

Dupuytren's Release

Dupuytren Contracture – Surgical Release & Post-operative Hand-Therapy Rehabilitation (Open Fasciectomy)

Topic scope: post-operative rehabilitation after **open excision of diseased palmar/digital fascia** for Dupuytren contracture – limited/regional fasciectomy, extending to **dermofasciectomy** (fascia plus overlying involved skin, replaced with a graft) for aggressive or recurrent disease. The procedure-selection literature (fasciectomy vs needle aponeurotomy vs collagenase) is summarised only as far as it frames recurrence expectations and rehabilitation; the rehab focus is the post-fasciectomy pathway – **early active and passive finger extension and flexion, oedema control, scar management, and night extension splinting.**

Defining principle of this rehab: fasciectomy removes diseased tissue and restores extension that the disease had taken away – it does not cure the diathesis, and the corrected finger sits in a tissue bed that wants to contract back. So the rehab is a “regain-and-hold” pathway: early motion to keep the freed joints supple and prevent the new flexor-tendon and skin-glide planes from binding down, oedema and scar control so the soft tissues mature without tethering, and a night extension orthosis to defend the surgical correction during healing. The defining clinical question is not whether a construct needs protection (there is no construct), but how aggressively to splint – and here the evidence has shifted decisively toward selective, not routine, splinting.

A. PROCEDURE OUTCOMES & RECURRENCE (context for the rehab)

Open partial (limited) fasciectomy is the long-standing reference operation for Dupuytren contracture and gives the most durable correction of the three mainstream options:

- **Correction is reliable and recurrence is the dominant long-term limitation.** Across modern series the operation restores extension well, but Dupuytren is a lifelong diathesis and *some* tightening returns over years. Reported recurrence rates vary enormously because **studies define recurrence differently** (any palpable disease vs a threshold extension loss vs need for re-intervention). Using the modern consensus definition, true recurrence of contracture is low at medium-term follow-up, though a substantial minority retain mild residual curvature well short of the pre-operative deformity [corpus: jhsa.2012.06.032; literature: Radhamony 2022].
- **Fasciectomy vs minimally invasive options.** Compared with needle aponeurotomy/fasciotomy and collagenase *Clostridium histolyticum*, open fasciectomy has a **longer recovery and higher minor complication rate but lower recurrence** – the recurring trade-off in this disease. Needle and collagenase are quicker with faster return to function but recur sooner [corpus: jhsa.2021.05.022; jhsa.2011.08.004; 1753193418786947]. This trade-off is why fasciectomy is typically chosen for denser, multi-ray or PIP-predominant contractures – the same cases whose rehab is hardest and whose splinting is most likely to be justified.
- **Repeat limited fasciectomy** for recurrence is safe and effective, supporting fasciectomy as a durable, repeatable mainstay rather than a one-shot procedure [corpus: bjj-2020-1393.r2].

Why this matters for rehab: recovery counselling and splint expectations must be framed against a disease that **cannot be cured**, only corrected – the rehab protects a correction, it does not prevent the diathesis.

B. THE SPLINTING CONTROVERSY (the central rehab question)

Historically, every patient was issued a static night extension orthosis after fasciectomy on the assumption it preserved the correction. **The best available evidence does not support routine splinting** – it supports *selective* splinting for patients who lose extension.

- **Jerosch-Herold 2011 (pragmatic multi-centre RCT, n = 154).** Hand therapy alone vs hand therapy + night splinting after fasciectomy/dermofasciectomy. **No between-group difference** in self-reported function (DASH), finger range of motion, or satisfaction. Authors concluded routine night splinting for *all* patients is **not recommended**, reserving it for cases where extension deficits recur [literature: Jerosch-Herold 2011, BMC Musculoskelet Disord].
- **Collis 2013 (single-centre RCT, n = 56).** Night extension orthosis + hand therapy vs hand therapy alone after surgical release. **No significant difference** in total active extension or any secondary outcome at 3

months. Same conclusion: provide an orthosis **selectively**, when extension loss occurs, not universally [corpus: jhsa.2013.04.012; literature: Collis 2013].

- **Karam 2022 (systematic review + meta-analysis, 4 RCTs, n = 295)**. Pooling the splint-vs-no-splint trials found **no significant difference** in total active flexion/extension, DASH, pain, grip or satisfaction. The collective signal is consistent and now moderately strong: **adding a splint to good hand therapy does not improve the average outcome** [corpus: 1055/s-0041-1725221; literature: Karam 2022].
- **Earlier/smaller work** (e.g., post-fasciectomy splinting pilot studies) pointed the same way – splinting is low-yield as a blanket policy [corpus: 1753193412437631].

Practical reading for this protocol. The practice's pattern – splint day-and-night for ~1 week, then **night-only** with a low threshold to continue (or reinstate) splinting if a finger starts to drift back into flexion – is a reasonable, evidence-aligned middle path: it defends the correction during the highest-risk early healing window and during sleep, while honouring the trial finding that *indefinite routine* splinting adds little. The trials measured **average** outcomes; they do not say splinting is useless for the individual who is losing extension, which is exactly the subgroup the authors carved out. This is a defensible **selective-splinting** stance, not a contradiction of the protocol.

C. HAND-THERAPY & EXERCISE EVIDENCE

- **Early supervised hand therapy is the backbone of recovery** and is where the demonstrable benefit lies (the splint trials all compared *against* a hand-therapy baseline, not against nothing). Active and passive extension and flexion, oedema control and scar management are standard from the first post-operative therapy visit, typically 2–3 days after surgery.
- **Most operated fingers hold or improve their extension over the first three months** of hand therapy – the window in which the protocol concentrates splinting and exercise [corpus: jhsa.2013.04.012, control arm; literature: Collis 2013].
- **Scar management.** Scar massage is near-universal in hand-therapy practice after Dupuytren surgery to soften the palmar scar, improve skin glide and settle sensitivity, generally combined with silicone gel/sheeting and begun around suture removal once the wound is healed. The supporting evidence is developing rather than definitive but favours reduced scar-related discomfort and improved movement [literature: Scott 2024, Australian hand-therapist survey].
- **Return to work.** In a large cohort, median return after open fasciectomy was ~2 weeks with ~90% back at work within the year; physically demanding jobs took longer [literature: Blake 2021].
- **Pre-operative hand therapy** has a thinner evidence base and is not a substitute for the post-operative programme [corpus: 17589983241227162].

PHASED REHABILITATION TIMELINE (MATCHING THE SYNTHESIS PHASES)

Phase	Window	Splint	Movement / use	Scar & oedema	Notes
I – Protect & mobilise	~Days 2–7	Custom thermoplastic extension orthosis day & night , off for exercises	Gentle active extension + active DIP/PIP and composite flexion from the first therapy visit; wrist tenodesis	Oedema control (elevation, gentle movement); wound kept clean & dry	Therapy referral 2–3 days post-op; splint defends the surgical correction during the highest-risk window
II – Restore motion	~Week 1 → 6–8	Transition to night-only ; light functional day use of the hand	Progress active + passive extension and flexion; restore full composite fist and full extension	Scar massage + silicone once wound healed (around suture removal)	Most extension is held or regained through this window; daytime driving resumes once out of the splint and grip is safe
III – Strengthen & return	~Week 6–8 → 3 months	Night-only continues ~3 months (up to ~6 months selectively if extension is being lost)	Grip and functional strengthening; return to heavier manual work as wound is soundly healed and grip comfortable	Ongoing scar maturation over months	Splinting beyond this window is selective , driven by extension loss – not routine (see §B)

The phase structure and timings are protocol/consensus, agreed between the surgeon and hand therapist; the trials inform the splinting policy within them, not the exact week boundaries.

D. COMPLICATIONS (rehab-relevant)

- **Flare reaction / early CRPS-spectrum.** A proportion of patients develop a post-operative inflammatory “flare” – disproportionate swelling, stiffness, redness and pain – which can progress to complex regional pain syndrome (CRPS type 1). Early recognition, oedema control, gentle continued motion and analgesia matter; CRPS is one of the more feared rehab-derailing complications after hand surgery [corpus: jht.2024.09.002 (Dupuytren CRPS-1 case); hcl.2009.11.001 (CRPS after hand surgery)].
- **Digital nerve / vessel injury.** The neurovascular bundles are displaced by Dupuytren cords, especially in recurrent disease and at the PIP; injury is a recognised operative risk. New sensory change post-operatively warrants surgeon review [corpus: hansur.2017.07.002 – complications systematic review; 17531934231206317 – surgical complications/adverse events].

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- **Wound healing, haematoma, infection, stiffness.** Open fasciectomy has a higher minor-complication rate than the minimally invasive options; meticulous wound care and early motion mitigate stiffness and tethering [corpus: hansur.2017.07.002].
- **Incomplete correction / residual PIP deficit.** PIP contractures correct less completely than MCP; residual deficit may persist and is the usual trigger for *selective* ongoing splinting.

E. KEY CONTROVERSIES / EVIDENCE QUALITY

1. **Routine vs selective splinting** – the headline controversy, now reasonably settled toward **selective**: three RCTs and a meta-analysis show no average benefit from adding a static night orthosis to good hand therapy, with all authors carving out the extension-loss subgroup. The practice’s “night-only, low threshold to continue if drifting” approach is consistent with this. *Moderate (multiple RCTs + SR/MA).*
2. **Recurrence is definition-dependent** – headline recurrence figures are not comparable across studies; the consensus definition gives lower, more credible rates. Counsel against the cure expectation. *Moderate.*
3. **Procedure choice frames rehab** – fasciectomy trades a longer recovery and more minor complications for lower recurrence than needle/collagenase. The fasciectomy cohort is, by selection, the harder-rehab cohort. *Moderate.*
4. **The phase timings are consensus** – drawn from surgeon/therapist protocols, not a rehab RCT. The *splinting policy* within them is trial-informed; the *week boundaries* are typical, not trial-derived. *Weak/consensus.*

F. EVIDENCE STRENGTH FLAGS (summary)

- **MODERATE (multiple RCTs + SR/MA):** routine night splinting adds no average benefit over hand therapy alone after fasciectomy – splint **selectively** for extension loss (Jerosch-Herold 2011; Collis 2013; Karam 2022 meta-analysis of 4 RCTs / 295 patients).
- **MODERATE (cohorts / comparative):** fasciectomy gives durable correction with lower recurrence but longer recovery and more minor complications than needle aponeurotomy/collagenase; repeat fasciectomy is safe and effective; CRPS and digital-nerve injury are recognised rehab-relevant complications.
- **WEAK / CONSENSUS:** the post-operative **phase structure and timings** themselves (surgeon + hand-therapist protocol; no defining rehab RCT). Scar-massage benefit is supportive but the evidence base is still developing.

CITATIONS

RAG CORPUS (180,000+ ORTHOPAEDIC ARTICLES)

- Correction of contracture and recurrence rates of Dupuytren contracture following fasciectomy. *J Hand Surg Am.* 2012. DOI: 10.1016/j.jhsa.2012.06.032
- Repeat limited fasciectomy is a safe and effective treatment for recurrence of Dupuytren's contracture. *Bone Joint J.* 2021. DOI: 10.1302/0301-620X.103B5.BJJ-2020-1393.R2
- Limited fasciectomy versus collagenase *Clostridium histolyticum* for Dupuytren contracture. *J Hand Surg Am.* 2021. DOI: 10.1016/j.jhsa.2021.05.022
- The efficacy and safety of fasciectomy and fasciotomy for Dupuytren's contracture. *J Hand Surg Eur.* 2011. DOI: 10.1177/1753193410397971
- Cost-effectiveness of open partial fasciectomy, needle aponeurotomy, and collagenase injection for Dupuytren contracture. *J Hand Surg Am.* 2011. DOI: 10.1016/j.jhsa.2011.08.004
- Three-year recurrence of Dupuytren's contracture after needle fasciotomy and collagenase injection. *J Hand Surg Eur.* 2018. DOI: 10.1177/1753193418786947
- The effect of night extension orthoses following surgical release of Dupuytren contracture: a single-centre RCT. *J Hand Surg Am.* 2013. DOI: 10.1016/j.jhsa.2013.04.012
- Comparison of hand therapy with or without splinting postfasciectomy for Dupuytren's contracture: systematic review and meta-analysis. *J Hand Microsurg.* 2022. DOI: 10.1055/s-0041-1725221
- Does use of a night extension orthosis improve outcomes in patients with Dupuytren contracture? *J Hand Surg Glob Online.* 2021. DOI: 10.1016/j.jhsg.2021.05.001
- A pilot study assessing the effectiveness of postoperative splinting after limited fasciectomy. *J Hand Surg Eur.* 2012. DOI: 10.1177/1753193412437631
- Pre-operative hand therapy management of Dupuytren's disease: a systematic review. *Hand Ther.* 2024. DOI: 10.1177/17589983241227162
- Current concepts in the management of Dupuytren disease of the hand. *J Am Acad Orthop Surg.* 2020. DOI: 10.5435/JAAOS-D-20-00190
- Complications after treating Dupuytren's disease: a systematic literature review. *Hand Surg Rehabil.* 2017. DOI: 10.1016/j.hansur.2017.07.002
- Surgical complications: errors and adverse events (hand surgery). *J Hand Surg Eur.* 2023. DOI: 10.1177/17531934231206317
- The case of a woman with bilateral Dupuytren's contractures who developed CRPS-1. *J Hand Ther.* 2024. DOI: 10.1016/j.jht.2024.09.002
- Complex regional pain syndrome after hand surgery. *Hand Clin.* 2009. DOI: 10.1016/j.hcl.2009.11.001

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SPLINTING & HAND-THERAPY LITERATURE (URLS)

- Jerosch-Herold C, Shepstone L, Chojnowski AJ, et al. Night-time splinting after fasciectomy or dermo-fasciectomy for Dupuytren's contracture: a pragmatic, multi-centre, randomised controlled trial. *BMC Musculoskelet Disord*. 2011;12:136. <https://pmc.ncbi.nlm.nih.gov/articles/PMC3146906/>
- Collis J, Collocott S, Hing W, Kelly E. The effect of night extension orthoses following surgical release of Dupuytren contracture: a single-centre, randomised, controlled trial. *J Hand Surg Am*. 2013. <https://pubmed.ncbi.nlm.nih.gov/23790420/>
- Karam M, Kahlar N, Abul A, et al. Comparison of hand therapy with or without splinting postfasciectomy for Dupuytren's contracture: systematic review and meta-analysis. *J Hand Microsurg*. 2022. <https://pmc.ncbi.nlm.nih.gov/articles/PMC10042625/>
- Blake SN, Poelstra R, Andrinopoulou ER, et al. Return to work and associated costs after treatment for Dupuytren's disease. *Plast Reconstr Surg*. 2021. <https://pubmed.ncbi.nlm.nih.gov/34292887/>
- Radhamony NG, Nair RR, Sreenivasan S, et al. Residual deformity versus recurrence following Dupuytren's palmar fasciectomy – long-term follow-up of 142 cases. *Ann Med Surg*. 2022. <https://pmc.ncbi.nlm.nih.gov/articles/PMC8767281/>
- Scott HC, Robinson LS, Brown T. Scar massage as an intervention for post-surgical scars: a practice survey of Australian hand therapists. *Hand Ther*. 2024. <https://pmc.ncbi.nlm.nih.gov/articles/PMC10901164/>

SOCIETY GUIDANCE & PUBLISHED REHAB PROTOCOLS

- The British Society for Surgery of the Hand (BSSH) – Dupuytren's disease patient and professional guidance. https://www.bssh.ac.uk/patients/conditions/25/dupuytren's_disease
- BSSH – Assessing the outcome of surgery for Dupuytren's disease of the hand. https://www.bssh.ac.uk/assessing_the_outcome_of_surgery_for_dupuytren's_disease_of_the_hand.aspx