x/day

Phase 2 –AROM/Early Strengthening 4 - 7 weeks

Goals for phase 2

- Continue pain and edema control
- Continue scar management
- Restore full AROM
- Initiate gentle pain-free isometric strengthening

Orthosis

- Week 4: Set hinged elbow brace to -30 degrees extension to 120 degrees of flexion
- Week 5: Set hinged elbow brace to -20 degrees extension to full unrestricted elbow flexion
- Week 6: Set hinged elbow brace to allow full unrestricted elbow flexion and extension

ROM

Week 4:

- Full active and passive elbow flexion, active elbow extension to -10 degrees
- Pain-free active and passive forearm supination and pronation
- Light grip strengthening with putty

Week 5:

- Full active and passive elbow flexion, full active elbow extension allowed to comfortable end-range
- If no pain at surgical site, sub-max isometric elbow extension for light triceps strengthening

Week 6:

- Full active elbow flexion and extension; initiate gentle pain-free passive elbow extension to full range
- Sub-max elbow flexion/extension and forearm pronation/supination isometrics
- Scapular strengthening isometrics

Weeks 4-6 HEP:

- Continue A/PROM to uninvolved joints as needed
- Shoulder AROM, avoid shoulder excessive extension
- Above home exercise program to be performed outside of splint 5-6x/day for 25x, as tolerated
- Begin with isolated single joint exercises and gradually progress to composite (i.e. elbow extension with pronation) exercises at week 6, pain-free

Manual Therapy

- Continue phase 1 scar and edema management

Modalities

- Fluidotherapy for heat, ROM, and desensitization
- Paraffin may be used for deep heat prior to ROM
- Ultrasound for scar management

Phase 3 –Strengthening and Return to Full Function, 7+ weeks

Goals for phase 3

- Restore full active and passive ROM
- Gradually discontinue splint and return to functional activity

Orthosis

- Wean from hinged elbow brace and completely discontinue by end of week 7
- At 8 weeks, if elbow extension limitations remain, consider a static progressive elbow extension splint

ROM

- Continue to progress composite elbow, forearm, and wrist ROM

Manual Therapy

- Continue scar and edema management as needed
- Joint mobilizations as needed for pain-relief and to restore full ROM

Modalities

- Ultrasound may be added to enhance tissue elasticity and scar management

Strengthening

7-12 weeks:

- Initiate strengthening, beginning with isometrics and progressing to isotonic exercises for elbow, forearm and wrist starting with 1 pound weight. Initially, emphasize low weight and high repetitions to increase endurance.
- Program is advanced to isotonic concentric exercises (7-12 weeks), using free weights, elastic bands and PNF diagonal patterns, and eventually eccentric muscle contractions
- Strengthening intensity is reduced if pain at the surgical site develops

12+ weeks:

- Graded weight bearing, continued graded isotonic strengthening, as tolerated. Work conditioning may start 10+ weeks with physicians' consent.

Functional Activity

Week 6+-8:

- Gradually return to all activities of daily living emphasizing pain-free use of the involved arm, lifting restrictions applied.

Weeks 8-12:

- Gradually return to home management and work activities including functional lifting with MD consent

Weeks 12+:

- Full functional use of involved arm

References

Blackmore, S. M., Jander, R. M., & Culp, R. W. (2006). Management of distal biceps and triceps ruptures. *Journal of hand therapy,* 19, 154-169.

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Oh, L. S. (n.d.). *Rehabilitation program for distal biceps repair*. Retried from: https://www.massgeneral.org/ortho-sports-medicine/conditions-treatments/pdfs/Distal%20Biceps%20Repair%20Protocol.pdf

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This protocol was reviewed and updated by Brian Klika, MD, Lacey Jandrin, PA, Andrew Kirkpatrick, MD, Tiffany Terp, PA, and the Hand Therapy Committee 8/9/2021.