UCL Reconstruction — Rehabilitation Protocol

Overview

- Applies to: medial UCL reconstruction (Tommy John surgery) for medial elbow instability
- Particularly common in overhead throwing athletes (baseball, cricket, javelin)
- Sling for comfort only — not a brace or rigid splint; discarded as tolerated
- Early range of motion commences from Day 10; return to pitching/throwing minimum 12 months

Rehabilitation Phases

Phase 1 — Early Motion	Weeks 0–3
Goals: • Initiate early elbow ROM safely • Control pain and swelling • Maintain wrist/hand function	**Exercises & Interventions:** • Sling for comfort only — wean as tolerated from Day 10 • Supine overhead gravity-assisted elbow flexion/extension from Day 10 (shoulder flexed to 90°, gravity neutralises valgus stress) • Wrist and finger AROM immediately • Grip strengthening (putty) from Day 10 • Submaximal wrist flexion/extension isometrics • Cryotherapy 20 min 4–5×/day • Shoulder maintenance (AROM, scapular exercises)
Precautions: ■ No valgus stress on elbow ■ No medial elbow stretching ■ Avoid upright elbow ROM in early phase — supine overhead position preferred	

Phase 2 — Progressive Motion	Weeks 3–8
Goals: • Full elbow ROM by Week 8: 0–145° • Forearm rotation ROM • Wrist and grip strength baseline	**Exercises & Interventions:** • Continue supine overhead gravity-assisted flexion/extension — progress range • Active-assisted upright elbow ROM as tolerated • Forearm pronation/supination AROM • Wrist curls/reverse curls (light) • Elbow flexion/extension isotonics (submaximal) • Proprioception drills • Aquatic therapy from Week 6
Precautions: ■ No valgus stress or resisted pronation ■ No throwing simulation	

Rehabilitation Phases (continued)

Phase 3 — Strengthening	Weeks 8–16
Goals: • Full elbow/forearm strength • Progressive wrist/grip/shoulder strengthening • Neuromuscular control and endurance	**Exercises & Interventions:** • Progressive isotonic elbow flexion/extension • Resisted forearm pronation/supination • Wrist flexion/extension (progressive loading) • Closed kinetic chain (weight-bearing exercises) • Shoulder and rotator cuff strengthening • Core stability integration • Progressive grip training (dynamometer, resistance bands)
Precautions: ■ No valgus-loading exercises (e.g. push-ups with hands apart) ■ Medial elbow pain = stop and review	

Phase 4 — Pre-throwing Preparation	Weeks 16–26
Goals: • Sport-specific conditioning • Throwing mechanics preparation • Upper extremity plyometrics	**Exercises & Interventions:** • Plyometric ball drills (wall tosses, chest passes) • Shoulder external rotation strength/endurance • Wrist snap and forearm mechanics drills • Light tossing program begins (Week 20–22): 15m flat ground • Gradual distance and velocity increase • Video motion analysis (if available) • Interval throwing program initiation
Precautions: ■ Full return to competitive pitching: minimum 12 months (outside this protocol) ■ No breaking balls before 9 months ■ Monitor medial elbow pain throughout	

Clinical Notes

- Supine overhead ROM is biomechanically superior to upright or braced ROM — gravity reduces valgus distraction at the medial elbow
- Ulnar nerve: monitor for persistent numbness/tingling medial ring and little finger
- Concomitant ulnar nerve transposition — no additional protocol modification required
- Valgus extension overload: concurrent posteromedial impingement may require extended recovery

References

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2. Cain EL et al. Elbow injuries in throwing athletes: a current concepts review. Am J Sports Med. 2003;31(4):621-635.
3. Savoie FH et al. Medial ulnar collateral ligament reconstruction using the docking technique. Arthroscopy. 2008;24(8):924-932.
4. Hackl M et al. The influence of gravity on the unstable elbow. J Shoulder Elbow Surg. 2015;24(3):516-522.
5. Iordens GI et al. Supine gravity-assisted overhead motion protocol minimises ulnohumeral distraction in unstable elbows. Cureus. 2015.
6. Makhni EC et al. Rehabilitation after ulnar collateral ligament reconstruction. Sports Med Arthrosc Rev. 2014;22(3):178-184.
7. Marshall NE et al. Efficacy of UCL repair versus reconstruction. Am J Sports Med. 2017;45(5):1020-1026.

This rehabilitation protocol is intended as a general guide for qualified physiotherapists and healthcare professionals. It should be adapted to individual patient presentation, surgical findings, tissue quality, and progress. All progression decisions should be made in consultation with the treating surgeon.