

Ice Treatment

for acute and chronic injuries, pain and inflammation control

Overview:

For use whenever pain or inflammation is present throughout the rehabilitation process as well as in situations of acute injury. May be incorporated into routine pain management for chronic pain/inflammatory conditions, rehabilitation and illness. Athletes in training may choose to ice post exercise as part of their recovery routine.

Purpose made gel ice packs are recommended and are available for sale in the **RESTORE™** clinic. Alternatives may include frozen peas, *wet ice applied directly to the skin through a wet towel¹*, or a tea towel frozen when wet.

Please Note: *Ice applied directly to the skin may produce ice burns but using a protective barrier can reduce the potential for such burns. A damp cloth barrier is ideal¹.*

Rational – Why Ice?

It is proposed that by decreasing tissue temperature, ice can diminish pain, metabolism, and muscle spasm, minimizing the inflammatory process and thereby aiding recovery after soft-tissue trauma³. Immediately post injury, ice is principally used to reduce metabolism, thereby minimizing secondary injury, and the degree of tissue damage^{2,3}. Ice causes vasoconstriction, which helps reduce haemorrhage (bleeding from damaged blood vessels)¹. The sooner after injury that icing is initiated the more beneficial this reduction in metabolism will be². In contrast when applied for rehabilitative purposes, it is used primarily to relieve pain^{2,3}. Adequate cooling can reduce pain, spasm, and neural inhibition, thereby allowing for earlier and more aggressive rehabilitation exercises⁶.

Application:

- **10min on - 10min off.**

In revolutions as many times as is convenient and manageable. Having two icepacks to hand is recommended.

There is no evidence from the literature suggesting an optimal frequency or duration of treatment but the consensus appears to be that repeated applications of 10 minutes are effective¹. There is evidence of a reduction in tissue temperature in the first 10 minutes with little further reduction from 10 to 20 minutes¹. Ice is an effective modality, but it should be applied in repeated applications of 10 minutes to be most effective, to avoid side effects, and to prevent possible further injury¹.

- **Shorter application durations may be required on 'shallower prominences' such as hands or wrists.**

The area should appear white and clammy when the pack is removed. If the skin is pink you may need to reduce the length of each application.

Pinkness is a sign of the 'hunting reflex' – "a physiological reflex action to protect tissue from ice damage"⁵ when temperature reduction is too low. Repeated applications of ice appear to help sustain the reduced muscle temperature without compromising the skin. Skin and superficial temperature can return to normal while deeper muscle temperature remains low¹.

A note on intermittent application of heat and aerosol freeze sprays: *Contrast therapy (heat applied between cold applications) appears ineffective in reducing intramuscular temperature and freeze sprays, while lowering skin temperature, have little effect on muscle temperature¹. In a study by Myrer⁴ intramuscular temperature did not fluctuate over a 20 minute period with contrast therapy, although there was a significant temperature decrease with ice alone. Icing, if started within 36 hours after the injury and used for a minimum of 3 days, was statistically more effective than heat therapy for complete and rapid recovery of acute ankle sprains⁷.*

Freeze Gels may be useful: Cold gel can easily be carried by a patient or even tucked conveniently in the pocket of an athlete. A prospective randomized controlled trial⁸ in 2003 showed that cold gel caused significantly faster pain relief and significantly faster rehabilitation results after minor soft tissue injuries. Results indicated that cold gel was superior to placebo gel and provided an effective and safe treatment for pain and disability for sports related soft tissue injuries. The gel was applied four times daily on the skin for 14 days. **RESTORE™** recommends **Biofreeze** as a convenient temporary substitute to icing for patients' who find themselves in restrictive situations due to work constraints etc... Patients' can find this product, available as a gel or a pump spray at most Boots Chemists.

Cautions:

*There is impairment of reflex activity and motor function after ice treatment and athletes may be more susceptible to injury for up to 30 minutes following treatment. Ice may also impair proprioception (limb awareness)¹. **RESTORE™** recommends icing only after activity to avoid risk of injury.*

References:

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