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Original Research

Cryotherapy and Joint Position Sense in Healthy Participants: A Systematic Review

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Abstract

Objective: To (1) search the English-language literature for original research addressing the effect of cryotherapy on joint position sense (JPS) and (2) make recommendations regarding how soon healthy athletes can safely return to participation after cryotherapy.

Data Sources: We performed an exhaustive search for original research using the AMED, CINAHL, MEDLINE, and SportDiscus databases from 1973 to 2009 to gather information on cryotherapy and JPS. Key words used were *cryotherapy* and *proprioception*, *cryotherapy* and *joint position sense*, *cryotherapy*, and *proprioception*.

Study Selection: The inclusion criteria were (1) the literature was written in English, (2) participants were human, (3) an outcome measure included JPS, (4) participants were healthy, and (5) participants were tested immediately after a cryotherapy application to a joint.

Data Extraction: The means and SDs of the JPS outcome measures were extracted and used to estimate the effect size (Cohen *d*) and associated 95% confidence intervals for comparisons of JPS before and after a cryotherapy treatment. The numbers, ages, and sexes of participants in all 7 selected studies were also extracted.

Data Synthesis: The JPS was assessed in 3 joints: ankle (*n* = 2), knee (*n* = 3), and shoulder (*n* = 2). The average effect size for the 7 included studies was modest, with effect sizes ranging from -0.08 to 1.17, with a positive number representing an increase in JPS error. The average methodologic score of the included studies was 5.4/10 (range, 5–6) on the Physiotherapy Evidence Database scale.

Conclusions: Limited and equivocal evidence is available to address the effect of cryotherapy on proprioception in the form of JPS. Until further evidence is provided, clinicians should be cautious when returning individuals to tasks requiring components of proprioceptive input immediately after a cryotherapy treatment.

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