VCU Health

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SPORTS MEDICINE SURGEON

Postoperative Rehabilitation Protocol for **Distal Biceps Repair**

**Physical Therapy should be started after your postoperative visit 1 week after surgery*

PHASE 1: EARLY POST-OP (1-6 WEEKS AFTER SURGERY)

- Rehabilitation Goals
  - Reduce post-operative pain and edema
  - Protect surgical repair
  - Patient education of surgical precautions and expectations of progression
  - Improve elbow flexion and forearm pronation/supination PROM in hinged brace
  - Initiate elbow flexion and forearm pronation/supination active-assisted range of motion (AAROM) and active range of motion (AROM) in hinged brace
- Precautions
  - Non-weight bearing on repaired upper extremity
  - **AVOID** active elbow flexion and forearm supination until Week 4
  - **NO LIFTING** with repaired upper extremity until Week 8
- Brace Hinged Elbow Brace (set locked to allow restricted extension ROM):
  - Week 2: 90 degrees to full flexion
    - Elbow flexion/extension PROM within confines of hinged elbow brace
    - Forearm pronation/supination PROM with elbow at 90 degrees, in hinged elbow brace
    - Shoulder AROM as tolerated, avoiding hyper-extension
    - Wrist and hand AROM
  - Week 3: 45 degrees to full flexion
    - Elbow flexion/extension PROM within confines of hinged brace
    - Forearm pronation/supination PROM with elbow at 90 degrees flexion in hinged elbow brace
  - Week 4: 30 degrees to full flexion
    - Elbow flexion/extension AROM in gravity-eliminated plane in hinged elbow brace
    - Forearm pronation/supination AROM with elbow at 90 degrees flexion and forearm supported
  - Week 5: 20 degrees to full flexion
    - Elbow flexion AROM in gravity-eliminated plane in hinged elbow brace, progressing to against gravity in hinged elbow brace, with removal of brace for AROM if full and painless against gravity
    - Forearm pronation/supination AROM with elbow at 90 degrees flexion without support
  - Week 6: Full extension to full flexion.
- Criteria to Progress
  - Adequate maintenance of post-operative pain and edema control
  - Full elbow flexion AROM and forearm pronation/supination AROM against gravity, without brace, and without increased pain or swelling

PHASE 2: LATE POST-OP (7-10 WEEKS AFTER SURGERY)

- Rehabilitation Goals
    - Protect surgical repair
    - Prevent muscle inhibition
    - Improve cardiovascular endurance
    - Maintain scapulothoracic endurance
- Precautions
    - **May discontinue elbow brace**
    - Non-weight bearing (no lifting) with repaired upper extremity until Week 8
    - Begin gradual weight bearing with elbow flexed at Week 8, progress to extended elbow by Week 10
- Range of Motion:
    - Begin combined/composite motions (i.e. extension with pronation). If significant ROM deficits present at week 8, discuss progression to more aggressive PROM with referring orthopedic surgeon
- Weight-Bearing Progression:
    - Wall push ups
    - Push-ups on elevated table
    - Modified forearm plank (elbows bent)
    - Quadruped progression with elbows extended
    - At Week 10, initiate submaximal isometrics of elbow flexors, extensors, supinators, and pronators at Week 10.
- Scapulothoracic Strength/Endurance:
    - Prone scapular slides with shoulder extension to neutral
    - Serratus wall slides
    - Seated scapular retraction
    - Wall scapular protraction/retraction with elbows extended at Week 10
- Conditioning:
    - Treadmill walking and running
    - Stationary bike (gradually progress weight bearing on involved upper extremity over Weeks 7-10 beginning with elbow flexed and progressing to elbow extended
- Criteria to Progress
    - Full, pain-free ROM of shoulder, elbow, wrist, and hand
    - Proper scapulothoracic mechanics
    - Full A/PROM to repaired elbow and forearm with normal grip strength

PHASE 3: TRANSITIONAL (11-15 WEEKS AFTER SURGERY)

- Rehabilitation Goals
    - Increase functional strength of operated upper extremity
- Range of Motion:
    - Continue with combined/composite range of motion, focusing on proper mechanics of shoulder, elbow, wrist, and hand
- Strengthening:
    - Progress from submaximal isometrics to submaximal isotonics:
        - Resisted bicep curl (pronated, neutral, and supinated grip)
        - Resisted pronation and supination
        - Resisted triceps extension
    - Progress shoulder strengthening program with light upper extremity weight training:

        - Standing resisted shoulder elevation
        - Standing shoulder PNF diagonals
        - Resisted Prone I, Prone Y, Prone T
        - Rows
        - Resisted shoulder ER, Resisted shoulder IR
        - Supine shoulder protraction
        - Wall push ups
        - Quadruped stability progression
- Criteria to Progress
    - Full, pain-free ROM of shoulder, elbow, wrist, and hand
    - Proper scapulothoracic mechanics

PHASE V: EARLY RETURN TO SPORT (4-6 MONTHS AFTER SURGERY)

- Rehabilitation Goals
    - Increase strength and endurance of repaired upper extremity
- Advanced Strengthening:
    - Continue Phase IV exercises
    - Rhythmic stabilizations
    - High plank stability progression
    - Bilateral upper extremity plyometrics after Week 16 (based on control and response)
    - Single arm plyometrics after Week 20-22 (based on control and response)
- Criteria to Progress
    - Full, pain-free A/ROM of shoulder, elbow, wrist, and hand
    - Proper scapulothoracic mechanics
    - Pain-free performance of HEP

PHASE VI: UNRESTRICTED RETURN TO SPORT (6+ MONTHS AFTER SURGERY)

- Rehabilitation Goals
    - Increase strength of operated upper extremity
    - Return to sport
- Additional Interventions
    - Focus on progression of sport-specific movements
    - Graded participation in practice, with full, pain-free practice prior to participation in competition
- Criteria to Discharge
    - Full, painless elbow/wrist ROM
    - Shoulder total ROM within 5° of non-throwing shoulder
    - > 40° horizontal adduction of throwing shoulder
    - < 15° Glenohumeral IR deficit.
    - Elbow, shoulder and wrist strength with MMT, HHD or isokinetic:
        - ER/IR ratio: 72-76%
        - ER/ABD ratio: 68-73%Throwing shoulder IR: > 115% of non-throwing shoulder
        - Throwing shoulder ER: > 95% of non-throwing shoulder
        - Elbow flexion/extension: 100-115% of non-throwing shoulder
        - Wrist flexion/extension: 100-115% of non-throwing shoulder
    - Functional test Scores:
        - Prone Drop ball test – 110% of non-throwing side
        - 1-arm balls against wall @ 90/90:
            - 2lb ball

        - 30 seconds with no pain
        - 115% of throwing side
    - Single arm step down test:
        - 8-inch
        - 30 seconds
- Physician Clearance
- Independent with HEP