ELBOW DISTAL BICEPS REPAIR POST-OPERATIVE GUIDELINES

The following Distal Biceps Repair Guidelines were developed by HSS Rehabilitation. They can be used for patients undergoing a distal biceps repair as a single procedure. If the patient is undergoing a concomitant surgery, please refer to the clinical guidelines for those procedures while being mindful of distal biceps repair precautions. The rehabilitation program for a distal biceps repair emphasizes early protected range of motion (ROM) with immobilization to avoid overstressing the repaired tissue. Extra care should be taken to avoid over-stretching the repair site. The program should balance the aspects of tissue healing and appropriate interventions to maximize flexibility, strength, and pain-free performance of functional activities. If the patient needs to continue with upper body weightlifting exercises a slow but gradual progression should be followed. Progression is both criteria-based and patient specific. Phases and time frames are designed to give the clinician a general sense of progression but do not replace clinical judgement.

FOLLOW SURGEON MODIFICATIONS AS PRESCRIBED

ELBOW DISTAL BICEPS REPAIR POST-OPERATIVE GUIDELINES

Phase 1: Recovery (Weeks 0-2)

PRECAUTIONS

- Monitor incision for healing/drainage
- No active elbow flexion/supination
- Elbow immobilized in a posterior elbow orthosis or hinged brace at 90º with forearm in neutral
- No lifting with operative extremity
- Avoid painful activities

ASSESSMENT

- Quick Disabilities of Arm, Shoulder & Hand (Quick DASH)
- Numeric Pain Rating Scale (NPRS)
- Posture assessment
- Static scapular assessment (Kibler Grading)
- Edema/girth measurements
- Palpation
- Cervical mobility
- Shoulder passive range of motion (PROM)
- Elbow PROM within restrictions
- Wrist and fingers active range of motion (AROM)

TREATMENT RECOMMENDATIONS

- Patient education
    - Compliance with hinged elbow brace
- Postural awareness
- ROM of shoulder
- PROM elbow from 90º to full elbow flexion
- AROM Wrist and hand
    - No active forearm supination
- Scapular protraction, retraction, depression

CRITERIA FOR ADVANCEMENT

- Decreasing discomfort at rest

EMPHASIZE

- Protection of repair
- Independence with hinged elbow brace (don/doff/unlock)
- Edema management

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Phase 2: Weeks 2-6

PRECAUTIONS

- No painful activities
- Hinged elbow brace 6-8 weeks (as per surgeon)
- No active elbow flexion and supination
- No resisted elbow flexion/supination
- Progress 10 degrees elbow extension each week
- Do not force extension ROM

ASSESSMENT

- Quick DASH
- NPRS
- Edema/girth measurements
- Palpation
- Cervical mobility
- Thoracic mobility
- Static/dynamic scapular assessment (Kibler grading)
- Elbow PROM within restrictions

TREATMENT RECOMMENDATIONS

- Patient education
    - Compliance with elbow brace
- Hinged elbow brace set at 45º to full flexion
- Progress elbow extension ROM 10 degrees each week (Or per surgeon guidelines)
- Scar mobilization once incision has healed
- Passive supination (with elbow at 90 degrees flexion)
- Active assisted ROM (AAROM) elbow extension and pronation (with elbow at 90 deg)
    - Do not force ROM but do assess for stiffness
- Shoulder ROM: avoiding extension beyond neutral
- Wrist and hand AROM
- Postural awareness
- Scapular protraction, retraction, depression
- Triceps isometrics
- Shoulder isometrics (abduction, IR, ER, extension)
- Scaption
- Prone row, prone extension

CRITERIA FOR ADVANCEMENT

- No pain at rest
- Full elbow PROM 10 degrees to full elbow flexion (or per surgeon)

EMPHASIZE

- Edema management
- Protection of repair
- Independence with hinged elbow brace
- Monitor elbow extension progression

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Phase 3: Weeks 6-12

PRECAUTIONS

- Hinged elbow brace should be discharged by 6 to 8 weeks if adequate motor control (per surgeon preference)
- No painful activities
- Avoid resisted combined elbow flexion and supination

ASSESSMENT

- Quick DASH
- NPRS
- Swelling/girth measurements
- Palpation
- Cervical mobility
- Thoracic mobility
- Static/dynamic scapular assessment (Kibler grading)
- Shoulder ROM
- Elbow PROM within restrictions

TREATMENT RECOMMENDATIONS

- Patient education
    - Compliance with hinged elbow brace
- Postural awareness
- Scar mobilization once incision has healed
- Restore full shoulder mobility
- Full elbow ROM of by week 8
- Wrist and hand progressive resisted exercises (PRE)
- Wall slides
- Scapular protraction, retraction, depression
    - Week 8: Begin isotonic PRE
- Shoulder isotonics
- Triceps isometrics
    - Begin isotonic PRE at week 8
- Week 6: Initiate active elbow flexion and forearm supination within available ROM
    - Avoid painful movement

- Week 10: PRE for elbow flexion and pronation/supination
    - Begin with 1lb and gradually progress strengthening program
- Weeks 10-12: initiate upper body ergometer

CRITERIA FOR ADVANCEMENT

- No increased pain or swelling after activity
- Full upper extremity ROM

EMPHASIZE

- Full elbow ROM
- Independence with home exercise program

MODIFICATIONS TO PHASE 3

- If at 8 weeks post-operation the patient has significant ROM deficits, therapy focus should continue to address elbow stiffness to regain full ROM.

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Phase 4: Weeks 12-20

PRECAUTIONS

- Avoid pain with therapeutic exercises and functional activities
- Avoid sport activity until adequate strength and surgeon clearance

ASSESSMENT

- Quick DASH
- NPRS
- Postural assessment
- Scar and soft tissue mobility
- Static/dynamic scapular assessment (Kibler grading)
- Upper extremity ROM
- Manual muscle testing (MMT), as appropriate
- Kinetic chain assessment

TREATMENT RECOMMENDATIONS

- Continue AROM of upper extremity
- Progress scapula, shoulder, elbow, forearm, and wrist exercises
    - Week 16: may initiate light weight training (e.g., dumbbell press, chest press, fly's)
- Neuromuscular drills (e.g., rhythmic stabilization with ball on wall, wall dribbles)
- Serratus activation
    - Supine punch at 90 degrees and 110 degrees shoulder flexion
    - Dynamic hugs
- Begin closed chain exercise progression
    - 16 weeks: initiate push up progression
- 16 weeks: initiate plyometric progression (over a 4-week period)
- Modalities as needed

CRITERIA FOR ADVANCEMENT

- Pain-free at rest and during exercise
- Full shoulder and elbow ROM
- All upper extremity MMT 5/5

EMPHASIZE

- Restoration of full PROM/AROM
- Upper extremity strength
- Upper extremity endurance

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Phase 5: Weeks 20-Discharge

PRECAUTIONS

- Pain-free with all exercises/activities
- Monitor workload

ASSESSMENT

- Quick DASH
- NPRS
- Postural assessment
- Scar and soft tissue mobility
- Static/dynamic scapular assessment (Kibler grading)
- Upper extremity ROM
- Upper extremity strength with hand-held dynamometer, if available
- Kinetic chain assessment

TREATMENT RECOMMENDATIONS

- Continue with all upper and lower extremity mobility/flexibility exercises
- Continue with advanced shoulder and scapular strengthening exercises
- Continue to advance plyometric exercises
- Initiate sports specific training

CRITERIA FOR RETURN TO PARTICIPATION

- Progress through interval sports program without symptoms

EMPHASIZE

- Restoration of full strength and flexibility
- Restoration of normal neuromuscular function
- Preparation for return to sport specific activity

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References

1. Gowd AK, Liu JN, Maheshwer B, et al. Return to sport and weightlifting analysis following distal biceps tendon repair. *J Shoulder Elbow Surg*. 2021;30(9):2097-2104. doi:10.1016/j.jse.2021.01.034

2. Logan CA, Shahien A, Haber D, Foster Z, Farrington A, Provencher MT. Rehabilitation following distal biceps repair. *Int J Sports Phys Ther*. 2019;14(2):308-317.

3. Pitsilos C, Gigis I, Chitas K, Papadopoulos P, Ditsios K. Systematic review of distal biceps tendon rupture in athletes: treatment and rehabilitation. J Shoulder Elbow Surg. 2022 Aug;31(8):1763-1772. doi: 10.1016/j.jse.2022.02.027. Epub 2022 Mar 31. PMID: 35367620.

4. Sarda P, Qaddori A, Nauschutz F, et al. Distal biceps tendon rupture: current concepts. *Injury*. 2013;44(4):417-420. doi:10.1016/j.injury.2012.10.029

5. Schmidt CC, Styron JF, Lin EA, et al. Distal biceps tendon anatomic repair. *JBJS Essent Surg Tech*. 2017;7(4):e32. Published 2017 Nov 8. doi:10.2106/JBJS.ST.16.00057

6. Srinivasan RC, Pederson WC, Morrey BF. Distal biceps tendon repair and reconstruction. *J Hand Surg Am*. 2020;45(1):48-56. doi:10.1016/j.jhsa.2019.09.014

7. Thompson JW, Plastow R, Kayani B, et al. Surgical repair of distal biceps femoris avulsion injuries in professional athletes. *Orthop J Sports Med*. 2021;9(3):2325967121999643. Published 2021 Mar 26. doi:10.1177/2325967121999643

Created: 12/2021; Revised 9/2023