



## TJ Ridley, MD

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### Elbow UCL Repair Rehabilitation Protocol

Phase/ Goals	Immobilization	ROM	Therapeutic Exercises
<b>Phase 1 (0-1 weeks)</b> Goals: <ul style="list-style-type: none"> <li>• Pain and edema control</li> <li>• Protect repair and healing tissues</li> </ul>	<ul style="list-style-type: none"> <li>• Brace locked at 90°</li> </ul>	<ul style="list-style-type: none"> <li>• None for first week</li> <li>• Cryotherapy elbow and wrist</li> </ul>	<ul style="list-style-type: none"> <li>• Gentle hand/wrist/shoulder ROM</li> <li>• Scapular stabilizing exercises</li> <li>• Gentle rotator cuff strengthening</li> </ul>
<b>Phase 2 (2-4 weeks)</b> Goals: <ul style="list-style-type: none"> <li>• Decrease pain/inflammation</li> <li>• Protect healing tissue</li> <li>• Maintain shoulder/scapular ROM and strength</li> </ul>	<ul style="list-style-type: none"> <li>• Hinged elbow brace locked at 90 when upright</li> </ul>	<ul style="list-style-type: none"> <li>• Brace unlocked for ROM exercises               <ul style="list-style-type: none"> <li>○ Week 2: 30° to 90°</li> <li>○ Week 3: 20° to 100°</li> </ul> </li> <li>• Week 4: 10° to 110°</li> <li>• Full A/PROM pronation</li> <li>• Full AROM supination, no supination stretching</li> </ul>	<ul style="list-style-type: none"> <li>• Gripping exercises</li> <li>• Hand/Wrist/Shoulder ROM</li> <li>• Shoulder isometrics (No shoulder IR-stress on medial elbow)</li> <li>• Biceps isometrics</li> <li>• Elbow extension isometrics</li> <li>• Scar Tissue Mobilization and edema control</li> <li>• Begin work on kinetic chain coordination and strength (trunk/hip/core)</li> </ul>
<b>Phase 3 (5-6 weeks)</b> Goals: <ul style="list-style-type: none"> <li>• Achieve full PROM</li> </ul>	<ul style="list-style-type: none"> <li>• Hinged elbow brace unlocked full ROM</li> </ul>	<ul style="list-style-type: none"> <li>• Progress to full PROM</li> <li>• Maintain full ROM pronation/supination</li> <li>• Progress to AROM supination</li> </ul>	<ul style="list-style-type: none"> <li>• Begin light resistance (1 lb)               <ul style="list-style-type: none"> <li>○ Wrist curls, extension, pronation, supination</li> <li>○ Elbow flexion/extension</li> </ul> </li> <li>• Progress shoulder program               <ul style="list-style-type: none"> <li>○ Emphasis on cuff strengthening</li> <li>○ No IR against resistance</li> </ul> </li> <li>• Initiate shoulder strengthening with light dumbbells</li> <li>• Initiate Thrower's Ten Program when full ROM achieved</li> <li>• Continue kinetic chain modalities</li> </ul>
<b>Phase 4 (7-8 weeks)</b> Goals: <ul style="list-style-type: none"> <li>• Full A/PROM</li> </ul>	<ul style="list-style-type: none"> <li>• D/C brace</li> </ul>	<ul style="list-style-type: none"> <li>• Start AAROM and progress to full AROM elbow</li> </ul>	<ul style="list-style-type: none"> <li>• Progress elbow strengthening exercises</li> <li>• Initiate shoulder IR strengthening</li> <li>• Progress shoulder program</li> </ul>

			<ul style="list-style-type: none"> <li>• Initiate diagonal patterns</li> <li>• Initiate plyometric program (2-hand then 1-hand)</li> <li>• Advance Thrower's Ten Program</li> </ul>
<b>Phase 5 (9-12 weeks)</b> Goals <ul style="list-style-type: none"> <li>• Maintain Full ROM</li> <li>• Advance shoulder, elbow, wrist strength and endurance</li> </ul>	<ul style="list-style-type: none"> <li>• N/A</li> </ul>	<ul style="list-style-type: none"> <li>• Continue full A/PROM</li> <li>• Contact Dr. Ridley if full ROM not achieved</li> </ul>	<ul style="list-style-type: none"> <li>• Advance shoulder, elbow, wrist strengthening as tolerated</li> <li>• Scapular stabilization and endurance</li> <li>• Begin machine-based resistance (seated chest-press, seated row, biceps/triceps)</li> <li>• Begin interval hitting program week 10</li> </ul>
<b>Phase 6 (13+ weeks)</b> Goals <ul style="list-style-type: none"> <li>• Begin and advance throwing program</li> <li>• Begin swimming at 13 weeks</li> <li>• Return to golf (13 weeks if lead arm, 16 weeks if trailing arm)</li> </ul>	<ul style="list-style-type: none"> <li>• N/A</li> </ul>	<ul style="list-style-type: none"> <li>• Continue full A/PROM</li> </ul>	<ul style="list-style-type: none"> <li>• Progress to heavier load lifting as tolerated per functional goals/needs</li> <li>• Continue focus on kinetic chain optimization</li> <li>• Continue Thrower's Ten Program</li> <li>• Initiate interval throwing program</li> </ul>

### 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
- 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.

**Appendix:** *see next page*

### Thrower's Ten

1. Diagonal-pattern D2 Extension & Flexion
2. Shoulder external rotation & internal rotation at 0° of abduction
3. Shoulder scapular abduction, external rotation (full can)
4. Sidelying shoulder external rotation
5. Prone shoulder horizontal abduction
6. Prone shoulder horizontal abduction (full ER 100° abduction)
7. Prone Rowing
8. Prone rowing into external rotation
9. Press-ups
10. Push-ups
11. Elbow Flexion & Extension
12. Wrist: extension, flexion, supination, pronation

### Advanced Thrower's Ten

#### Band Resisted

1. Shoulder ER/ IR at 0° abduction while seated on a stability ball\*
2. Shoulder extensions while seated on a stability ball ~
3. Lower trapezius isolation while seated on a stability ball ~
4. High row into shoulder external rotation while seated on a stability ball ~
5. Biceps curls/triceps extensions while seated on a stability ball ~

#### Dumbbell Resisted

6. Full can while seated on a stability ball ~
7. Lateral raise to 90° while seated on a stability ball~
8. Prone T's on stability ball ~
9. Prone Y's on stability ball ~
10. Prone row into external rotation on stability ball ~
11. Side lying shoulder external rotation
12. Wrist flexion/ extension and supination/pronation

#### Key

\* Contralateral sustained hold during exercise

~ Exercise performed in 3 continuous patterns per set: 1) bilateral active for 10-15 reps, 2) alternating reciprocal 10-15 reps, 3) sustained contralateral hold for 10-15 reps (30- 45 total reps per set divided over 3 movement patterns is equal to one set. 2 cycles would be a total of 60-90 reps in volume per exercise)

Goal is to perform 2 cycles of entire program without pain