

Cooling Devices in the Outpatient Setting

Policy

VCHCP considers use of active or passive cooling devices or devices that combine cooling and heating or compression mechanisms not medically necessary in the postoperative care of patients undergoing musculoskeletal surgery or in cases of non-operative musculoskeletal injuries

Based on updated PubMed database reviews (January 2024), which included systematic reviews and several RCTs, results did not provide sufficient evidence of efficacy. Several randomized trials have compared active circulating cooling devices with standard intermittent icing or cold packs and results have demonstrated little significant benefit of the continuous cooling devices. In general, the evidence is insufficient to determine that the technology results in an improvement in the net health outcome.

References

1. Barber FA, McGuire DA, Click S. Continuous-flow cold therapy for outpatient anterior cruciate ligament reconstruction. *J Arthroscopy Rel Surg.* 1998; 14:130-135.
2. Brandsson S, Rydgren B, Hedner T, et al. Postoperative analgesic effects of an external cooling system and intra-articular bupivacaine/morphine after arthroscopic cruciate ligament surgery. *Knee Surg Sports Traumatol Arthroscopy.* 1996; 4:200-205.
3. Cohn BT, Draeger RI, Jackson DW. The effects of cold therapy in the postoperative management of pain in patients undergoing anterior cruciate ligament reconstruction. *Am J Sports Med.* 1989; 17:344-349.
4. Dervin GF, Taylor DE, Keene GCR. Effects of cold and compression dressings on early postoperative outcomes for the arthroscopic anterior cruciate ligament reconstruction patient. *J Orthop Sports Phys Ther.* 1998; 27:403-406.
5. Healy WL, Seidman J, Pfeifer BA, Brown DG. Cold compressive dressing after total knee arthroplasty. *Clin Orthop.* 1994; 299:143-149.
6. Edwards DJ, Rimmer M, Keene, GCR. The use of cold therapy in the postoperative management of patients undergoing arthroscopic anterior cruciate ligament reconstruction. *Am J Sports Med.* 1996; 24:193-195.
7. Konrath GA, Lock T, Goitz HT, Scheidler J. The use of cold therapy after anterior cruciate ligament reconstruction. *Am J Sports Med.* 1996; 24:629-633.
8. Levy AS, Marmar E. The role of cold compression dressings in the postoperative treatment of total knee arthroplasty. *Clin Orthop Rel Res.* 1993; 297:174-178.

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9. Schroder D, Passler HH. Combination of cold and compression after knee surgery. A prospective randomized trial. *Knee Surg Sports Traumatol Arthrosc.* 1994; 2:158-165.
10. Whitelaw GP, DeMuth KA. Demos HA, et al. The use of the Cryo/cuff versus ice and elastic wrap in the postoperative care of knee arthroscopy patients. *Am J Knee Surg.* 1995; 8:28-31.
11. Coviello M, Abate A, Ippolito F, et al. Continuous Cold Flow Device Following Total Knee Arthroplasty: Myths and Reality. *Medicina(Kaunas).* Oct 27 2022; 58(11).
12. Su EP, Perna M, Boettner F, et al. A prospective, multi-center, randomised trial to evaluate the efficacy of a cryopneumatic device on total knee arthroplasty recovery. *J Bone Joint Surg Br.* Nov 2012; 94(11 Suppl A):153-156.
13. Waterman B WJ, Swaims C, et al. The efficacy of combined cryotherapy and compression compared with cryotherapy alone following anterior cruciate ligament reconstruction. *J Knee Surg.* 2012; 25(2):155-160.
14. Rana M, Gellrich NC, von See C, et al. 3D evaluation of postoperative swelling in treatment of bilateral mandibular fractures using 2 different cooling therapy methods: a randomized observer blind prospective study. *J Craniomaxillofac Surg.* Jan 2013; 41(1):e17-23.
15. Noyes MP, Denard PJ. Continuous Cryotherapy vs Ice Following Total Shoulder Arthroplasty: A Randomized Control Trial. *Am J Orthop (Belle Mead NJ).* 2018 Jun;47(6). doi: 10.12788/ajo.2018.0045.
16. Kraeutler MJ, Reynolds KA, Long C, et al. Compressive cryotherapy versus ice-a prospective, randomized study on postoperative pain in patients undergoing arthroscopic rotator cuff repair or subacromial decompression. *J Shoulder Elbow Surg.* Jun 2015; 24(6):854-859.
17. Gatewood CT, Tran AA, Dragoo JL. The efficacy of post-operative devices following knee arthroscopic surgery: a systematic review. *Knee Surg Sports Traumatol Arthrosc.* Feb 2017;25(2):501-516

A. Attachment: None

B. History:

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2/13/20	No	Howard Taekman, MD; Robert Sterling, MD	Annual Review
2/11/21	No	Howard Taekman, MD; Robert Sterling, MD	Annual Review
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2/8/24	No	Howard Taekman, MD; Robert Sterling, MD	Annual Review
2/20/25	Yes	Howard Taekman, MD and Robert Sterling, MD	Removed definition, background, passive and active cooling devices sections. Added a note from PubMed database reviews (January 2024), which included systematic reviews and several RCTs, results did not provide sufficient evidence of efficacy.
2/12/26	No	Robert Sterling, MD	Annual Review