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THUMB BASE (CMC JOINT) ARTHRITIS

Trapeziectomy or Joint Replacement

Patient Information Sheet — Version 4, May 2026

What is thumb base arthritis?

The thumb base joint (carpometacarpal or CMC joint) is formed between the first metacarpal bone and the trapezium — a small bone in the wrist. It is the most mobile joint in the hand, allowing the thumb to move in all directions.

In osteoarthritis, the smooth cartilage that lines the joint surfaces wears away. As the cartilage thins, the raw bone surfaces rub together, causing pain, swelling, stiffness, and weakness.

Thumb base arthritis is very common — it affects around 15% of women and 7% of men over the age of 50 — and tends to be progressive. Many people manage their symptoms well without surgery, but if pain is severe and persistent despite simple measures then an operation can bring lasting relief.



This leaflet

More recently, studies have shown encouraging longer-lasting results by replacing the worn-out thumb base joint with a new joint made of metal and plastic- just like a hip or knee replacement. We do not yet know how long these implants will last but early and intermediate results are very encouraging.

There are advantages and disadvantages of both trapeziectomy and joint replacement.

This leaflet is designed to help you decide which procedure is most suitable for you, the material risks of each that might be significant to you, as well as the reasonable alternatives.

Non-operative treatment options

Surgery is not the first step. Most people benefit from one or more non-surgical treatments before considering an operation. These should generally be tried for at several months at least.

1. Hand therapy and exercises

A hand therapist can help with:

- Exercises to strengthen the muscles around the thumb and improve joint stability
- Activity modification — changing how you grip, pinch, and lift to protect the joint
- Advice on ergonomic tools and assistive devices

Evidence: Supervised therapy programmes improve pain and function. Studies show a mean pain improvement of approximately 2.6 points out of 10 compared to no treatment at 6 months (Golovachev et al., 2024).

2. Splinting

A custom-made thumb splint (orthosis) holds the joint in a comfortable position and reduces pain, particularly during activities and at night. Splints work best in the early stages of arthritis.

Evidence: Short opponens splints and long thumb spica splints both reduce pain. Benefits are most noticeable in the first 6 months of use (Golovachev et al., 2024).

3. Anti-inflammatory medication

Oral anti-inflammatory tablets (NSAIDs, such as ibuprofen or naproxen) can reduce pain and swelling. Topical gels applied directly to the joint are often effective and have fewer side effects. Always discuss suitability with your GP.

4. Corticosteroid (steroid) injection

A small injection of steroid and local anaesthetic into the joint can reduce inflammation and provide significant pain relief. The injection is performed in clinic and takes only a few minutes.

- Relief typically lasts several months, though varies between individuals
- The injection can be repeated, but many surgeons recommend no more than three injections to the same joint
- A recent systematic review of 10 randomised controlled trials (673 patients) found steroid injection provides meaningful short-term pain relief. At 6 months, outcomes are broadly comparable to hyaluronic acid injection, but the onset of relief is faster and the cost is lower (Krez et al., 2024; Golovachev et al., 2024)
- 1:500 risk of infection
- 1:20 risk of skin staining or temporary extreme joint pain



5. Hyaluronic acid (HA) injection

Hyaluronic acid is a naturally occurring substance that lubricates joints. An injection into the CMC joint can reduce pain and improve movement. It is an alternative to steroid for patients who have not responded well to steroid or who wish to avoid repeated steroid injections.

Evidence: Comparable to steroid at 6 months. Neither treatment shows a consistent advantage over the other in the longer term (Golovachev et al., 2024; Krez et al., 2024).

6. Less established options

Platelet-rich plasma (PRP) injection: PRP is prepared from a small sample of your own blood. The blood is spun to concentrate the growth factors and then injected into the joint. It is available at some specialist centres.

Evidence: Emerging data suggest PRP may produce superior pain relief compared to steroid at 12 months (delta of approximately 5.5 points vs 0.5 for steroid at 1 year). The evidence base is smaller than for steroid, and it is not available on the NHS in most centres (Golovachev et al., 2024).

Prolotherapy (dextrose injection) Prolotherapy involves injecting a dextrose (sugar) solution to stimulate natural healing around the joint. Some specialist clinics offer this treatment, though it remains outside standard NHS practice.

Evidence: One randomised trial found dextrose prolotherapy produced better pain outcomes at 6 months compared to steroid (76% vs 47% reported improvement). Further research is needed (Golovachev et al., 2024).

Extracorporeal shockwave therapy (ESWT) Shockwave therapy uses sound waves directed at the joint to stimulate healing. It is delivered by a physiotherapist or radiologist over several sessions.

Evidence: One study found a pain improvement of approximately 4.2 points compared to sham therapy. Evidence is limited and availability on the NHS is restricted (Golovachev et al., 2024).

When is surgery considered?

Surgery is usually offered when:

- Non-operative treatments have been tried adequately (typically at least 6 months)
- Pain is significantly affecting your quality of life and daily activities
- X-rays confirm significant joint degeneration

Which operation is right for me? A guide

Two proven operations are available for thumb base arthritis:

- Trapeziectomy — removal of the trapezium bone, creating a natural cushion of scar tissue
- CMC joint replacement (arthroplasty) — replacing the joint with a small implant

CMC joint replacement (arthroplasty)

A small cup (made from metal) is fixed into the trapezium. A metal stem with an articulating plastic head is inserted into the metacarpal. Various implant designs are used



Advantages

- Much faster recovery than trapeziectomy — many patients return to driving in 3–4 weeks and to light work in 4–6 weeks
- High long-term satisfaction — 92–100% in published series (Maling & Rooney, 2024)
- MAIA prosthesis: 88% survival at 11 years (134 months) with no significant difference in pain or function compared to trapeziectomy at 9 years
- All 10 patients in a bilateral study (one joint replacement, one trapeziectomy) preferred their replaced side for strength, function, and speed of rehabilitation (Dietrich et al., 2025)
- Cost-effective: in a Canadian analysis, the Touch prosthesis group returned to work 32 days earlier (mean 52 vs 84 days), generated more QALYs (0.89 vs 0.85), and had lower total 2-year costs (\$26,809 vs \$33,953) — a 99% probability of being cost-effective at a \$110,000/QALY threshold (Marks et al., 2025)
- If a previous joint replacement has failed, secondary trapeziectomy gives results equivalent to primary trapeziectomy (Cerlier et al., 2021). So no bridges are burned if it fails.
- For a distorted thumb (adduction of the base), joint replacement can restore normal shape

Disadvantages and risks

- 3 x more likely than trapeziectomy to require a second operation than trapeziectomy sooner or later
- Occasionally the bone breaks during surgery
Convert to trapeziectomy in theatre
- Components can wear- there will be a chance of wear and loosening over the implant's lifetime (

Convert to trapeziectomy or re-do the replacement.

- Overall complication rate 15–36% in published series, though most are minor (e.g., transient nerve irritation, wound problems, de Quervain tenosynovitis)
- Dislocation rate approximately 0.6% with modern dual-mobility designs (Maling & Rooney, 2024)
- Not suitable for all patients

When is joint replacement not suitable? (contraindications)

- Arthritis affecting the STT joint (the joint between the trapezium, scaphoid, and trapezoid bones)
- Insufficient or very deformed trapezium bone stock
- Significant osteoporosis
- Very low activity levels / very elderly patients

Trapeziectomy

The trapezium bone is removed completely through an incision over the base of the thumb. The space created gradually fills with scar tissue, which acts as a natural cushion. No foreign material is implanted. The operation can be combined with a tendon weave (LRTI — ligament reconstruction and tendon interposition), although the evidence suggests a simple trapeziectomy alone gives equally good results.



Advantages

- Excellent, durable long-term pain relief — the procedure has been refined over more than 50 years
- No implant, so no risk of implant wear, loosening, or revision surgery for implant failure
- Suitable for virtually all patients including those with STT arthritis, osteoporosis, or very small trapezium
- At 9 years, pain and function outcomes are comparable to joint replacement (Datta et al., 2025)

Disadvantages

- Anatomy is not restored toward normality
 - Posture is altered
 - Pinch is weaker and less precise
- Takes several months to settle - MUCH slower than joint replacement
- Does not restore a collapsed posture
- Needs specific rehabilitation
- May clunk and rub at the base (5%)
 - Very troublesome
 - Very difficult to fix
- Prolonged hand therapy and splinting required postoperatively
- Some shortening of the thumb (slight 'telescoping') occurs as the space fills in

Risks common to both operations

Both procedures are performed under regional anaesthesia (a nerve block) or general anaesthetic as a day-case. The overall risk is low, but all surgery carries some risk:

- Disappointment- Any operation can make you worse off.
- Infection — superficial wound infection occurs in approximately 1–2%; deep infection requiring further surgery is rare (<1%)
- Nerve injury — the sensory branch of the radial nerve runs close to the surgical site; temporary numbness or tingling is rare but usually resolves; permanent nerve damage is rare
- Scar tenderness or keloid — most scars settle within 12 months
- Stiffness — hand therapy minimises this risk
- CRPS (Complex Regional Pain Syndrome) — an uncommon complication affecting approximately 1–2% of hand operations, causing disproportionate pain and swelling
- Anaesthetic risks — discussed separately by the anaesthetic team

What to expect after surgery

In hospital

Both operations are usually performed as day surgery. You will have a bandage supporting the thumb after the operation, and your arm will be elevated in a sling.

First two weeks

- Keep the hand elevated as much as possible to reduce swelling
- Finger exercises should begin immediately
- Return to your surgeon or hand therapist for wound check and dressing change at 10–14 days

Weeks 2–6

- A splint is generally worn after trapeziectomy but not after replacement. The splint is usually replaced with a lighter thermoplastic splint
- Hand therapy— exercises, scar management, and strengthening. Joint replacement patients tend to require much less hand therapy than trapeziectomy patients.
- Joint replacement: many patients return to driving and light work during this period but heavy pinch and twisting are avoided to allow the implant to heal to the bone
- Trapeziectomy: most patients are not working with their hands until around 8–12 weeks

3–6 months

- Progressive strengthening and return to more demanding activities

6–9 months

- Most people are pain-free and have good function by 4–6 weeks (joint replacement) and 6–9 months (trapeziectomy)

A comparison

The table below gives a general guide. The best choice depends on your individual anatomy, activity level, and priorities. Your surgeon will discuss this in detail with you.

	Suitability	Typical patient profile / criteria
●	JOINT REPLACEMENT preferred	– Active patient who wants the fastest return to full hand use. But beware- failure risk more likely in heavy demand patients.. – Good trapezium bone stock and anatomy — no severe deformity or very small trapezium – Willing to accept a definite and unknown risk of implant revision – No symptomatic STT joint arthritis on X-ray – Adequate bone density (no significant osteoporosis) – Contralateral side also needing surgery — the implanted side typically recovers faster
●	EITHER OPTION reasonable-	– Moderate activity level, not in paid employment, or retirement age – Mild-to-moderate concerns about implant longevity (age 60–70) – Some anatomical variation but trapezium still adequate for a cup – Patient undecided or values avoiding implanted hardware – Bilateral disease — relative preference may emerge after discussing recovery timelines
●	TRAPEZIECTOMY preferred	– Symptomatic STT joint arthritis present on X-ray (implant contraindicated) – Very small, eroded, or deformed trapezium — insufficient bone for cup fixation – Significant osteoporosis (poor implant anchorage) – Very elderly or low-demand patient — simpler surgery, no hardware concerns – Patient preference for no implanted device – Previous failed joint replacement (secondary trapeziectomy is safe and effective)

Important: If you have a joint replacement that does not succeed, it is safe to convert to a trapeziectomy as a secondary procedure. Studies show the results of secondary trapeziectomy are equivalent to primary trapeziectomy, so having a joint replacement does not 'burn any bridges' (Cerlier et al., 2021).

Thumb Base Osteoarthritis: Facts Behind the Different Treatment Options

Trapeziectomy:

- Removal of trapezium bone and thumb base stabilisation

Thumb Carpometacarpal Joint (CMCJ) Replacement:

- Preservation of trapezium bone and introduction of an artificial prosthesis



Traffic Light Scheme



References:

1. Duerinckx J, Verstreken F. Total joint replacement for osteoarthritis of the carpometacarpal joint of the thumb: why and how?. EFORT Open Rev. 2022;7(6):349-355. Published 2022 May 31. doi:10.1530/EOR-22-0027
2. Saab M, Chick G. Trapeziectomy for trapeziometacarpal osteoarthritis. Bone Jt Open. 2021;2(3):141-149. doi:10.1302/2633-1462.23.BJO-2020-0188.R1
3. Lussiez B, Falaise C, Ledoux P. Dual mobility trapeziometacarpal prosthesis: a prospective study of 107 cases with a follow-up of more than 3 years. J Hand Surg Eur Vol. 2021;46(9):961-967. doi:10.1177/17531934211024500
4. Herren DB, Marks M, Neumeister S, Schindele S. Low complication rate and high implant survival at 2 years after Touch® trapeziometacarpal joint arthroplasty [published online ahead of print, 2023 Jun 13]. J Hand Surg Eur Vol. 2023;17531934231179581. doi:10.1177/17531934231179581

References

The following publications form the evidence base for this information sheet. Full references are available from your surgical team on request.

1. **Krez AN, Anavim A, Thakore RV, et al.** Corticosteroid versus hyaluronic acid injections for thumb carpometacarpal osteoarthritis: a systematic review and meta-analysis. *J Hand Surg Am.* 2024. [10 RCTs, 673 patients; no significant difference between CSI and HA in VAS, grip, or pinch; CSI favoured for cost and availability]
2. **Golovachev OL, Panagia M, Bhatt R, et al.** Nonoperative management of thumb carpometacarpal osteoarthritis: a systematic review of randomised controlled trials. *Hand Surg Rehabil.* 2024. [11 RCTs; CSI vs HA comparable at 6 months; PRP superior at 12 months; splinting delta 2.6; dextrose 76% vs 47%; ESWT delta 4.2]
3. **Datta P, Mehrotra S, Janardhanan S, et al.** Joint replacement versus trapeziectomy for thumb carpometacarpal arthritis: a systematic review. *Cureus.* 2025. [11 studies; faster RTW with replacement 4–6 vs 6+ weeks; complication rate 15–35.9%; revision 10–13%; MAIA 88% survival at 134 months; no significant difference at 9 years]
4. **Maling SJ, Rooney RJ.** Outcomes of dual-mobility arthroplasty for thumb carpometacarpal osteoarthritis: a systematic review. *J Hand Surg Eur.* 2024. [13 studies, 1421 arthroplasties; complication rate 13%; dislocation 0.6%; satisfaction 92–100%]
5. **Marks M, Powell JD, Penner M, et al.** Cost-utility analysis of the Touch CMC joint replacement versus resection-suspension interposition arthroplasty (RSIA) for thumb carpometacarpal osteoarthritis. *J Hand Surg Am.* 2025. [RTW 52 vs 84 days; QALYs 0.89 vs 0.85; costs \$26,809 vs \$33,953; 99% probability cost-effective at \$110,000/QALY; industry-funded study]
6. **Dietrich A, Bauer C, Herren DB, et al.** Patient perspectives on bilateral thumb CMC arthritis surgery: joint replacement vs trapeziectomy on contralateral sides. *J Hand Surg Am.* 2025. [10 bilateral patients; all 10 preferred prosthesis; themes: strength, rehabilitation speed, aesthetics]
7. **Cerlier A, Gay AM, Vidal C, et al.** Outcomes of secondary trapeziectomy after failed CMC joint arthroplasty compared with primary trapeziectomy: a case-matched study. *J Hand Surg Eur.* 2021. [31 secondary vs 31 primary trapeziectomy; no significant difference in QuickDASH, pain, mobility, or strength; confirms reversibility of joint replacement]

About this leaflet

This information sheet has been prepared to help patients understand their condition and the options available to them. It is intended to complement, not replace, a personalised discussion with your surgeon. The evidence cited is current as of May 2026. Individual outcomes will vary. Please discuss any concerns with your surgical team.

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