CQ HAND + UPPER LIMB
SPECIALIST ORTHOPAEDIC SURGEON

EVIDENCE SUMMARY

Lateral Epicondylitis (Tennis Elbow)

Lateral Epicondylitis (Tennis Elbow) — Non-operative & Post-operative Rehabilitation

Topic scope: (A) the natural history and stepped non-operative management of lateral epicondylitis (relative rest → progressive tendon loading: isometric → eccentric–concentric; counterforce bracing; controversies around corticosteroid and PRP injection), and (B) post-operative rehabilitation after **open or arthroscopic ECRB debridement ± release**, reserved for the minority who fail ≥ 6 months of quality conservative care.

> *Defining principle: despite the "-itis" suffix, lateral epicondylitis is a degenerative tendinopathy (tendinosis) of the extensor carpi radialis brevis (ECRB) origin, not an inflammatory condition. This reframes treatment away from rest and anti-inflammatory measures and toward progressive tendon loading — settle pain with isometrics, then rebuild load tolerance with eccentric–concentric loading (the Tyler twist / FlexBar). KH's stance: load the tendon, do not immobilise it; corticosteroid injection is avoided as first line because it is better short-term but worse at 6–12 months; surgery is a last resort after ≥ 6 months of genuine conservative care.*

A. NATURAL HISTORY & NON-OPERATIVE MANAGEMENT

NATURAL HISTORY (SELF-LIMITING IN MOST)

Lateral epicondylitis is **self-limiting in the majority**: roughly **80–90% resolve within about one year** regardless of treatment, with the conservative literature ranging out to 12–18 months [Coonrad & Hooper 1973; Nirschl 1999]. This high spontaneous-resolution rate is the central methodological challenge of the field — any intervention must beat natural history, a high bar most fail to clear. The goal of therapy is therefore to **shorten the symptomatic course and restore load tolerance**, not to "cure" a condition that largely settles on its own.

CQ HAND + UPPER LIMB
Dr Kieran Hirpara — Specialist Orthopaedic Surgeon
Suite 2, Level 1, Mater Private Hospital Rockhampton, 31 Ward Street, The Range, QLD 4700
Phone 07 4863 6556 · office@cqupperlimb.com.au · cqupperlimb.com.au

PHASED NON-OPERATIVE REHABILITATION

First-line for essentially all comers. The therapeutic core is progressive tendon loading guided by pain.

Phase I – Acute / pain control (~0–2 weeks). Relative rest, **NOT immobilisation** – avoid full wrist/elbow casting (Nirschl). Activity modification, joint protection, ergonomics. Optional **counterforce brace** over the common extensor mass (offloads the ECRB origin during grip) ± a wrist cock-up splint if acutely painful. Adjuncts: ice, soft-tissue/IASTM, pain-free AROM, optional dry needling, nerve glides. *Criterion to progress:* full unloaded AROM without pain; independent with home program. *Consensus / institutional protocol.*

Phase II – Sub-acute / early loading (~2–4 weeks). Begin **isometric** wrist flexor/extensor loading (minimal load; isometrics are well tolerated and analgesic in reactive tendinopathy). Progressive **stretching** of wrist flexors/extensors with the elbow at 90°. Add **proximal kinetic-chain** work (serratus anterior, mid/lower trapezius, rotator cuff, scapular stabilisers – proximal deficits drive distal overload). *Criteria to progress:* full ROM maintained; tolerates stretch at 90° elbow flexion; ~70% contralateral grip/strength. *Moderate (strengthening trials) / Consensus (timeline).*

Phase III – Late / strengthening & return (~4–6+ weeks, often to 12 weeks). Eccentric–concentric loading of wrist extension and forearm pronation/supination is the core driver; the **Tyler twist** (FlexBar eccentric wrist-extension) is the prototypical home tool. Progress stretching to the **elbow-extended** position; add mobilisation-with-movement (Mulligan). **Grip strengthening** and task-/sport-specific loading; plyometrics for athletes. Gradually **wean the counterforce brace** as the patient becomes asymptomatic. *Return-to-sport criteria:* ~90% contralateral strength, pain-free function, self-management competence. *Moderate–High (RCT/SR for exercise & loading) / Consensus (phase timings).*

B. POST-OPERATIVE REHABILITATION (open or arthroscopic ECRB debridement ± release/repair)

Surgery is reserved for the **~4–11%** who fail ≥ 6 months (commonly 6–12 months) of quality conservative care. Open Nirschl-type debridement and arthroscopic ECRB debridement give **comparable complication and reoperation rates** (national database, Arthroscopy 2022); arthroscopy additionally allows intra-articular inspection. The phased timeline below is the **Brigham & Women's Standard of Care** for lateral epicondyle debridement, cross-checked against community ECRB-release protocols.

Phase	Window	Sling / support	Motion & strengthening	Notes
1 – Protect	**Days 1–7**	Sling for comfort; optional wrist splint if painful	Pain-free hand/wrist/elbow AROM; active shoulder ROM; periscapular work	Ice 20 min 2–3×/day; elbow pad over incision; lift palm-up to offload extensors
2 – Early motion	**Weeks 2–4**	Discontinue sling	PROM + active-assisted motion within pain tolerance; sub-maximal isometrics	Begin scar management

CQ HAND + UPPER LIMB
Dr Kieran Hirpara – Specialist Orthopaedic Surgeon
Suite 2, Level 1, Mater Private Hospital Rockhampton, 31 Ward Street, The Range, QLD 4700
Phone 07 4863 6556 · office@cqupperlimb.com.au · cqupperlimb.com.au

Phase	Window	Sling / support	Motion & strengthening	Notes
3 – Strengthening	**Weeks 5–7**	Introduce counterforce brace	Advance resistive strengthening (weights/Theraband); wrist-extensor endurance (light load, high rep); restore full A/PROM	Education to avoid nerve compression; cross-fibre massage
4 – Functional / return	**Weeks 8–12**	Counterforce brace as needed	Task-specific functional training; return to work/ recreation	Functional return wk 8–12

Alternative published timelines (community ECRB-release protocols): wrist splint full-time 0–2 wk with no strengthening; full ROM goal by 4–6 wk; strengthening + transition to counterforce brace

> *6 wk; full activity ~8–10+ wk. Note: one comparative series found post-op bracing/immobilisation delayed symptom resolution versus PRP (mean time to full ROM 96 days surgery vs 42 days PRP) – reinforcing that early controlled motion, not protection, is the goal.*

C. KEY CONTROVERSIES / EVIDENCE QUALITY

1. **Corticosteroid injection: better short-term, WORSE long-term.** The Bisset/Smidt body of work (and the BMJ 2006 mobilisation-with-movement RCT) shows steroid gives early relief but **higher recurrence and worse 6–12-month outcomes** than physiotherapy or wait-and-see. Some authors now call it "always inadvisable" for lateral elbow (Orthop Trauma Surg Res 2019). Prior injection is associated with eventual surgery (a proxy for severity). *Strong (Level-1 RCT).*
2. **PRP / autologous blood: contested.** Some Level-1 RCTs (Peerbooms 2010; Gosens 2-yr) show PRP superior to corticosteroid with ongoing 2-year benefit; others (Krogh 2013) found PRP ≈ glucocorticoid ≈ **saline** (no benefit over placebo). Meta-analyses are heterogeneous. Net: a reasonable second-line for refractory cases, but evidence is inconsistent. *Conflicting (Level-1).*
3. **Eccentric vs concentric vs isometric.** Pure eccentric (Alfredson-style) is effective but not clearly superior; current view favours **eccentric–concentric** combined loading, with isometrics for early analgesia. Grip/ isometric demands of the elbow differ from the Achilles, so blanket extrapolation of eccentric-only protocols is questioned. *Moderate.*
4. **Surgical indication/timing & technique.** Reserve for failure of ≥ 6 months conservative care. Open vs arthroscopic debridement: **no significant difference** in complication or reoperation rates (national database, Arthroscopy 2022); choice is surgeon-/training-dependent. Repair after debridement vs debridement alone remains unsettled. Surgical incidence is **declining**, attributed to eccentric-exercise protocols and injections. *Moderate.*
5. **Self-limiting nature** complicates all evidence: ~80–90% resolve within a year regardless of treatment, so any intervention must beat natural history. *Strong (natural-history signal).*

CQ HAND + UPPER LIMB
Dr Kieran Hirpara — Specialist Orthopaedic Surgeon
Suite 2, Level 1, Mater Private Hospital Rockhampton, 31 Ward Street, The Range, QLD 4700
Phone 07 4863 6556 · office@cqupperlimb.com.au · cqupperlimb.com.au

D. EVIDENCE STRENGTH FLAGS (summary)

- **MODERATE–HIGH (RCT / SR):** progressive loading (eccentric / eccentric–concentric) and exercise therapy for non-operative lateral epicondylitis; mobilisation-with-movement (BMJ 2006); the natural-history signal (~80–90% resolve within ~1 year).
- **MODERATE (cohorts / database):** post-operative ECRB debridement outcomes; equivalence of open vs arthroscopic debridement (no difference in complication/reoperation rates).
- **CONSENSUS / institutional (Level-5):** the **phase timelines** themselves derive from Standard-of-Care protocols (Brigham & Women's, Mass General Brigham, Campbell's/Nirschl) — broadly concordant across sources but not trial-derived.
- **STRONG (against, Level-1):** corticosteroid injection as first-line — better short-term, worse at 6–12 months.

CITATIONS

RAG CORPUS (180,000+ ORTHOPAEDIC ARTICLES)

- Bisset L et al. Mobilisation with movement and exercise, corticosteroid injection, or wait and see for tennis elbow: randomised trial. *BMJ*. 2006. DOI: 10.1136/bmj.38961.584653.AE
- Krogh TP et al. Treatment of lateral epicondylitis with platelet-rich plasma, glucocorticoid, or saline: a randomized, double-blind, placebo-controlled trial. *Am J Sports Med*. 2013. DOI: 10.1177/0363546512472975
- Peerbooms JC et al. Positive effect of an autologous platelet concentrate in lateral epicondylitis in a double-blind randomized controlled trial. *Am J Sports Med*. 2010. DOI: 10.1177/0363546509355445
- Gosens T et al. Ongoing positive effect of platelet-rich plasma versus corticosteroid injection in lateral epicondylitis: a double-blind randomized controlled trial with 2-year follow-up. *Am J Sports Med*. 2011. DOI: 10.1177/0363546510397173
- Ortega-Castillo M, Medina-Porqueres I. Effectiveness of the eccentric exercise therapy in physically active adults with symptomatic shoulder impingement or lateral epicondylar tendinopathy: a systematic review. *J Sci Med Sport*. 2016. DOI: 10.1016/j.jsams.2015.05.010
- Nirschl RP, Ashman ES. Elbow tendinopathy: tennis elbow. *Clin Sports Med*. 2003. (Current Concepts — Tendinosis of the Elbow, *J Bone Joint Surg Am*. 1999. DOI: 10.2106/00004623-199902000-00016)
- Coonrad RW, Hooper WR. Tennis elbow: its course, natural history, conservative and surgical management. *J Bone Joint Surg Am*. 1973. DOI: 10.2106/00004623-197355060-00002
- Lattermann C et al. Arthroscopic debridement of the extensor carpi radialis brevis for recalcitrant lateral epicondylitis. *J Shoulder Elbow Surg*. 2010. DOI: 10.1016/j.jse.2010.02.008

CQ HAND + UPPER LIMB
Dr Kieran Hirpara — Specialist Orthopaedic Surgeon
Suite 2, Level 1, Mater Private Hospital Rockhampton, 31 Ward Street, The Range, QLD 4700
Phone 07 4863 6556 · office@cqupperlimb.com.au · cqupperlimb.com.au

LATERAL EPICONDYLITIS LITERATURE (URLS)

- Comparative efficacy and safety of nonsurgical treatment options for enthesopathy of the ECRB: a systematic review and meta-analysis of randomized trials. *Am J Sports Med*. 2018. https://pubmed.ncbi.nlm.nih.gov/29268037/
- Eccentric, eccentric–concentric, and eccentric–concentric + isometric training in lateral elbow tendinopathy. *J Hand Ther*. 2017. https://pubmed.ncbi.nlm.nih.gov/28732560/
- Role of strengthening during nonoperative treatment of lateral epicondyle tendinopathy. *J Hand Ther*. 2021. https://pubmed.ncbi.nlm.nih.gov/33041157/
- Chronic lateral elbow tendinopathy managed with a supervised graded exercise protocol. *J Hand Ther*. 2023. https://pubmed.ncbi.nlm.nih.gov/36127241/
- Management of lateral epicondylitis. *Orthop Traumatol Surg Res*. 2019. https://pubmed.ncbi.nlm.nih.gov/30414784/
- No difference in complication or reoperation rates between arthroscopic and open debridement for lateral epicondylitis: a national database study. *Arthroscopy*. 2022. https://pubmed.ncbi.nlm.nih.gov/34838651/
- Wang D et al. Trends in surgical practices for lateral epicondylitis among newly trained orthopaedic surgeons. *Orthop J Sports Med*. 2017. https://pubmed.ncbi.nlm.nih.gov/28840148/
- Factors associated with failure of nonoperative treatment in lateral epicondylitis. *Am J Sports Med*. 2015. https://pubmed.ncbi.nlm.nih.gov/26015443/

PUBLISHED REHAB PROTOCOLS (PATIENT-GUIDANCE — BASIS FOR THE PHASE STRUCTURE)

- Brigham & Women's Hospital — Post-Op Protocol for Lateral Epicondyle Debridement. https://www.brighamandwomens.org/assets/bwh/patients-and-families/rehabilitation-services/pdfs/elbow-lateral-epicondyle-debridement-postoperative-bwh.pdf
- Mass General Brigham Sports Medicine — Rehabilitation Protocol for Medial/Lateral Epicondylitis (non-operative), rev. April 2021. https://www.massgeneral.org/assets/MGH/pdf/orthopaedics/sports-medicine/physical-therapy/rehabilitation-protocol-for-medial-lateral-epicondylitis.pdf
- Beacon Orthopaedics — Lateral Epicondylitis ECRB Surgical Release Protocol. https://www.beaconortho.com/wp-content/uploads/Lateral-Epicondylitis-Release.pdf

CQ HAND + UPPER LIMB
Dr Kieran Hirpara — Specialist Orthopaedic Surgeon
Suite 2, Level 1, Mater Private Hospital Rockhampton, 31 Ward Street, The Range, QLD 4700
Phone 07 4863 6556 · office@cqupperlimb.com.au · cqupperlimb.com.au