

Is a cold water swim good for you, or more likely to send you to the bottom?

January 3 2018, by Mike Tipton

There are people who will tell you that a dip in cold water is not just exhilarating and enlivening, but good for you. They have not, they will tell you, had a cold for years. In many nations there is a cultural tradition of cold water dips – whether that's a swim on special occasions such as Boxing Day or New Year's Day [as in the UK](#), or as part of a routine of alternating hot saunas and cold baths perceived to have health benefits, such as in Japan, Germany, Russia and [Scandinavia](#).

But cold water immersion is a doubled-edged sword – and there is another group, often including those working in search and rescue, who will warn of the dangers posed by cold water. On average, [someone drowns every 20 hours in the UK](#) – and the Christmas holiday period is a particularly a bad time of year for drinking and drowning.

There are centuries of references to the dangers posed by cold water: Herodotus, describing the ill-fated sea expedition of the Persian general [Mardonius](#), wrote in 450BC that "those who could not swim perished from that cause, others from the cold". In December 1790, James Currie, a physician, stood unable to help as the crew of a stranded American sailing ship fell into the cold sea and drowned. Currie was so affected he went on to undertake the first recorded experiments on the effects of cold water immersion on the human body.

Similarly, claims for the [health benefits](#) of cold water, in spa or sea, also boast a long heritage: Hippocrates' [water therapy](#) was designed to allay "lassitude" (physical or mental weariness), while Thomas Jefferson

claimed that 60 years of daily cold foot baths every morning had "maintained his good health". By 1750, there was much published writing that recommended sea swimming for the treatment of a range of diseases, with winter considered the best time to engage in the activity. Sea bathing reached a peak in popularity in the late 18th century and led to the establishment of many of the seaside towns and resorts we visit today. Recently there has been a significant increase in the popularity of "wild" swimming in lakes, rivers and streams, or [marathon swimming](#).

The question is: what does the science say as to whether a freezing dip will "kill or cure"? We [looked at the evidence](#).

A quick way to die

There is no doubt that the physiological responses to immersion in cold water are dangerous, and are precursors to sudden heart attack, [the loss of capacity to swim](#), hypothermia and drowning. Hypothermia has traditionally been regarded as the major threat from being in cold water, largely thanks to the fate of victims of the Titanic disaster and, later, the tens of thousands of mariners' deaths during World War II – some 30,000 of 45,000 Royal Navy deaths occurred when sailors escaping their sinking ships were trying to survive in the sea.

However an increasing collection of statistical, experimental and anecdotal evidence has meant that focus has shifted to [the "cold shock" response](#): the initial cardio-respiratory response evoked by the sudden cooling of the skin. This places a strain on the heart, and the sudden loss of control over breathing leading to gasping means that the likelihood of breathing in water, even the small volume of water necessary to drown, is significantly increased.

For example, the cold shock response peaks in water between 10-15°C, and the initial one to two-litre gasp of breath prompted by cold water

immersion is usually larger than the lethal dose of salt water for drowning. The cold shock response explains why about 60% of those who die in cold water do so in the first minutes, not in the much longer period required for hypothermia to set in.

Invigorating

On the plus side, there is no doubt that a cold dip stimulates the body. The release of stress hormones gives that energised feeling of being really "alive". The cold and pressure on the body from immersion in water can also act to [reduce swelling and combat inflammation](#). The use of cold water therapy to [aid recovery after exercise](#) has been reported to have differing levels of efficacy depending on the exercise and treatment used.

Staying with the theme of inflammation, there is an expanding body of evidence that links inflammation with physical and mental health. Becoming adapted to cold water through repeated immersions can theoretically [reduce the body's inflammatory response](#). This reduction of inflammation explains why repeated [cold water immersion](#) may be therapeutic for other conditions which may have an inflammatory component. For example there is recent research to suggest that [depression](#) is a response to inflammation in the body.

There is also evidence that adapting the body to cold water enhances the body's ability to adapt to other, apparently unrelated stresses. For example, there is evidence that short immersions in cold water improves the body's [response to high altitude stress](#). Having become adapted to cope with one, the body is also better at coping with the other.

Finally, that old chestnut about cold water baths being a defence against the common cold: when it comes to the benefits to the immune system of a freezing swim, the jury is still out. Some [laboratory studies](#) have

reported improved markers of immune function, but the clinical significance of these findings is uncertain.

For example, upper respiratory tract infection is often used as a useful measure of immune system functioning: open, cold water swimmers have been found to have fewer infections than their non-swimming partners, but [no fewer infections than indoor swimmers](#). And herein lies one of the problems with the "benefits" side of the cold water debate: the properly controlled experiments that isolate cold [water](#) immersions from socialising, exercise, getting fitter, taking exercise in nature (so-called "green" therapy) and other activity that add complicating variables simply haven't been done.

So, on balance the evidence is that [cold water](#) has a somewhat greater potential to "kill" than to "cure". However, you can still enjoy and be invigorated by your festive dip, but go in slowly, with a friend, at a supervised event – and if you can wear a fancy dress costume that incorporates a wet suit, no one will blame you.

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