Ice bath after exercise? The benefits might be in your head

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How much of an ice bath is a placebo? Credit: Andreas Nilsson/Flickr, CC BY-NC-ND

Whether an athlete has endured the repeated joint stresses of a marathon run, or the relentless battery of hits during a football match, many will opt for a post-activity polar plunge into an ice-cold bath.

There is method to this madness, though – many studies show that ice

baths allow athletes to recover faster, train harder and ultimately perform better, and are thought to accelerate the body's recovery, preparing it for the next gruelling training session.

Given the subjective nature of muscle soreness, might the supposed benefits of ice baths be psychological? It is perfectly plausible that an athlete may simply expect the cold stimulus to help recovery and in fact, a study published in the journal *Medicine and Science in Sports and Exercise* by me and colleagues at Victoria University shows this may be the case.

Ice is nice

Ice baths are believed to improve the recovery of strength, power and flexibility, as well as recovery from muscle damage and swelling – but we aren't entirely sure *why* they have this effect. Recent research endorses the use of ice baths solely for alleviating muscle soreness following strenuous exercise, with its role on muscle function less clear.

Previous research on ice baths has overlooked the possibility of a placebo effect, a fascinating phenomenon by which a normally ineffective treatment may result in improvements. The intriguing influence of the placebo effect has long been acknowledged in medicine and medical research, often used as a therapeutic intervention and routinely controlled for in clinical trials for over 50 years.

The placebo effect is so strong that it has even been controlled for in the testing of new surgical techniques. For example, patients having a knee arthroscope to treat arthritis reported similar improvements in knee pain and function as those who received a placebo or "sham" surgical procedure.

The placebo effect has also been shown to influence sport performance,

where simply expecting an intervention to have a positive effect can improve performance. A 2008 study showed an 8% decrease in perceived fatigue and a 12% increase in leg extension strength when supplying a caffeine placebo.

Mind power

So, are ice baths actually helping our muscles to recover, or is it all in our heads?

Our research investigated this issue, comparing the effects of an ice bath with a placebo condition that participants were tricked into thinking was as effective as an ice bath.

We recruited 30 young, healthy men who we considered "recreationally active" and got them to perform a maximal cycling bout (4 x 30s "all-out" sprints on a bike) followed by one of three recovery conditions:

1. an ice bath (around 10C)
2. a warm bath control (around 35C)
3. a placebo (around 35C).

The placebo participants were shown a fake brochure detailing the benefits of a newly-developed "recovery oil", and were led to believe it was as effective as an ice bath for the recovery of athletic performance.

To deceive them, we simply put a common skin cleanser into the bath, in plain sight of the participants, immediately before their bath.

Interestingly, participants in both the ice bath and placebo conditions rated their belief in the benefits of their assigned recovery condition similarly, which in turn translated into a similar recovery of leg extension strength over a 48-hour post-exercise period.

On top of this, the recovery of leg strength was faster for the placebo condition when compared with the warm bath control, even though the two conditions were identical.

By deceiving participants into thinking they were receiving a beneficial treatment, subjective ratings of psychological well-being were improved, and a superior performance was witnessed. These results support the notion that belief has a powerful effect on exercise performance.

Where to next? Smart coaches can harness this belief effect to maximise the benefits of everything that they do with athletes. This is particularly important for the so called placebo effect "responders", as it is well documented that some individuals show remarkable responses to placebo interventions, while others may not at all.

A strong belief in ice baths, combined with any potential physiological benefits, will maximise its potential to enhance an athlete's recovery from exercise. For the rest of us, a warm bath will do just fine.

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