University of South Australia

What is the evidence for the use of cryotherapy in reducing swelling in acute soft-tissue injuries in athletes?

Authors	Brett Edwards, Jessie Innes, Katie Maxted, Matthew Ridley and Olivia Saponari
Relevant Allied Health Discipline	Physiotherapists, sports trainers, medical practitioners
Sources searched	Cochrane, PEDro, Medline, Pubmed, Ausport and SPORTDiscus, was searched between the 19th and 31st of August 2020
Quality appraisal of the body of Evidence	**Strength of Evidence:** Following the NHMRC levels of evidence, this review included four Level I systematic reviews, consisting of individual RCTs, one quasi-experimental study, and one randomised trial, and one Level II RCT.
	Quality of Evidence: The evidence base was of moderate quality, due to inconsistent treatment administration, high heterogeneity, lack of methodological and statistical reporting of moderate risk of bias.
	Statistical significance: Most reported data was not of statistical significance ($p>0.05$).
	Clinical significance: Literature reported the clinical benefits of cryotherapy for outcomes other than swelling, such as pain and return to work. Ice may be patients/sports teams modality of choice due to its affordability, accessibility and low risk, therefore it's use may still be supported, if not for the reduction of swelling, but for pain management and return to work/game.
	External Validity/Applicability: The reported evidence is applicable to a westernised health care setting, as well as more local settings eg sports clubs, athletic teams. Due to the target population of athletes, the data may not be fully representative of the general public.
Summary of Evidence findings	Evidence found limited significant results for the therapeutic benefit of cryotherapy for swelling in soft tissue injuries, in particular ankle sprains. One study suggested cryotherapy may be more effective for swelling than other thermal modalities.
Conclusions	Insufficient high-quality evidence is currently available to determine if cryotherapy can reduce swelling in acute soft tissue injuries in athletes. More high-quality studies, with standardised administration are needed to elucidate the treatment responses.
Implications for clinical practice	From the analysis of the included studies, the evidence states that the use of cryotherapy to reduce swelling in acute soft tissue injuries in athletes can be recommended with low confidence. Amongst the low-moderate quality literature very limited significant data found that cryotherapy decreases swelling, thus reducing the confidence that the recommendation can be made with.

1. Bleakley, C.M., McDonough, S.M. & MacAuley, D.C. (2006). Cryotherapy for acute ankle sprains: A randomised controlled study of two different icing protocols, *British Journal of Sports Medicine*, *40*(8), 700–705.
2. Yerhot, P., Stensrud, T., Wienkers, B. & Durall, C. (2015). The efficacy of cryotherapy for improving functional outcomes following lateral ankle sprains, *Annals of Sports Medicine and Research*, *2*(2), 1-6.
3. Collins, N.C. (2008). Is ice right? Does cryotherapy improve outcome for acute soft tissue injury?, *Emergency Medicine Journal*, *25*(2), 65–68.
4. van den Bekerom, M.P.J., Struijs, P.A.A., Blankevoort, L., Welling, L., van Dijk, C.N. & Kerkhoffs, G.M.M.J. (2012). What is the evidence for rest, ice, compression, and elevation therapy in the treatment of ankle sprains in adults?, *Journal of Athletic Training*, *47*(4), 435–443.
5. Bleakley, C., McDonough, S. & MacAuley, D. (2004). The use of ice in the treatment of acute soft-tissue injury, *The American Journal of Sports Medicine*, *32*(1), 251–261.

This evidence summary has been prepared by undergraduate students as part of the HLTH 3057 Advanced Evidence Based Practice course. Due to limitations of assignment requirements reviews are limited to a maximum of 8 evidence sources. Conclusions and implications for clinical practice reported are provisional based on the evidence identified in this review and should be contextualized to local practice, clinical expertise and patient values. For further information on the review process please contact steve.milanese@unisa.edu.au