

Heat vs Ice

The application of heat causes local blood vessels to dilate (vasodilation) thus increasing blood flow to the area. Thus applying heat to a painful area is useful when we want to stimulate blood flow – most commonly where blood flow is restricted by muscle being tight and contracted. Unless muscle is sore due to exercise, pain associated with muscle is due to lack of blood flow through it. So if you instinctively feel that your pain is muscular; your pain is more of a nagging dull ache in nature (rather than an acute sharp, stabbing pain); the pain has developed gradually; responds to being rubbed; and tends to be better for movement/being used, you might want to try using a heat pack or soaking in a hot bath.

Applying ice to a painful area causes local blood vessels to constrict (vasoconstriction). This is the exact opposite of what happens during the body's natural response to injury – the inflammatory response. As soon as tissue is damaged, local blood vessels dilate (vasodilation) and become more permeable, in order to increase the transport of cells and to repair the site of injury. This process causes local heat and swelling, as well as increased sensitivity to pain due to the release of certain chemical mediators also involved in the inflammatory response.

You could argue that the body knows best, and we should not interfere with its attempt to repair damaged tissue. And you may be right, since despite its widespread use in physical therapy and rehabilitation, the evidence in support of ice therapy for acute soft tissue injuries is thin on the ground. What research there is, and it has been carried out mostly on patients after knee surgery, seems to indicate that ice can be useful in reducing pain during the acute inflammatory period post-op or post-injury.

What does this mean in practical terms? It means that you might want to use an ice pack in the days immediately after the onset of acute pain, especially after an event in which a definite strain has occurred (as opposed to a nagging ache slowly developing). In theory it should reduce swelling and pain, and therefore make you more comfortable and more mobile.

Whether it be heat or ice that you apply – and sometimes it is a case of trial and error to see which gives most relief – do not apply either a heat or ice pack (or pack of peas) directly to the skin, as this can result in burning. Wrap whatever you use in a thin wet cloth and then apply it. Heat can be left on for as long as you like. Regarding ice, there is no evidence to suggest an optimal time to apply ice. Given that we don't want to interfere with the body's natural response to injury too much though, I would suggest that ten minutes at a time would suffice, and no more than at hourly intervals.