

Why the Wim Hof Method May Do More Harm Than Good

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STORY AT-A-GLANCE

- › Wim Hof, known as "The Iceman," is renowned for his extraordinary ability to withstand extreme cold. His unique resilience is attributed to his self-developed Wim Hof Method, which combines cold exposure and breathing exercises
- › The Wim Hof breathing method involves controlled hyperventilation to increase oxygen and decrease CO₂ in the blood, which is associated with serious health risks. It can lead to hypocapnia and reduce your body's ability to use oxygen effectively
- › CO₂ plays a crucial role in health, influencing oxygen delivery and protecting against oxidative damage, with high levels linked to physiological benefits. Hyperventilation, a key component of the Wim Hof Method, also triggers the release of stress hormones, which can be harmful if sustained
- › Although Hof's method is promoted as "positive stress," frequent and intense hyperventilation can lead to chronic stress effects, potentially undermining long-term health
- › Another concerning aspect of Hof's method is his habitual tendency to combine it with water practices, which could put his followers at risk of shallow water blackout, as discussed in the film "The Rise and Fall of the Wim Hof Empire" by investigative journalist Scott Carney

Wim Hof, often referred to as "The Iceman," is a Dutch extreme athlete famed for his ability to withstand freezing temperatures that would typically overwhelm the average

person. His feats include running a half marathon above the Arctic Circle barefoot, and fully submerged in ice for an astonishing 112 minutes.

Hof's remarkable achievements have not only captured the attention of scientists and medical professionals eager to understand the potential implications for health and human limits but have also inspired thousands worldwide to explore their own capacities for resilience.

Hof attributes his superhuman tolerance to the cold to a self-developed method known as the Wim Hof Method – a combination of frequent cold exposure, specific breathing techniques, and meditation.

According to Hof, his method can improve mental and physical health and offers benefits like stress reduction, enhanced energy levels, and an improved immune response.

However, based on analysis of his method with respect to carbon dioxide (CO₂) and stress hormones, I strongly discourage anyone to follow in Hof's footsteps, as being able to perform extraordinary feats is not the same as being optimally healthy.

Another concerning aspect of this method is Hof's habitual tendency to combine it with swimming, as highlighted in the video above, "The Rise and Fall of the Wim Hof Empire," by investigative journalist Scott Carney, who used to be a staunch advocate for Hof's technique but has since cautioned against it upon uncovering its numerous dangers.

The Wim Hof Breathing Method

The Wim Hof method includes a breathing exercise aimed at controlling your autonomic nervous system and influencing your immune response. It consists of several rounds of controlled hyperventilation followed by breath retention and ends with a recovery breath.

The controlled hyperventilation phase involves taking 30 to 40 deep, rapid breaths. Hof describes this as breathing in fully but not exhaling fully – more of a quick, active inhale

and a passive exhale. This process increases oxygen levels in your blood and decreases CO₂ levels.

After the last breath of the controlled hyperventilation phase, you're supposed to exhale fully and then hold your breath for as long as you comfortably can. During this time, CO₂ builds back up in the blood, triggering an urge to breathe.

This phase is known as the retention phase and can last anywhere from a few seconds to several minutes. During this time, your body experiences what has been described as a controlled stress response, which is said to strengthen your body's physiology.

Once you can no longer hold your breath, you're supposed to take one deep, full breath in and hold it for 15 seconds before exhaling. This recovery breath re-saturates your body with oxygen. People who practice this method often report feeling tingling sensations and a light-headedness that can border on euphoria, which is attributed to the increase in oxygen and decrease in CO₂.

Hof's Negligence Linked to Shallow Water Blackout

In the featured video, Carney recounts how he became Hof's "chief evangelist" after experiencing the method's purported benefits firsthand. He wrote an article that launched Hof's career and a book about environmental conditioning called "What Doesn't Kill Us." But despite his initial support, Carney shared that he constantly worried Hof's stunts would harm both him and his followers.

One of his major concerns is how Hof often blurs the line between breathwork and cold-water immersion. Carney states that while the Wim Hof breathing technique, when practiced alone, may lead to benefits, its combination with Hof's underwater feats creates what he describes as a "toxic brew" that can cause loss of consciousness and drowning even in a small volume of water — a phenomenon known as shallow water blackout.

Though I have differing opinions from Carney on certain matters, particularly on the claimed benefits of hyperventilation, as I'll explain shortly, I do share his concerns about

the potential risks linked to how Hof presents his method.

When Carney brought up his concerns about shallow water blackout, Hof and his organization, Innerfire, shrugged them off, claiming their website and instructional videos already have warnings against performing the breathing technique in water. While this may be true, Hof constantly opposes these disclaimers by demonstrating the technique in aquatic settings, suggesting a dangerous contradiction to his followers.

The investigative film features multiple instances of Hof doing this. For instance, his \$99 Classic 10-Week course shows a video of him during the eighth week, standing beside a shirtless student in front of an icy waterfall and saying, "Do the breathing. Go into the water. Keep on with the breathing. Keep on being focused, then you sit, then you immerse. Focus and you stay in the water."

He also conducted a "baptism" ritual in one of his expeditions, where he directed a group of 100 participants, arranged in a circle around him after jumping off a 25-foot waterfall, to engage in hyperventilation breathing before submerging their heads in water. In 2018, while teaching his method to about 300 attendees at a Los Angeles event, Hof played the famous footage of him swimming under sea ice, telling people to hold their breath for the entire duration of his swim.

"I was in shock ... Warning labels in my book as well as all over Wim Hof's own site repeatedly caution people that hyperventilation is not a freediving technique and yet here Wim was in front of a crowd implicitly saying the hyperventilation will help them push past their perceived limits and swim underwater just like him," Carney remarked.

Drowning and Fatalities Continue to Rise

Carney says that while no drowning has occurred at an official Wim Hof event, the global death toll associated with the method has continued to climb over the years. His investigation initially uncovered 12 reports of drowning at the time of the film's release

in June 2023. In his blog,¹ Carney updates that as of January 1, 2024, “the current totals have risen to 21 deaths and 18 injuries with 12 deaths in the United States.”

He also listed notable drowning cases linked to the Wim Hof Method, including the death of Andrew Encinas, an avid follower of Hof, who was found dead in a meditative pose in the shallow end of a pool. Similarly, Christopher Kuyvenhoven performed the Wim Hof Method and was passed out underwater for 20 minutes before being discovered.

“If you're doing one thing and then saying another, it creates a message that's really confusing and ultimately, I think the person is going to go with ‘I will probably do whatever Wim Hof, the master of this method, is doing himself,’ because it seems like if he's doing it then the implication is it's safe enough,”
Kara Spencer, Kuyvenhoven’s girlfriend points out in the video.

Moreover, Carney shared the tragic death of high school senior Madelyn Rose Metzger in August 2022, which he believes could spell the end of the Wim Hof Method in America. He reports in his blog:²

“In a complaint filed in the Los Angeles Superior Court, Raphael Metzger contends that Wim Hof and Innerfire ... negligently caused the death of his daughter Madelyn by failing to adequately warn his followers about the risk of drowning ...

In a major civil lawsuit, he is seeking \$67 million dollars in damages as well as an injunction against Hof and Innerfire from ever teaching his method in America again ... This is the first formal legal action filed against Hof in an American court.”

These incidents, as well as multiple other cases of deaths and drownings, underscore the dangers associated with Hof’s methods. Even without the combination of water submersion, I believe his breathwork alone poses enough threat to your health because of its profound impact on your CO₂ levels that it would be wiser and safer to steer clear of this practice altogether.

Why You Do Not Want to Lower Your CO₂ Level

Physiologically, the problem with Hof's breathing method is twofold, starting with the suppression of CO₂ that occurs when you hyperventilate, followed by the unnecessary activation of stress hormones such as cortisol and adrenaline.

One of the mechanisms that helps explain the benefits of intermittent hypoxia training is that it RAISES your CO₂ which, in turn, increases the efficiency of oxygen transport and metabolism.

The hypoxia, or lowered oxygen state, also relaxes your capillaries. In your brain, hypoxia increases blood perfusion up to 40%. This is a normal physiologic hypoxic response, and CO₂ plays a significant role in this reaction.

When you engage in the type of intentional hyperventilation that Hof teaches, you're significantly boosting carbon dioxide removal, which can lead to a condition known as hypocapnia. This occurs because you exhale CO₂ faster than it is produced by cellular metabolism, leading to a reduction in arterial CO₂ levels.

The lightheadedness and tingling people experience are physiological responses to the constriction of cerebral blood vessels and reduced oxygen supply to your brain and other tissues that occur as a result of lowering CO₂.

CO₂ Has Underappreciated Role in Health

While this may come as a shock to most people, of all the strategies I know of to increase life extension, CO₂ is one of the most effective longevity interventions available. There really isn't anything that comes close, other than a low linoleic acid diet and reducing estrogen dominance.

Unfortunately, virtually no one understands this. The now-deceased Ray Peat, a biologist and physiologist who developed the bioenergetic theory of health,³ was one of the few who understood CO₂ inside and out, and strongly advocated for its clinical use.

One of the simplest ways to optimize your CO₂ though is by breathing properly and NOT hyperventilating or overbreathing. Chronic CO₂ deficiency, which can be induced by chronic overbreathing, will inevitably contribute to premature death, which is the opposite of what the Wim Hof method promises.

In a nutshell, life-extending breathing involves breathing less and breathing slower. Both allow CO₂ to build up, and that appears to be part of why breathwork that focuses on imperceptible breathing has such wide-ranging benefits.

One of the reasons you don't want to routinely suppress CO₂ is because it's one of the things that protects you from the toxicity of oxygen. It's well-known among people who work in trauma or the ICU that premature delivery of oxygen to a patient who has suffered shock, or an ischemic attack can be deadly.

The reason for this is because the introduction of too much oxygen too quickly creates a massive cytokine storm – an inflammatory reaction – when cells don't have enough CO₂ to allow them to use the oxygen properly.

With that background, does it really make sense – if your aim is to live as long and as healthily as possible – to intentionally deplete your cells of CO₂ through hyperventilation and then flood your body with oxygen with a recovery breath daily?

CO₂ deficiency can also trigger seizures. In the past, going back 100 years or so, the test for seizure susceptibility was hyperventilating. The doctor would instruct you to breathe through your mouth very quickly for 30 seconds, and if seizure symptoms emerged, it was a sign that you have insufficient CO₂, as that's what causes the seizure activity.

Reducing CO₂ with hyperventilation also raises the pH of your blood, a condition known as respiratory alkalosis, which can have a negative effect on enzyme activity, electrolyte balance and blood flow. Hypothetically, it may also promote cancer formation over the long term.

Respiratory alkalosis also increases intracellular water uptake, a hallmark of cancer, and as the pH of the cell increases, it causes overproduction of several inflammatory

mediators, including lactate, which is another hallmark of cancer cells.

How CO₂ Depletion Impairs Cellular Energy Production

In addition to all of that, when your CO₂ is too low, your body reverts to an “emergency” vasodilator, nitric oxide (NO), a reactive nitrogen species that, when combined with superoxide, forms extremely harmful peroxynitrite.

There are three types of nitric oxide:⁴ neuronal nitric oxide synthases (nNOS); endothelial NOS (eNOS); and inducible NOS (iNOS). Low CO₂ triggers iNOS, which is far from ideal.

While eNOS primarily remains inside your blood vessels, iNOS spills into your blood, because one of its primary purposes is to fight pathogens. iNOS is produced for only two reasons, either as an emergency vasodilator, or if the immune system senses the presence of bacterial or viral invaders.

The reason you don't want to activate iNOS unnecessarily is because it's made available systemically. If your CO₂ is low, your NO will be elevated, which can form peroxynitrite and will damage polyunsaturated fats (PUFAs) that have been incorporated into your cells, no matter where they are.

NO can also form a covalent bond with Complex IV in the electron transport chain (aka cytochrome c oxidase), which is the rate limiting step of oxidative phosphorylation.

As a result, energy production in your mitochondria is inhibited, which is the absolute last thing you want, as achieving maintaining optimal energy production in the mitochondrial electron transport chain is at the very heart of health and disease prevention.

Another significant problem associated with elevated NO is pseudohypoxia, because you have oxygen in the cells but it cannot be utilized because NO impairs Complex IV in the electron transport chain. CO₂ prevents this by dissociating the covalent bond between NO and Complex IV. Hence, oxygenation is optimized when sufficient CO₂ is

present. So, CO₂ keeps your blood vessels supple without the drawback of blocking Complex IV.

The Bohr Effect

Needless to say, optimal delivery of oxygen is crucial for good health, but you don't increase oxygenation by breathing more, faster or deeper. You increase oxygenation of your tissues by raising CO₂.

Oxygen from the air binds to hemoglobin when you inhale and enter your blood circulation. This bond is relatively strong. To break that bond and deliver the oxygen where it's needed, you need CO₂. This is known as the Bohr Effect.

Basically, the Bohr Effect describes the process in which CO₂ weakens the bond between oxygen and hemoglobin so that the oxygen can separate and enter into the tissues. As the hemoglobin releases the oxygen, it binds to the CO₂ instead. The CO₂ is then expelled through your outbreath. Without enough CO₂, you will not be able to liberate enough oxygen from hemoglobin.

Other Benefits of CO₂

CO₂ also has other benefits, all of which are forfeited if you're routinely hyperventilating. Importantly:

- CO₂ attaches to and forms an electric cloud over proteins, which protects them from oxidative damage from LA metabolites like OXLAMs.
- It modulates the functional expression of proteins and hormones (as nearly all hormones are proteins). So, by raising CO₂, you can activate and radically increase the efficiency of proteins and hormones in your body.
- When administered rectally, CO₂ acts as fuel for specific anaerobic bacteria called Akkermansia in your large intestine. Akkermansia increases glucagon like peptide (GLP), which is useful in the treatment of diabetes and obesity. Ideal levels of

Akkermansia are about 10% of your microbiome, but most populations now have less than 1%.

A nearly 150-year-old medical book describes the many uses and health benefits of CO₂ that were known at the time. It basically included the entire body, and an extensive list of ailments of the day, including dementia, psychiatric disorders such as mania, dysentery, fistulas, fibrotic conditions, whooping cough and tuberculosis. According to bioenergetic researcher [Georgi Dinkov](#), who cited that 150-year-old medical book:

“Really, every condition you can think of, both physiological and mental, can be remediated, and in many cases cured, by increasing endogenous CO₂ production and decreasing degradation.”

Hyperventilation and the Activation of Stress Hormones

Another strike against the Wim Hof method is the fact that it triggers the release of stress hormones. Adrenaline and [cortisol](#) are part of a formidable survival mechanism that has allowed mankind to survive hostile and dangerous environments for eons.

Stress hormones also prevent your glucose level from dropping too low, as that could cause you to go into a coma and eventually die. So these hormones have key roles to play when it comes to keeping you alive. But surviving is not thriving, and stress hormones do not contribute to thriving health. Quite the contrary.

One of the reasons why modern man is in such a sad state of health is because of chronic stress – without an actual physical need to fight or flee – resulting in chronically elevated stress hormones that drives pathology. In short, they accelerate disease and premature death.

There's no question that stress hormones are bad news. Cortisol, for example, is a primary aging hormone. If it is chronically elevated, you will likely die prematurely as it is highly catabolic, meaning it breaks down tissues. To stay healthy as you age you need to be anabolic and build healthy tissues like muscle and mitochondria, and high cortisol

will seriously impair those efforts. It's also antimetabolic, meaning it lowers your metabolic rate.

What About the Positive Stress Argument?

Proponents of the Wim Hof breathing method will argue that controlled hyperventilation is a “positive” kind of stress – scientifically termed “hormetic stress” – that strengthens your body’s stress response and tolerance.

Even Carney stated in the featured video that he practiced hyperventilation and ice bathing every day and believed that it helped cure the canker sores that plagued him since childhood. He further explained in his blog:⁵

“The program’s basic premise is that by putting the body under intense, but non-damaging stress in the form of cyclical hyperventilation and prolonged breath holds, as well as learning to relax in frigid water, the human body will respond by becoming more physically and emotionally resilient.”

However, doing these types of hyperventilation exercises daily, as recommended, can push you into a chronic stress state, and little good will come of that. It is not “non-damaging” as Carney described, as your body doesn’t know that it’s supposed to be a “positive” stress.

Case in point: Recent research⁶ has demonstrated that **endurance-type exercises can cause chronically elevated cortisol**, and like Wim Hof’s method, exercise is known as an hormetic stress. Yet that doesn’t mean that too much of it will backfire and cause harm. In the case of cortisol, it will prematurely age you if chronically elevated, so anything that promotes that is to be avoided.

If you want to improve your health, learn to breathe properly – slowly and imperceptibly. The higher the CO₂ concentration you can maintain (while remaining within the biologically normal CO₂ concentration range), the greater the likelihood that your breathing will support your health and performance.

Sources and References

- ^{1, 2, 5} [Scott Carney, The Rise and Fall of the Wim Hof Empire](#)
- ³ [Umzu.com Who Is Ray Peat? \(Archived\)](#)
- ⁴ [Frontiers in Physiology June 2, 2016; 7](#)
- ⁶ [Haidut.me February 26, 2024 \(Archived\)](#)