



What is it?

Cold water immersion (CWI) is a recovery process involving the immersion of the body into cold water immediately after exercise.



Blunted adaptation

Uncertainty within current research means that it is still unclear whether continuous CWI use reduces long-term adaptations or not.



Does it work?

Research supports the use of CWI for reducing the effects of subjective measures post-exercise (i.e. DOMS and RPE), its effects on objective measures are far less apparent. This raises questions about the physiological mechanisms underpinning these findings.



Application

Though research is varied, the following advice is possible:



Physiology

The primary mechanisms for CWI's ability to enhance recovery are still not fully understood. However, the following theories have been suggested:

- Vasoconstriction (blood vessel constriction)
- Analgesic (pain relieving) effect of the cold water
- Reducing inflammatory pathways
- Placebo effect
- Hydrostatic pressure

Temperature

Temperatures of approximately 11°C are advised



Duration

Current research suggests that the optimal immersion duration is between 11-15 minutes.



Depth

Deeper immersion could lead to a greater improvement in recovery.



Our summary

CWI has been proven to improve recovery for subjective measures, but its effects on objective measures are far less apparent. The underpinning psycho-physiological responses of this recovery method are still not fully understood.

protocols for

EFFECTIVE ICE BATHS

VIVE
STRETCH - TISSUE - TECH

Ice baths have been a popular tool in the world of fitness and wellness for decades, but the science behind why they work is often overlooked.

This infographic will break down the benefits of ice baths. With simple protocols and tips, you can optimize your workouts and overall health with the power of cold exposure.

HIGH INTENSITY
TRAINING



Ice baths have been shown to be an effective recovery tool after high-intensity exercise, with short intervals (less than 5 minutes) demonstrating positive recovery outcomes for muscle power and decreased muscle soreness.

3-5 MINUTES
40-50°F

ACTIVATION



A short, very cold ice bath can stimulate the nervous system, providing a jolt of energy and helping to enhance performance before a workout.

1-3 MINUTES
40-50°F

WELLNESS



Cold exposure through ice baths has been linked to numerous health benefits, including improved immune function, reduced inflammation, and increased cardiovascular health.

5-10 MINUTES
50-60°F

MUSCLE & STRENGTH
GAINS



While ice baths have been shown to be effective for recovery, they may also blunt the response of strength training and subsequent hypertrophy. Thus, their use for this purpose may need to be carefully considered and adjusted based on individual goals and needs.



1. Bleakley, C., McDonough, S., & Gardner, E. (2012). Cold-water immersion (cryotherapy) for preventing and treating muscle soreness after exercise. *Law, D. S., & Herbert, R. D. (2011). Cold-water immersion and delayed-onset muscle soreness: a meta-analysis.*
2. Saunders, P. U., Pyne, D. B., Telford, R. D., & Hawley, J. A. (2004). Factors affecting the rate of muscle glycogen resynthesis after exhaustive exercise.
3. Thévenet, D., Lebel, E., Sánchez, S., Haddad, M., & Villeneuve, N. (2017). Effectiveness of cold water immersion for recovery after high-intensity exercise in trained athletes: a systematic review and meta-analysis.



Cognitive Function

Regeneration of synapses and nerve cells that may help boost cognitive function and prevent degenerative brain disease.

Weight Loss

Produces healthier and more efficient brown adipose tissue (BAT) that can lead to weight loss.

Inflammation

Reduces inflammation by affecting cytokine production (may be good for inflammatory diseases and autoimmune conditions) and vasoconstriction of blood vessels (may not be good for athletes recovering from intense exercise).

Immunity

Boosts immune system due to the production of lymphocytes that may help boost cognitive function and prevent degenerative brain disease.

WHAT HAPPENS AFTER AN

ICE BATH

Mood

Boosts feel good hormones like dopamine and norepinephrine so may help in depression.

Stress Response

Cold exposure creates a positive stress response on the body giving many health benefits through 'hormesis'.

Studies Show:

Cold water immersion at 4.4°C for 20 sec. or Cryotherapy for 2 mins at -166°F (-110°C) three times a week for 12 weeks increased norepinephrine by 200-300%.

Cold water immersion at 14°C for 1hr increased metabolic rate by 350%, norepinephrine by 530% & dopamine by 250%.

The Benefits Of
Intermittent Cold Exposure

Design - post@niklas-may.de



TO READ THE FULL ARTICLE AND CITATIONS VISIT:
TheRenegadePharmacist.com/benefitsoficebaths



Should You Use Cold-Water Immersion Therapy After Exercise?

1

Strength Training

- Reduces your One-repetition maximum
- Decreases your Isometric strength
- Reduces your Strength-endurance
- Decreases your Explosive power

Endurance Training

2

- no improvement time-trial performance
- no improvement in aerobic power

Coldwater immersion therapy involves placing yourself in an ice bath (water temperature between 10-15°C) for about fifteen minutes immediately after your workout.

Cold-water immersion *negatively* impacts strength and power training while having no beneficial effect on endurance training.

Cold water baths decrease muscle growth?

@nutritiontactics

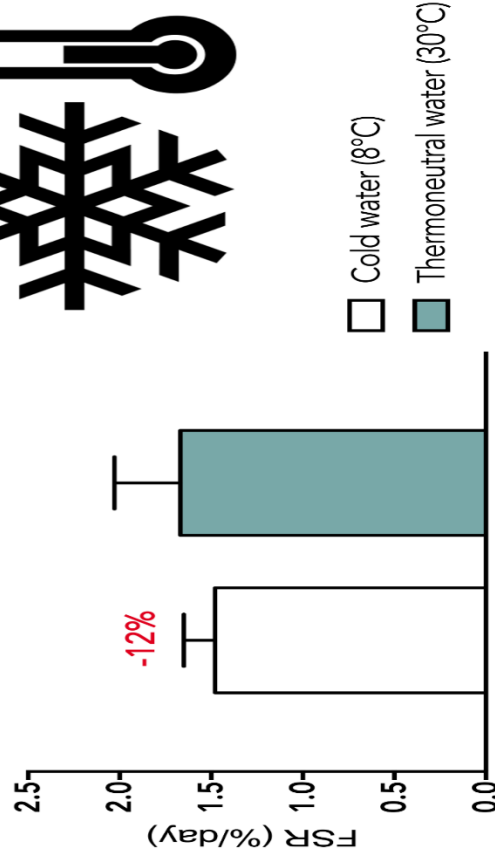


Post-exercise cooling, such as a cold water bath, is a popular recovery tool to reduce muscle soreness



However, a cold water bath after resistance exercise sessions **decreases muscle protein synthesis**

Muscle Protein Synthesis



Fuchs et al., Postexercise cooling impairs muscle protein synthesis rates in recreational athletes, Journal of Physiology, 2019



COLD WATER IMMERSION **one size does NOT fit all** FOR ATHLETIC RECOVERY

by Stephens JM et al. JSPP June 2016

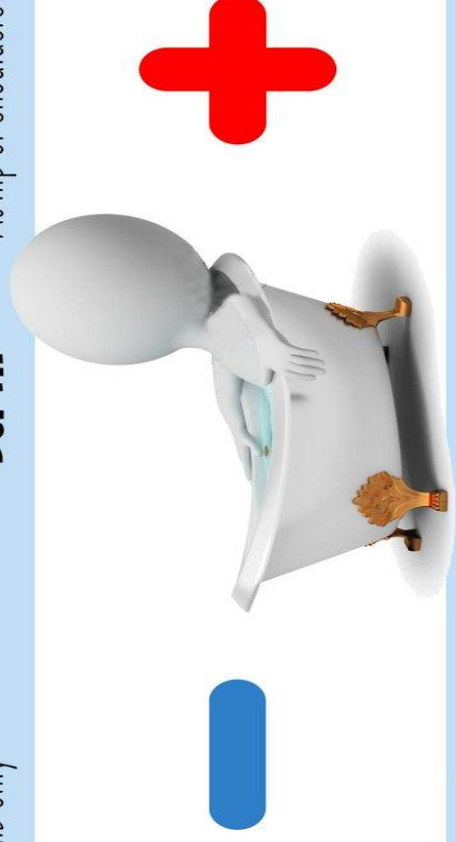
LESS INTENSE

MORE INTENSE

20° **WATER TEMPERATURE** 10°

5 min **PROTOCOL DURATION** 15 min

Limb only **DEPTH** At hip or shoulders level



Thermal strain **TO REDUCE** DOMS

Low **BODY FAT** High

Low **MUSCLE MASS** High

Female **GENDER** Male

Young & Old **AGE** Adult

Designed by @YLMSPortScience



Cold Water Therapy

involves immersing your **full body** in water around **59°F (15°C)**.

Cold Exposure Benefits

- Reduces muscle soreness 
- Accelerates muscle recovery 
- Cools you down fast 
- Boosts your immune system 
- Calms inflammation 
- Improves your mood
- Increases your metabolic rate
- Helps burn fat and calories

Do

Prepare mentally and physically

Set a goal for your ice bath and check with your doctor in advance.

Go easy on water temp in the beginning

Experiment with lower temps and longer ice baths as you go.

Have a buddy nearby

You can encourage and support each other.

Build a complete recovery routine

Try a combination of ice baths, massage and other sore muscle remedies.

Don't

Push too hard

You don't need to push to the extremes to reap the benefits of cold therapy.

Stay in too long

We recommend staying fully submerged for 2 to 10 minutes.

Take a warm shower right away

It's better to allow your body to raise its temperature naturally and gradually.

Keep it to yourself

Tag us in your photos and videos @icebarrel on Instagram and TikTok.