

# INVICTUS

SPORTS PERFORMANCE AND FITNESS

## Hot vs. Cold: Which Treatment is Best for Post Strength Recovery?



*Find out whether it's better for you to use hot or cold therapy to aid in your recovery.*

---

People spend more time recovering from a workout than actually working out, enduring hours of soreness brought on by muscular inflammation. If not treated right, this workout side effect can make it harder to go for another session. Whether it's fatigue, muscle cramps, or the classic delayed onset muscle soreness (DOMS), combating inflammation should be as valued a practice as working out. How can you approach the recovery process?

### Cold Therapy

Ancient Greeks from 3500 BC saw water as the cure for everything. Grandfather of cryotherapy, Hippocrates, theorized that cold therapy could replenish energy and strength. His theories eventually became scientifically recorded as beneficial to post-workout recovery in 1963 by D.H. Clarke. So far, ice is regarded as the most effective way of approaching cryotherapy [1].

Our bodies heat up during exercise, so it seems logical to cool down our body temperature afterwards. Cold-air exposure, through liquid nitrogen or refrigerated cold air, has gained traction in American sports through this century. It's been shown to help relax the muscles and alleviate symptoms of inflammation.

Cold therapy has also been proven to be the most beneficial for endurance athletes. One study claims that an optimal approach to recover from endurance training is through a combination of breathing exercises (meditation) and cold therapy. This allows the body to activate the sympathetic nervous system and reduce proinflammatory responses. Ice immersion, such as ice baths or ice packs, is recommended to be paired with endurance training [2].

Despite these great recovery benefits, one should be cautious not to practice this type of recovery immediately after a workout. Cold therapy too soon after exercise can actually impede muscle growth. To reap these recovery benefits without sacrificing hard earned gains is where heat therapy comes into consideration.

### Heat Therapy

# INVICTUS

SPORTS PERFORMANCE AND FITNESS

Weight training recovery is the best time to fight fire with fire. While it seems ironic, heat therapy, either from a hot shower or a sauna, makes a greater impact on hypertrophic recovery than cold therapy. Muscles exposed to heat therapy recovered faster than muscles exposed to thermoneutral therapy. Heat therapy also branches out to improve glycogen depletion, protein synthesis, and delayed-onset muscle soreness [3].

Glycogen is the body's natural source of energy. It gets depleted from the body during the muscle-tearing process mentioned previously. This results in the body getting progressively weaker and fatigued throughout a workout. Heat can actually enhance the delivery of glucose after a workout if optimal carbohydrates are consumed [3].

Not only is the body depleted from glycogen, but training can deplete protein as well. Proteins are the essential amino acids that keep the body together. If the glycogen sources are fully depleted in a workout, the body will use protein as a source of energy. This causes even more tearing in the muscle fibers, but to a more harmful extent. Heat can help recycle the damaged proteins and synthesize new ones [3].

Delayed-onset muscle soreness (DOMS) is the feeling of lost muscle function 24-72 hours after resistance training. Some people chase muscle soreness because it means they worked their muscles to the maximum effort. Yet some may see it as an interruption of their everyday lives. Thankfully, recent studies have shown a connection between heat, muscle soreness, and amino acids, helping to prove heat can improve muscle soreness through protein synthesis [3].

## In The End

Your approach to recovery has to be based on your lifestyle. Cold therapy is a great mental discipline, but should be practiced after endurance training days rather than resistance training days.

On the other hand, heat has vast benefits on longevity, cardiovascular health, and gains. The most optimal way for this lifestyle would be to use cold therapy on rest days and heat therapy on hypertrophy training days meaning use hot and cold to your advantage and savor that muscle relaxation.

## Sources

1. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9012715/>
2. <https://pubmed.ncbi.nlm.nih.gov/35213875/>
3. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7492448/>