

## Heat or Ice? Which to do?

Self management of aches and pains is an important aspect of any rehabilitation, and the initial management of injury can have a huge impact in the length and quality of recovery. Whilst there are many different slogans or mantras regarding the best forms of management and pain relief, they basically can be whittled down to either the use of heat or ice.

So which one should you use? Firstly, we need to look at the benefits of heat and ice and the body so that the next time pain strikes, you know whether to head to the freezer or microwave.

### ICE:

Ice is most effectively used in the initial management of mechanical or forceful soft tissue injuries. Many people would have heard of the R.I.C.E (or R.I.C.E.R) regime. This stands for **Rest, Ice, Compression, Elevation and Referral** (to Physio / Doctor). Ice, along with rest, compression and elevation is used to help decrease blood flow to the affected area. With a decreased blood flow, swelling is decreased, reducing the effects of secondary damage and promoting a better quality and faster recovery.

The diagram below is a comparison of the same injury treated with the R.I.C.E.R. regime and without. The top row of pictures show the effects of a soft tissue injury when the R.I.C.E.R. regime is not used. While the bottom row of pictures show the effects of a soft tissue injury when the R.I.C.E.R. regime is used.

The first diagram in the series shows a rupture in the soft tissue immediately following an injury. 24 hours later, when R.I.C.E.R. has not been used, there is a large amount of uncontrolled bleeding and swelling. However, in the bottom diagram, the application of rest, ice, compression and elevation has significantly reduced the amount of bleeding and swelling.



### The Problem with Scar Tissue:

When a muscle is torn, you would expect that the body would repair the muscle and allow for full movement again. In reality, this doesn't happen. The tear, or rupture, is repaired with scar tissue. As you can see with the final diagram on the right hand side, when the R.I.C.E.R. regime is used, the formation of scar tissue is limited. Scar tissue is made from a very brittle, inflexible fibrous material. This fibrous material binds itself to the damaged soft tissue fibres in an effort to draw the damaged fibres back together. What results is a bulky mass of fibrous scar tissue completely surrounding the injury site. In some cases it's even possible to see and feel this bulky mass under the skin.

When scar tissue forms around an injury site, it is never as strong as the tissue it replaces. It also has a tendency to contract and deform the surrounding tissues, so not only is the strength of the tissue diminished, but flexibility of the tissue is also compromised.

## **HEAT:**

Heat is effectively used to help decrease the intensity of muscle spasm and tightness, generally associated with more chronic long term injuries. The application of a heat pack (and to a lesser extent heat based gel creams) can improve blood flow and muscle fibre flexibility, decreasing tension and leading to an overall decrease in pain levels. Sufferers of chronic back and neck pain will often find the application of a heat pack allows for greater freedom of movement and decreased ache.

As mentioned before, ice is used to effectively manage swelling in an acute injury. For the first 72 hours, the use of ice is very important, just as importantly is the avoidance of heat. As discussed in the previous paragraph, heat helps to promote blood flow, and heat in the initial 72 hours will further increase bleeding and swelling. However, after these initial stages, heat can be used to effectively manage swelling and other symptoms.

Following acute soft tissue injuries, no matter how much ice used, you will generally notice a localised area of swelling around the damaged tissue. This swelling is generally a waste product following the damage of the original injury. Whilst there is still swelling around an injured area, new fresh blood flow to the area, full of important nutrients and oxygen, is hampered. The use of a heat pack on the swollen area can help increase the overall blood flow. This increased blood flow will help to remove the waste products with each cycle around the body – removing the swelling and improving the availability of fresh blood. Fresh blood brings with it fresh nutrients, improving the quality of rehabilitation and decreasing scar tissue formation as discussed as above.

So in the end, if it's a new injury that has occurred in the past 3 days, you can never get enough ice to the area. Apply for 15-20 minutes every hour, as regularly as possible.

If the injury is more long term and generally has some associated stiffness, apply a heat pack to the area to provide short term management of your pain levels.

And at all times if you have any doubt, give us a call. If you are still feeling pain after 2 days of ice or heat, you should come and see us.