# THE WATH DEAD THE MENT FATGUE

Did you overwork your adrenal glands or are you getting worked by mythology and marketing?

BY KAMAL PATEL AND KURTIS FRANK





Sticking to a physical exercise routine is tiring, but the soreness and fatigue from a good workout can easily be alleviated with a full meal and plenty of rest, so you're raring to go by the time vour next workout rolls around.

That's the theory, at least.

When real life gets in the way, recovery can suffer. Sometimes fatigue persists for so long between workouts that it doesn't even seem to be caused by the gym.

If you've ever visited a supplement store in an effort to alleviate the symptoms of fatigue, you might have been told you're suffering from adrenal fatigue. This is a common error. In short, adrenal fatigue doesn't actually exist.

"Adrenal fatigue" is a marketing buzz term designed to sell products. Though the supposed symptoms of adrenal fatigue including brain fog, difficulty paying attention and lethargy—are real, adrenal fatigue itself is not a condition recognized by the medical field. If the symptoms are severe enough to interfere in day-to-day life, they could be referred to as the effects of chronic fatigue syndrome but are otherwise simply referred to as "general fatigue."

If adrenal fatigue doesn't exist, why do we know and talk about it?

### The Origin of Adrenal Fatigue

"Adrenal fatigue" refers to a reduced capacity-or fatigueof small organs called adrenal glands, situated on top of our kidneys. A lay hypothesis suggested underperforming and fatigued adrenal glands release fewer stimulating compounds called catecholamines, which play a role in the fight-or-flight response to stress. However, this hypothesis did not take the rest of the body into account and was discredited by scientists.

The stress-response system—or the hypothalamic-pituitaryadrenal axis (HPA)—plays a major role in chronic fatigue syndrome because it mediates both the suppression and release of hormones that modulate stress, as well as how the organism (you) perceives the stress. As its name suggests, the HPA is characterized by the interactions among the hypothalamus, pituitary gland and adrenal glands. The HPA is involved in regulating a host of the body's systems, including the cardiovascular, metabolic and central nervous systems.

oral supplement.

the "disease" exists.

The HPA is also the system that—when malfunctioning due to high daily stress—increases cortisol concentrations in the blood and alters catecholamine secretion, which can then cause negative health effects over time, such as increased belly fat.

If the adrenals are involved in overall stress response, why is adrenal fatigue a false diagnosis? Though it may seem like an issue of semantics, using the correct term is important because adrenal fatigue implies targeting the adrenal glands with supplements could potentially help alleviate fatigue, when that is not the case. Most supplements designed to alleviate adrenal fatigue are meant to aid the adrenals without considering the rest of the body. At worst, the supplements ride on the buzz status of "adrenal fatigue" and don't actually include any ingredients remotely related to the stress-response system.

For example, some supplements marketed toward adrenal fatigue contain vitamin C because early research on adrenal glands found that stressed adrenal glands are more oxidized. Vitamin C was used to measure the level of oxidation in the adrenals (2,7). While it is technically true that stressed adrenal glands are more oxidized than their unstressed counterparts, and that a deficiency of vitamin C reduces catecholamine secretion (1), both of these statements are misleading in the context of actually alleviating fatigue. Supplement companies put these claims on their products and include vitamin C because it helps sell products.

Vitamin C is actually released alongside catecholamines (5) by the adrenal glands. Adding it to an anti-fatigue supplement disregards the details of how it interacts with the rest of the body, especially because it has not shown any promise in clinical trials to alleviate stress or fatigue when taken as an

It's easy to attribute symptoms to adrenal fatigue because marketing and alternative medicine perpetuate the myth that

"Adrenal fatigue"-sometimes called "hypoadrenia" in the past—is a term often attributed to James L. Wilson, who has a doctorate in human nutrition and authored "Adrenal Fatigue: The 21st Century Stress Syndrome" in 2001. While the holistic and naturopathic communities regularly refer to and offer treatment for adrenal fatigue, the medical community does not recognize the condition, according to Mayoclinic.org.

## If Not Adrenal Fatigue, What Then?

Lifestyle modifications meant to combat adrenal fatigue are usually also effective at alleviating daily stress and overall fatigue, which seems to suggest adrenal fatigue is just general fatigue masquerading under another name.

Athletes—especially those training or competing with great intensity—need to be particularly in tune with their recovery process in order to avoid dealing with prolonged fatigue (generally referred to as "overreaching," the prolonged fatigue that occurs prior to legitimate overtraining). Unhealthy sleep patterns and caloric restriction can both contribute to poor recovery and eventual fatigue. If you're feeling fatigued, evaluate your sleep and dietary habits in order to identify potential areas for improvement.

People struggling with fatigue should also avoid alcohol, particularly at night. Alcohol will impair sleep quality even if you're already asleep. If you're frequently waking up exhausted, consider abstaining or cutting back.

Misusing stimulants and stimulant withdrawal can also increase overall fatigue. Too much stimulant use can result in the body's attempting to adapt to the new compound, which can ultimately lead to low energy levels. For example, if a stimulant—such as caffeine or 1,3-dimethylamylamine (1,3-DMAA)—increases dopamine levels, the body does not need to produce as much dopamine during ongoing supplementation. If supplementation stops, it will take some time for the body to produce normal amounts of dopamine. This period of time is called withdrawal.

The post-stimulant crash may also be misinterpreted as general fatigue. For example, taking caffeine as a pre-workout supplement might result in reduced energy levels for the rest of the day. Stimulant withdrawal can also result in a drop 3. Mannucci C, Navarra M, Calzavara E, Caputi AP and Calapai, in focus and attention span. In order to break the cycle of stimulants followed by a crash, stop using the supplement until your body no longer expects the compounds and is no longer suffering from withdrawal.

Stimulant sensitivity can vary between individuals. Just because your workout buddy drinks more coffee than water doesn't mean you should be trying to do the same thing.

Dealing with withdrawal can be difficult. Time is the most 5. Padayatty SJ, Doppman JL, Chang R, Wang Y, Gill J, effective tool, but adaptogen supplements can also help with some of the symptoms of withdrawal. For example, Rhodiola

rosea is an adaptogenic herb that has shown promise in preventing nicotine withdrawal when administered to rats (3,4). Ultimately, waiting out withdrawal is the best option.

## **Fighting Daily Fatigue**

The best way to reduce daily fatigue is to enjoy a varied diet, exercise frequently and get plenty of healthy sleep. Healthy sleep is characterized by a quiet, dark environment and a regular sleeping schedule.

Supplementation for fatigue relief is risky because those same supplements could result in increased fatigue after the energy they provide dissipates. Even worse is trying to supplement away a condition that doesn't exist—such as adrenal fatigue. You should have a good reason for the supplements you take.

If fatigue persists after lifestyle and dietary adjustments, consider talking to your doctor about chronic fatigue syndrome.

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If you're feeling run down, perhaps a leisurely day at the beach will recharge your batteries.

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