



Thumb CMC Joint Replacement — Rehabilitation Protocol

Overview

- Applies to: thumb carpometacarpal (basal joint) arthroplasty for thumb CMC arthritis
- Includes: total joint replacement (pyrocarbon, metal-on-metal), hemiarthroplasty
- Thumb spica splint essential for 8–12 weeks to protect implant
- Hand therapy (occupational therapist with hand therapy background) recommended

Rehabilitation Phases

Phase 1 — Immobilisation & Protection	Weeks 0–4
<p>Goals:</p> <ul style="list-style-type: none">• Protect CMC implant• Control pain and swelling• Preserve digital ROM	<p>Exercises & Interventions:</p> <ul style="list-style-type: none">• Thumb spica cast or thermoplastic splint full-time (thumb MCP to wrist)• Active finger flexion/extension (IP and MCP joints of digits 2–5)• Tendon gliding exercises (digits 2–5)• Edema management: elevation, compression wrap• Wound care• Desensitisation from Week 2 if neuropraxia present
<p>Precautions:</p> <ul style="list-style-type: none">■ No thumb CMC movement■ No pinch or grip involving thumb base■ No removal of splint except supervised exercises	
Phase 2 — Protected Thumb Motion	Weeks 4–8
<p>Goals:</p> <ul style="list-style-type: none">• Begin thumb CMC PROM and AROM• IP and MCP thumb ROM• Light functional use	<p>Exercises & Interventions:</p> <ul style="list-style-type: none">• Transition to removable thermoplastic thumb spica at Week 4–6• Passive thumb palmar and radial abduction (gentle)• Active thumb CMC abduction (gravity-eliminated)• Thumb MCP and IP AROM• Light pinch (key pinch only, no tip pinch) Week 6+• Putty for mild grip (no pinch stress)• Scar massage and desensitisation
<p>Precautions:</p> <ul style="list-style-type: none">■ No forceful pinch or grip before Week 8■ No lateral stress to CMC joint	



Rehabilitation Phases (continued)

Phase 3 — Progressive Strengthening	Weeks 8–16
<p>Goals:</p> <ul style="list-style-type: none"> • Full thumb ROM • Progressive thumb and hand strengthening • Functional use for ADLs <p>Precautions:</p> <ul style="list-style-type: none"> ■ Pain-guided progression — thumb base pain = reduce load ■ Avoid repetitive pinch-intensive tasks before 12 weeks 	<p>Exercises & Interventions:</p> <ul style="list-style-type: none"> • Wean from splint (use only for heavy activities) • Active thumb opposition, abduction, extension • Resisted pinch (progressively: key, chuck, tip pinch) • Theraband thumb opposition strengthening • Functional activities: writing, cooking, dressing • Occupational therapy for tool adaptations • Progressive grip strengthening
Phase 4 — Return to Function	Weeks 16–26
<p>Goals:</p> <ul style="list-style-type: none"> • Full functional use for ADLs, work, and hobbies • Long-term joint protection • Implant longevity education <p>Precautions:</p> <ul style="list-style-type: none"> ■ Heavy manual work (tools, construction): implant at risk — discuss with surgeon ■ No competitive racquet sport indefinitely if implant in dominant hand 	<p>Exercises & Interventions:</p> <ul style="list-style-type: none"> • Full functional pinch and grip activities • Return to writing, typing, gardening, cooking • Adaptive equipment if required (jar openers, pen grips) • Return to golf, racquet sports with caution • Long-term splinting for heavy activity indefinitely • Joint protection principles education

Clinical Notes

- OT-led hand therapy is strongly recommended throughout all phases
- Night splinting for 3 months post-operatively

References

1. Swanson AB. Disabling arthritis at the base of the thumb: treatment by resection and tendon suspension arthroplasty. *J Bone Joint Surg Am.* 1972;54(3):456-471.
2. Mariconda M et al. Trapeziectomy with ligament reconstruction and tendon interposition for thumb CMC arthritis: prospective study with 5-year follow-up. *J Hand Surg Eur Vol.* 2021;46(7):725-733.
3. De Smet L et al. Total joint arthroplasty of the basal joint of the thumb. *Hand Surg.* 2004;9(1):39-41.
4. Vermeulen GM et al. Comparison of arthroplasty options for thumb basal joint arthritis: a RCT. *J Hand Surg Am.* 2014;39(9):1649-1655.
5. MacDermid JC et al. Patient-reported outcomes after thumb trapeziometacarpal arthroplasty: a systematic review. *Arthritis Care Res.* 2012;64(2):208-218.
6. Slutsky DJ. Principles and practice of wrist surgery. Saunders Elsevier. 2010. Chapter 27.

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.