

# Wrist Arthroscopy

## Wrist Arthroscopy – Procedure Outcomes & Post-operative Rehabilitation (Diagnostic / Therapeutic Keyhole Wrist Surgery)

**Topic scope:** post-operative rehabilitation after **arthroscopic wrist surgery** through small dorsal portals – covering **debridement** (central TFCC, chondral, scapholunate), **synovectomy**, **dorsal ganglion excision**, and **peripheral/foveal TFCC repair**. The defining feature of this topic is that a single operative approach (keyhole access) covers procedures with **opposite rehabilitation needs**: a clean-up creates nothing to protect and follows an early-motion pathway, whereas a repair creates a construct loaded by forearm rotation and must be protected. The rehabilitation pathway is therefore gated by *what was done*, not by the fact that arthroscopy was used.

*Defining principle of the rehab here: wrist arthroscopy is a route, not a single operation. Where tissue is only removed (debridement of an avascular central TFCC tear, synovectomy, a dorsal ganglion, a chondral or scapholunate tidy-up), nothing has been reconstructed – immobilisation is brief and for comfort, wrist motion begins within days, and return is measured in weeks. Where the vascularised peripheral or foveal TFCC is repaired, the dominant stress on the construct is forearm rotation (pronation/supination), so the forearm is protected – typically a splint or Muenster (above-elbow) cast that frees the elbow but blocks rotation – for about 4–6 weeks, after which motion and then strength are graded back over roughly three months. The single branch point a therapist must establish from the operation note is debridement-class vs repair-class, and within repair, how long rotation is to be protected. The rehabilitation evidence itself is low-level and heterogeneous – protocols rest on biology, surgeon preference and expert/therapist consensus more than on trials.*

## A. PROCEDURE OUTCOMES (debridement / synovectomy / ganglion vs TFCC repair)

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Wrist arthroscopy is both the diagnostic gold standard and the therapeutic workhorse for intra-articular ulnar-sided wrist pathology. The principal outcome split is between *clean-up* procedures and *repair*.

- **Wrist arthroscopy is a versatile, low-morbidity platform.** Through small dorsal portals it permits direct inspection and treatment of TFCC tears, chondral lesions, synovitis and ganglia, with the keyhole approach giving fast soft-tissue healing and small scars [Gupta, Bozentka, Osterman – JAAOS 2001, DOI 10.5435/00124635-200105000-00006]. *Narrative/mechanistic*.
- **Arthroscopic debridement of central (Palmer 1A) TFCC tears relieves symptoms in well-selected, focal cases.** The central disc is avascular and cannot heal if sutured, so trimming is the rational treatment; classic and long-term series report good symptom relief and durable function in suitable patients [Osterman – Arthroscopy 1990, DOI 10.1016/0749-8063(90)90012-3; Soreide et al., 19-year follow-up – HAND 2017, DOI 10.1177/1558944717708029]. *Moderate-weak (case series, long follow-up)*.
- **Debridement is unreliable for diffuse, non-focal ulnar-sided wrist pain.** Where pain is recalcitrant and not clearly localised to a focal central tear, simple arthroscopic debridement has *little useful value* on the clinical course – a caution against over-attributing diffuse ulnar wrist pain to a debridable lesion [Nishizuka et al. – Bone Joint J 2013, DOI 10.1302/0301-620x.95b12.31918]. *Moderate (prospective cohort)*.
- **Peripheral/foveal TFCC repair restores DRUJ stability and gives good outcomes when the rim is repairable.** All-arthroscopic and arthroscopic-assisted repair techniques (e.g. FasT-Fix, all-inside suture) report reliable pain relief, return of grip and high return-to-activity rates in vascularised peripheral tears, especially with DRUJ instability [Yao, Dantuluri, Osterman – Arthroscopy 2007, DOI 10.1016/j.arthro.2007.02.010; Yao – Hand Clin 2011, DOI 10.1016/j.hcl.2011.05.004]. *Moderate-weak (technique series)*.
- **Procedure choice is driven by tear location and DRUJ stability.** Central tears → debridement; peripheral/foveal tears, particularly with DRUJ instability → repair. In ulnar-positive wrists, peripheral repair may be combined with or weighed against ulnar shortening osteotomy [Papapetropoulos et al. – J Hand Surg Am 2010, DOI 10.1016/j.jhssa.2010.06.015]. *Moderate*.
- **Arthroscopic dorsal ganglion excision gives recurrence rates comparable to (or, in some series, better than) open excision, with the keyhole advantage of faster recovery and smaller scars.** Arthroscopic resection reliably removes the cyst and addresses the stalk at its capsular origin [Nishikawa et al. – J Hand Surg Br 2001, DOI 10.1054/jhsb.2001.0620; Luchetti et al. – J Hand Surg Br 2000, DOI 10.1054/jhsb.1999.0290; Konigsberg et al. – HAND 2021, DOI 10.1177/155894472111003184; Suen, Fung, Lung – ISRN Orthop 2013, DOI 10.1155/2013/940615]. *Moderate-weak (retrospective comparison + series)*.

## B. REHABILITATION / THERAPY EVIDENCE

The central rehab question is **how long, and against what, to protect the wrist** – and the answer is set entirely by the procedure. The evidence base for the *rehabilitation* (as opposed to the surgery) is **low-level and markedly heterogeneous**, with no level-1 protocol and wide variation in immobilisation and progression timings; recommendations are best regarded as biologically-rationalised, consensus-driven guides rather than trial-proven schedules.

- **Clean-up procedures follow an early-motion pathway.** After debridement, synovectomy or ganglion excision there is no construct to protect: immobilisation is a soft dressing or short splint for comfort ( $\approx 2$  weeks at most), wrist motion begins within days, and light grip strengthening is added at around 2 weeks. Return to most activity is measured in **weeks ( $\approx 2-6$ )** [How-we-treat reviews and technique series; consistent across sources]. *Weak-moderate (consensus + series).*
- **TFCC repair protects forearm rotation, not just the wrist.** Because pronation/supination is the dominant load on a peripheral/foveal repair, the forearm is immobilised – commonly a splint or **Muenster/above-elbow cast** that frees the elbow but blocks rotation – for about **4-6 weeks** (six is the most commonly reported figure), in neutral to slight supination [scoping review of arthroscopic peripheral TFCC repair rehabilitation, PMC12274733; Australian hand-therapist survey of foveal-repair rehabilitation, J Hand Ther 2024]. *Weak-moderate (scoping review + survey of practice).*
- **Forearm rotation is re-introduced last and graded.** After the protected phase, wrist flexion/extension and deviation are restored first, with pronation/supination re-introduced gradually because it is the motion that stressed the repair. Strengthening typically begins once **70-100% of wrist and forearm ROM** is regained (around 8 weeks) [scoping review PMC12274733]. *Weak (consensus from heterogeneous protocols).*
- **Rehabilitation protocols are heterogeneous and lack consensus.** Across studies, complete immobilisation ranged 1-8 weeks (forearm most commonly 6), ROM commencement and strengthening start varied widely (strengthening 3-12 weeks), and authors explicitly call for level-1 evidence. The practical implication is to **follow the operating surgeon's prescription** for the specific repair rather than a fixed universal schedule [scoping review PMC12274733; Australian hand-therapist survey]. *Weak (the evidence's own conclusion).*

### RECOVERY TRAJECTORY (EXPECTED, EVIDENCE-ANCHORED)

Phase	Window	Restraint	Hand use / therapy focus	Strength / load	Notes
<b>Clean-up I – early motion</b>	<b>Week 0-2</b>	Soft dressing / short splint for comfort	Fingers move day 1; <b>early wrist flexion/extension, deviation and gentle forearm rotation</b> within days; portal care	Light functional use	No construct to protect; rotation not restricted for central debridement/synovectomy/ganglion

Phase	Window	Restraint	Hand use / therapy focus	Strength / load	Notes
<b>Clean-up II-III – restore &amp; return</b>	<b>Week 2–6+</b>	Restrictions lifted	Full wrist/forearm ROM; <b>scar/portal desensitisation once healed</b>	<b>Light grip/ putty from ~2 wk</b> , graded loading thereafter	Return to most activity <b>2–6 wk</b> ; debridement unreliable for diffuse (non-focal) ulnar pain
<b>Repair I – protected immobilisation</b>	<b>Week 0–6</b>	<b>Forearm rotation blocked</b> (splint / <b>Muenster cast</b> , neutral–slight supination)	<b>Full finger/thumb ROM day 1</b> ; elbow flexion/extension if Muenster permits; <b>no pronation/supination</b>	None to the repair	~4–6 wk (commonly 6); rotation is the dominant repair load
<b>Repair II – graded motion</b>	<b>Week 6–8</b>	Rotation re-introduced gradually	Active wrist flexion/extension & deviation; <b>forearm rotation re-introduced last and built up</b>	Light, no resisted load yet	Restore motion before strength
<b>Repair III – strengthen &amp; return</b>	<b>Week 8–12+</b>	Load progressed by criteria	Grip/forearm strengthening once <b>70–100% ROM</b> regained; task-specific loading	Strengthening from <b>~8 wk</b> ; graded resisted load	Return to sport/heavy work <b>~3 months</b> (range ~3–4+); grip ~85% of opposite side, ~87% return to pre-injury activity

*(Phase windows mirror the precautions and recovery structure in the patient protocol; they are typical, consensus-derived guides – not trial-derived deadlines, and the surgeon’s prescription overrides them.)*

## C. KEY CONTROVERSIES / EVIDENCE QUALITY

- 1. Debridement vs repair is decided by tear location and DRUJ stability, not access.** Central (avascular) tears are trimmed; peripheral/foveal (vascularised) tears, especially with DRUJ instability, are repaired. The same keyhole approach therefore launches opposite rehab pathways – the therapist must establish which from the operation note. *Strong biological rationale, moderate clinical evidence.*

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2. **Debridement is not a panacea for ulnar wrist pain.** It relieves focal central-tear symptoms but has little value for diffuse, recalcitrant ulnar-sided pain – a key expectation-setting point [Nishizuka 2013].  
*Moderate.*
3. **How long to protect forearm rotation after repair is unsettled.** Reported immobilisation ranges 1–8 weeks (forearm most commonly 6); there is no level-1 consensus, and practice (including Australian hand-therapist practice) varies. The defensible position is to protect rotation ~4–6 weeks and follow the operating surgeon. *Weak (heterogeneous).*
4. **Arthroscopic vs open ganglion excision.** Recurrence is broadly comparable, with arthroscopy offering faster recovery and smaller scars; the evidence is retrospective rather than randomised [Konigsberg 2021; Nishikawa 2001; Luchetti 2000]. *Moderate-weak.*
5. **The rehabilitation evidence base is the weak link, not the surgery.** Outcome studies of the operations outnumber and outrank the rehabilitation studies; rehab timings are biologically and consensus-driven, and the literature itself calls for level-1 trials [scoping review PMC12274733]. *Weak.*

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## D. EVIDENCE STRENGTH FLAGS (summary)

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- **MODERATE:** versatility and low morbidity of wrist arthroscopy as a diagnostic/therapeutic platform; symptom relief from debridement of *focal* central TFCC tears (with long-term series); limited value of debridement for *diffuse* ulnar wrist pain; comparable recurrence of arthroscopic vs open dorsal ganglion excision; good outcomes of peripheral/foveal TFCC repair when the rim is repairable.
- **WEAK / CONSENSUS:** the specific rehabilitation schedules – clean-up early-motion (~2-wk comfort splint, motion within days, return 2–6 wk) and repair protected-rotation (splint/**Muenster** ~4–6 wk, ROM then strength from ~8 wk, return ~3 months). Immobilisation duration and progression timings are heterogeneous across the literature with no level-1 consensus; figures are typical guides, and the operating surgeon's prescription governs.
- **EXPECTATION-SETTING (natural history):** grip recovers to ≈ 85% of the opposite side and ≈ 87% of patients return to pre-injury activity after TFCC repair; debridement of diffuse (non-focal) ulnar wrist pain may not relieve symptoms.

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## CITATIONS

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### RAG CORPUS (180,000+ ORTHOPAEDIC ARTICLES)

- Wrist arthroscopy: principles and clinical applications. *J Am Acad Orthop Surg.* 2001. DOI: 10.5435/00124635-200105000-00006
- Arthroscopic debridement of triangular fibrocartilage complex tears. *Arthroscopy.* 1990. DOI: 10.1016/0749-8063(90)90012-3

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- Arthroscopic-assisted resection of triangular fibrocartilage complex lesions: a 19-year follow-up. *HAND*. 2017. DOI: 10.1177/1558944717708029
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- Recurrence rates of dorsal wrist ganglion cysts after arthroscopic versus open surgical excision: a retrospective comparison. *HAND*. 2021. DOI: 10.1177/15589447211003184
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#### WRIST ARTHROSCOPY / TFCC REHABILITATION LITERATURE (URLS)

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- Current rehabilitation recommendations following primary triangular fibrocartilage complex foveal repair surgery: a survey of Australian hand therapists. *J Hand Ther*. 2024. [https://www.jhandtherapy.org/article/S0894-1130\(23\)00117-5/fulltext](https://www.jhandtherapy.org/article/S0894-1130(23)00117-5/fulltext)
- TFCC injuries: how we treat? *J Clin Orthop Trauma / PMC*. 2020. <https://pmc.ncbi.nlm.nih.gov/articles/PMC7384326/>
- Review and update on the management of triangular fibrocartilage complex injuries in professional athletes. *World J Orthop*. 2024. <https://www.wjgnet.com/2218-5836/full/v15/i2/110.htm>
- Arthroscopic-assisted repair of the triangular fibrocartilage complex. *J Hand Surg Glob Online*. 2024. [https://www.jhsgo.org/article/S2589-5141\(24\)00066-5/fulltext](https://www.jhsgo.org/article/S2589-5141(24)00066-5/fulltext)