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Rehabilitation Protocol
Elbow UCL Repair

Phase I: Protect Repair *(0-2 weeks)*

- Splint and postop dressing remains in place for the first 2 weeks.
- Incision will be inspected by the surgeon at 2 weeks.
- Gentle hand/wrist/shoulder ROM
- Scapular stabilizing exercises
- Gentle rotator cuff strengthening

Phase II: Protected ROM *(2-4 weeks)*

- Hinged Elbow Brace (HEB) applied at 2-week follow-up visit
- HEB locked at 90 when upright
- Brace unlocked for ROM exercises
    - Week 2: 30^{o} to 90^{o}
    - Week 3: 20^{o} to 100^{o}
    - Week 4: 10^{o} to 110^{o}
    - Full A/PROM pronation
    - Full AROM supination, no supination stretching
- Therapeutic Exercises
    - Gripping exercises
    - Hand/Wrist/Shoulder ROM
    - Shoulder isometrics (No shoulder IR- stress on medial elbow)
    - Biceps isometrics
    - Elbow extension isometrics
    - Scar Tissue Mobilization and edema control
    - Begin work on kinetic chain coordination and strength (trunk/hip/core)

Phase III: Full PROM *(5-6 weeks)*

- HEB unlocked full ROM
- Advance ROM:
    - Progress to full PROM
    - Maintain full ROM pronation/supination
    - Progress to AROM supination

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- Therapeutic Exercises
    - Begin light resistance (1 lb)
        - Wrist curls, extension, pronation, supination
        - Elbow flexion/extension
    - Progress shoulder program
        - Emphasis on cuff strengthening
        - No IR against resistance
    - Initiate shoulder strengthening with light dumbbells
    - Initiate Thrower's Ten Program when full ROM achieved
    - Continue kinetic chain modalities

Phase IV: Full A/PROM *(7-8 weeks)*

- Discontinue hinged elbow brace
- Start AAROM and progress to full AROM elbow
- Therapeutic Exercises
    - Progress elbow strengthening exercises
    - Initiate shoulder IR strengthening
    - Progress shoulder program
    - Initiate diagonal patterns
    - Initiate plyometric program (2-hand then 1-hand)
    - Advance Thrower's Ten Program

Phase V: Maintain Full ROM *(9-12 weeks)*

- Maintain Full ROM
- Advance shoulder, elbow, wrist strength and endurance
- Therapeutic Exercises
    - Advance shoulder, elbow, wrist strengthening as tolerated
    - Scapular stabilization and endurance
    - Begin machine-based resistance (seated chest-press, seated row, biceps/triceps
    - Begin interval hitting program week 10

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Phase VI: Regain Function *(13+ weeks)*

- Continue Full A/PROM
- Begin and advance throwing program
- Begin swimming at 13 weeks
- Return to golf (13 weeks if lead arm, 16 weeks if trailing arm)
- Therapeutic Exercises
    - Progress to heavier load lifting as tolerated per functional goals/needs
    - Continue focus on kinetic chain optimization
    - Continue Thrower's Ten Program
    - Initiate interval throwing program

Return to Sport Notes:

- Average return time to hitting: 4 months
- Average return to pitching: 5-7 months

Return to Throwing:

- Suggested warm up of 1 set of exercises (including Thrower's Ten and neuromuscular control drills) prior to throwing.
- Criteria to begin a long toss program.
    - Full nonpainful ROM (within 5° of nonthrowing shoulder, shoulder horizontal adduction of 40° or greater, elbow and wrist ROM WNL)
    - Strength (MMT, handheld dynamometer or iso): ER/ IR of 72%-76%, ER abduction ratio 68% to 73%, Throwing shoulder compared to nonthrowing- IR greater than 115%, ER greater than 95%, elbow flexion/ extension 100%115%, wrist strength 100%-115%
    - Clinical exam: no pain, tenderness, or effusion. Negative laxity (prone valgus stress and milking maneuver, negative shoulder & elbow special tests
    - Functional tests:
        - Prone ball drop- 110% (Position-prone, shoulder abducted to 90°, elbow extended, palm facing floor. Athlete instructed to quickly release & catch a 2lb plyometric ball as many times as they can in 30 seconds. Scoring- record total successful catches per arm. Goal to have 110% of the catches in throwing arm compared to nonthrowing. Example if nonthrowing arm is 20, goal for throwing arm is 22)
        - One-arm ball throws against wall with 2lb plyoball for 30 seconds without pain and ability to maintain in 90°/90° position

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    - Throws into Plyoback rebounder with 1lb plyometric ball for 30 seconds without pain
    - Single leg step downs for 30 seconds with good pelvic and lower extremity control that is symmetrical between limbs
    - Prone plank for time- Goal time of 90 seconds or greater
- Interval throwing gradually increased from 45 ft to 60 ft and then by 30 ft up to 180 ft
- Program indicates throwing at each stage for 2-3 separate practices without pain or symptoms before progressing to the next stage. (13 stage for non-pitchers, 15 stages for pitchers) For details, see Reinold 2002. • Return to sport is typically between 5-7 months post-surgery and is decided upon by ability to complete return to throwing tests, the rehabilitation team's opinion, and the physician's opinion.