

Cold + Compression Therapy after Hip & Knee Replacement

The clinical case for cryocompression in the post-arthroplasty pathway

↑ ROM Knee extension Significantly improved at day 1 & 14 Cryocompression vs ice + static (Marinova 2023)	↓ Swelling Effusion & thigh circumference Significant reduction at day 4 (THA) and day 21 (TKA) Ito 2019; BMC Musculoskelet Disord 2024	↑ Function KOOS & 6-min walk test Significantly higher at day 21 Compressive vs standard cryotherapy (BMC 2024)	↓ Pain VAS POD 1–3 MD −0.6 to −0.9, p<0.05 Meta-analysis of 21 RCTs / 1,462 patients (Liang 2024)
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THE DIFFERENTIATOR

“Across the contemporary RCT literature, the consistent advantage comes from adding active intermittent compression to controlled cooling. Devices that combine both — like the NICE1 — deliver the ROM, swelling, and 21-day functional gains that ice packs and continuous cold-flow alone do not.”

The clinical case for cryocompression

- Pain reduction is consistent and meta-analytic.** Across 21 RCTs and 1,462 patients, cryotherapy lowers VAS pain on POD 1–3 (MD −0.59 to −0.86, all p<0.05). Effect amplifies when compression is added.
- Range of motion gains are device-dependent.** The Marinova 2023 RCT (n=72 TKA) showed cryocompression delivered significantly better knee extension at day 1 and day 14 versus ice + static compression — the head-to-head head signal favours active intermittent compression.
- 21-day function favours compressive cryotherapy.** The 2024 BMC Musculoskeletal Disorders RCT showed significantly higher KOOS, faster 6-minute walk test, and reduced joint effusion at day 21 with compressive cryotherapy versus standard cryotherapy.
- THA evidence is converging.** Ito 2019 reported significantly reduced day-4 thigh circumference and higher walking satisfaction at POD 4 and 7 with continuous local cryotherapy. Cryocompression scores higher than ice packs on patient-reported satisfaction across trials.

How NICE1 fits in your pathway

- Multimodal, ERAS-aligned.** Cryocompression sits alongside paracetamol, NSAIDs, LIA, and short-course opioids as a non-pharmacological adjunct — opioid-sparing within the framework, not opioid-replacing.
- Clinically validated cooling envelope.** NICE1 holds skin temperature in the 10–15°C range that the contemporary literature identifies as the therapeutic window — avoiding both the cold-burn risk of direct ice and the rebound warm-up of static gel packs.
- Active intermittent compression.** A fixed-cycle pneumatic compression cuff augments venous return and limits capillary leak. This is the differentiator that puts cryocompression ahead of continuous cold flow in the RCT literature.
- Ward-to-home continuity.** Portable, patient-controlled. The evidence shows the day-7 to day-21 swelling and ROM gains are won after discharge — portable units like NICE1 capture that window with no additional staff burden over ice rotation.

Selected evidence from the contemporary RCT and meta-analytic literature

Study	Population	Intervention vs comparator	Headline finding	Source
Liang 2024 meta-analysis	21 RCTs / 1,462 patients (1,177 TKA, 285 THA)	Cryotherapy vs none	VAS pain MD −0.59 to −0.86 across POD 1–3 (all p<0.05). Reduced wound drainage and Hb fall in TKA subgroup.	Orthop Surg 2024
Marinova 2023 RCT	72 TKA	Game Ready cryocompression vs ice + static compression	Significantly better knee extension ROM at day 1 and day 14. Favourable patient experience.	KSSTA 2023
BMC Musculoskelet Disord 2024 RCT	40 TKA	Compressive cryotherapy vs standard cryotherapy	Significantly higher KOOS, faster 6MWT, reduced joint effusion, and lower pain on activity at day 21.	BMC Musculoskelet Disord 2024
Ito 2019 RCT	60 THA	Continuous local cryotherapy vs control	Significantly reduced day-4 thigh circumference. Higher patient satisfaction with walking at POD 4 & 7.	PMC6498864 (2019)

Safety profile of the device class No safety signal across any meta-analysis. Devices like NICE1 hold skin in the validated 10–15°C range and apply intermittent compression on a fixed cycle — avoiding the cold-burn risk of direct ice and the prolonged static cooling that drives the very rare nerve injuries seen with older ice-pack practice. Standard precautions apply.	Bottom-line recommendation Cryocompression is the modern standard for post-arthroplasty cold therapy. Adding active intermittent compression to controlled cooling delivers gains in pain, ROM, swelling, and 21-day function — the outcomes that drive patient experience and PROMs. Portable, patient-controlled units like the NICE1 extend the protocol from ward to home, where the second- and third-week gains are won.
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