

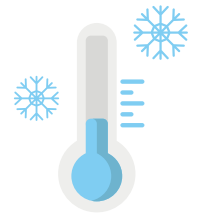


ELITE

Personal Training and Fitness Solutions

HEALTH TOPIC OF THE WEEK

3/6 - Cold Exposure



Introduction

Just thinking about intentionally exposing yourself to cold temperature is enough to bring on the shivers. Why do such a thing? It turns out there are significant benefits. Read on. You just might warm up to the idea of being cold.

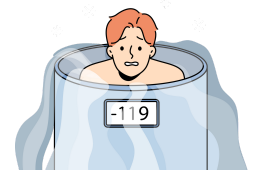
Definition

Cold exposure therapy simply means short exposure to cold. Examples include ending a shower with a cold-water spray of 2-3 minutes (after working up to this gradually), taking an ice bath or cold plunge for 4-6 minutes, or getting a whole-body cryotherapy treatment using liquid nitrogen or argon gas.



Background

Our body seeks to maintain a normal core temperature around 98.2 °F. This is known as sustaining homeostasis. Changes below our normal threshold cause adaptive changes. Temperatures of 60 °F or lower are needed to experience the full benefits of cold exposure.



Insulative Action

Two important mechanisms occur when the body is exposed to cold. The first is insulative action. It involves the redirection of blood flow away from the extremities (example: placing an ice pack on a swollen ankle) and an increase in metabolic rate, which produces heat. Insulative actions must take place before metabolic changes occur. Insulative actions include warm-seeking behavior, presence of goosebumps and constriction of blood vessels.



Elite Personal Training and Fitness Solutions does not provide medical treatment or intervention. We acknowledge scientific evidence that appropriately intensive exercise and sustainable nutritional intervention can have significant impact on chronic health disorders and obesity, dramatically improving symptoms when recommendations are followed. Please visit us at Eliteptf.com for more information and to schedule your evaluation.

Metabolic Changes

Metabolic changes caused by cold exposure are referred to as non-shivering adaptive thermogenesis (NST). NST produces both a muscle response and a body fat response. The muscle response shifts the relaxed state of muscle fibers to a more active state. The result? Heat production increases by a factor of two, ramping up whole body metabolic rate by about 16%.

Fat Loss

Did you know that cold exposure contributes to fat loss? Cold increases your metabolism and activates thermogenesis, in which brown fat burns calories to produce heat. Never heard of brown adipose tissue (BAT)? Brown fat may sound like a bad thing, but it's not. It's a GOOD thing! Brown fat breaks down blood sugar and fat molecules to create heat and maintain internal body temperature. Brown fat is typically more active during youth. However, deliberate cold exposure activates brown fat in older individuals. Note that cold exposure doesn't increase BAT - it only activates it. You increase brown adipose tissue through - you guessed it - exercise.



Weight Loss

Cold exposure can help promote weight loss by improving insulin sensitivity. One study found that 10 days of cold exposure boosted insulin sensitivity in diabetics by 43%. Cold exposure also helps with blood glucose control, enabling cells to better clear glucose from your bloodstream.

Additional Benefits of Cold Exposure

Helps relieve acute migraines

- Cold constricts blood vessels, which helps reduce the neurotransmission of pain to the brain.

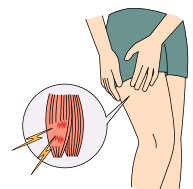
Reduces delayed onset muscle soreness (DOMS)

• A meta-analysis demonstrated that cold therapy decreased pain associated with DOMS during the first 24 hours after exercise. Cold is a natural anti-inflammatory without the side effects of anti-inflammatory medications.



Improves mood

• Cold increases the production of mood-elevating hormones and neurotransmitters (specifically beta-endorphins, noradrenaline and dopamine). This helps alleviate symptoms of depression and anxiety.



Boosts immune system

• Cold exposure can elevate norepinephrine as much as 300%. This is a huge benefit because it inhibits inflammatory cytokines. If you've followed our inflammation series, you may recall that these little devils are small proteins that drive the inflammatory response.



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Methods

There are many ways to experience cold exposure, but two methods are especially effective. The first involves cold water immersion in an ice bath. Typically, an ice bath is performed using a tub or basin. The individual submerges his body from the neck down for a maximum of 10 minutes. The second method is highly effective and much easier. End your shower with cold water. Maybe you already do this. Good. Keep it up. Individuals should engage in this type of therapy frequently to experience its full benefits.

We recommend taking warm showers and ending them with 30 seconds of cold water. Sorry, but 10-15 seconds won't cut it. Slowly work up to two to three minutes of cold water at the end of your shower. As with the ice bath, do not exceed 10 minutes of cold exposure. The effects of cold exposure are cumulative, so make this part of your health routine. Your brain and body will thank you.



This article was contributed by Zack Younis, BS, NASM-CPT, NASM-CNC, CES, CFNP. He graduated with 2 degrees from Penn State University: (1) A Bachelors of Science degree in Kinesiology, with a concentration in Movement Science, (2) Physical Therapy Assistant (PTA). Zach is also a certified personal trainer and functional nutritionist. For his bio, please see <https://www.elitepersonaltrainingandfitnesssolutions.com/zach-younis>



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