

Ice baths – The science behind the torture!

So you have just finished playing back to back matches after another exciting day of Touch and your legs are feeling the strain. Your heart is telling you to hang up your boots and head to the bar for a well deserved pint, but your head is telling you to get waist deep in a freezing cold bath of ice water.

We all have our opinions and beliefs on effective methods to aid post match recovery, with ideas usually based on tradition, habit or peer recommendation. Plunging into ice cold water is a common practice among elite athletes and sports teams with the belief that this is a way to recovery faster and reduce DOMS (delayed onset of muscle soreness), especially after periods of intense competition or training.

But before you succumb to the torture, what is the evidence behind the practice? Read on to make up your own mind.



The theory behind the use of cryotherapy (ice) is based on the fact that intense exercise causes microscopic tears in the muscle fibres leading to microtrauma. It is this damage that stimulates muscle cell repair, which is the theory that body builders rely on in order to build muscle bulk (hypertrophy), which will in turn strengthen the muscle.

This process is also thought to be responsible for delayed onset muscle soreness (or DOMS) which typically occurs 24-48 hours post strenuous or intense exercise.

Advocates of Ice baths believe that the use of ice will cause constriction of blood vessels which will flush out waste products, such as lactic acid; reduce swelling and reduce metabolic activity and slow down tissue breakdown. It is also thought that when you get out of the ice bath your body will start to warm up again and new blood will flow back into the muscles and bring nutrients to the area.

However it should be considered that, by the very fact that you are causing constriction of blood vessels in your muscles immediately post exercise, you are in fact depriving your muscles of blood flow, and therefore nutrients required for healing during this period.

Unfortunately there is little scientific evidence to support the practice and no protocols or guidelines exist to point us in the right direction in terms of effective emersion times or in fact the most effective water

Ice Baths



temperature.

Most studies are inconclusive and use several different methods such as contrast baths (hot and cold baths), different emersion times and are based on different protocols. Therefore it is difficult to compare them and make generalised conclusions.

One study in the International Journal of Sports Medicine in July 2008, found that cold water immersion and contrast water baths may help recovery from short maximal efforts. This study was performed on cyclists performing high intensity efforts on successive days during stage races. Four different methods were used including different water temperatures, different emersion times, contrast baths and rest alone.

The cyclist's performance declined after hot baths and complete rest but they performed better after cool water immersion.

However, did the cyclists already have their own beliefs on the use of ice baths that may have produced a placebo effect?

Another study published in 2007 in the British Journal of Sports Medicine found that ice bath immersion offered no real benefit; and in fact may increase DOMS after heavy weight training. Subjects in the study who had been immersed in an ice bath for 1 minute as opposed to a tepid bath for 1 minute reported more leg pain the following day.

Similar studies have reported greater benefits from contrast baths than ice baths alone. (Journal of Strength and Conditioning Research, 2007)

It is clear that further research needs to be carried out in this area, but what do these studies mean to you?

Based on the available information it would be safe to suggest that, although there is no conclusive evidence to support its use, ice baths won't do you any harm. Alternating between hot and cold baths to cause alternate dilation and constriction of blood vessels in order to act as a pumping mechanism to flush out toxins may also be useful.

It is clear that ice baths are not necessary, cold baths (24 degrees Celsius) are just as good, and may even be better and much less uncomfortable than ice baths. Warm water on the other hand is not effective.

Cryotherapy (ice) is widely used and evidenced in physiotherapy practice to assist with pain and to reduce muscle spasm and therefore ice baths may be beneficial in this instance. The use of ice has been shown to have psychological effects and may reduce feeling of fatigue, as ice water certainly 'wakes you up'!

So, should you head for the bar or jump in an ice bath, the choice is yours!

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References:

Vaile, J, Halson, S, Gill, N, Dawson, B (2008) Effect of Hydrotherapy on recovery from fatigue. *International Journal Sports Medicine*.
Sellwood, K et al (2007) Ice water immersion and delayed-onset muscle soreness; a randomised controlled trail. *British Journal Sports Medicine*.

