

The Truth About the Internet's Favorite Stress Hormone

Cortisol gets a bad rap, but it's not so clear-cut.



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5 MIN READ

Maybe you can't sleep. Or you sleep too much. Maybe you keep breaking out, or getting sick. Perhaps your stomach bloats, your skin sags, you feel shaky. Maybe you can't focus, eat or get rid of the tension in your spine.

If you've scrolled through TikTok lately, you might be inclined to blame one or all of these things on your cortisol levels. Over the last year or so, users have flooded the app with stories about how their supposed cortisol imbalances have led to a range of health concerns — and have recommended that viewers look into their own cortisol levels.

Cortisol, sometimes known as the stress hormone, is a chemical that helps regulate the way our bodies react to stress. "It's a hormone that connects the mind and the body together," said Martin Picard, an associate professor of behavioral medicine at Columbia University. Nearly every organ has a receptor that responds to cortisol. It is crucial in helping us function throughout the day, whether by regulating blood pressure or combating inflammation.

That doesn't necessarily mean that cortisol imbalances are responsible for the various ailments that people are sharing on TikTok, said Nia Fogelman, an associate research scientist at the Yale Stress Center. "I think it's completely natural and understandable why people want to A, figure out what's going on with their bodies, and B, to want some one thing that we can fix," she said. But it's not that simple.

What does cortisol do?

When we experience stress, the pea-size pituitary gland in the brain — sometimes called the master gland — signals to the adrenal glands perched atop the kidneys, prompting them to secrete and deliver cortisol into our bloodstream.

Our bodies release the chemical when we are faced with a challenge, whether psychological or physical, real or imagined, said Jeanette M. Bennett, a health psychologist who studies the effects of stress on health at the University of North Carolina, Charlotte. We release cortisol when we encounter a tangible threat, like coming across a bear on a hike, but also when we receive an ominous work email. The more threatening we perceive an event to be, the more cortisol we typically produce. Researchers frequently use public speaking as a tool for studying cortisol levels, she added, since any situation in which we're being socially evaluated tends to produce a quick spike of cortisol.

"The mind and the body will respond as if we were in danger of dying, when actually what's happening is that our sense of self is being threatened," Dr. Picard said.

This is a gift from evolution: Cortisol helps us mobilize the energy we need to confront, or flee from, danger, partly by raising the amount of glucose in our blood. It also regulates our metabolism. Our levels fluctuate throughout the day, rising when we first wake up and falling as we drift off to sleep, said Dr. Gregory Fricchione, the associate chief of psychiatry at Massachusetts General Hospital and a professor of psychiatry at Harvard Medical School.

"Cortisol is your friend," Dr. Fricchione said, "until there's too much of it."

What happens when you have high cortisol?

We function best when we have the right balance of cortisol. "Our bodies are this harmonic unit," Dr. Fogelman said. But chronic stress can elevate our baseline cortisol levels over time, leading to a cascade of consequences. Persistently high cortisol levels may weaken the immune system, Dr. Fricchione said, as well as raise blood sugar levels and blood pressure. There's also an integral link between cortisol and sleep: We need the hormone level to decrease so that we can fully rest. People with high cortisol often struggle to fall and stay asleep, Dr. Fricchione said.

Imbalances can also cause fatigue and irritability, Dr. Bennett said. "This is what's hard with cortisol," she said. "Because it's such an inherently important hormone to just daily function, outside of stress, any time that daily rhythm is thrown off, that's going to create behavioral problems."

Some mental health conditions, including depression and post-traumatic stress disorder, are associated with cortisol imbalances, said Dr. Raza Sagarwala, a resident physician in the department of psychiatry at Vanderbilt University Medical Center who has studied the effects of non-pharmacological treatments on cortisol levels.

In rare cases, people who develop excessive amounts of cortisol can exhibit a cluster of symptoms known as Cushing's syndrome. Those with Cushing's syndrome may develop a hump of fat on the back of their necks; some people gain weight, feel fatigue and have trouble sleeping. Some bruise easily, and their blood sugar and blood pressure levels may also rise. People with the condition may require medication or surgery, but they first need to be diagnosed by a doctor, said Dr. Pratibha P.R. Rao, the medical director of the Adrenal Center at the Cleveland Clinic.

Without testing cortisol levels and consulting a physician, it's almost impossible to determine whether something like acne or poor sleep is definitively linked to hormone imbalances — and cortisol may just be a convenient culprit that people can point to when they don't have any other clear explanations for their health concerns. "When people say they have elevated cortisol — I would tell you, you cannot feel that," Dr. Bennett said. But if people are truly worried about their cortisol levels, experts said, they can talk to their primary care doctors about getting tested.

Can you measure your cortisol?

You can use blood or saliva to test your cortisol levels at a particular moment, but a one-time snapshot isn't likely to be particularly useful, Dr. Picard said, because cortisol levels change throughout the day. Urine or hair samples can reveal cortisol levels over a longer period of time, although hair samples are primarily used in research settings.

Some companies offer at-home cortisol tests, which typically involve finger pricks or saliva swabs. But experts instead recommend talking to a primary care doctor, who may refer you to an endocrinologist. "I'm not one for all this home kit testing," Dr. Rao said. "My advice is, don't test in that way."

One reason for the caution is that physicians try to obtain a comprehensive picture of how your cortisol levels ebb and flow before determining whether there may be any issues, said Dr. Mihail Zilbermint, an associate professor of clinical medicine specializing in endocrinology at Johns Hopkins Medicine.

"It's not hard to test cortisol levels, but it's not easy to interpret," he added.

Can you lower your cortisol levels?

Some small studies have suggested that yoga and mindfulness interventions like meditation may help lower cortisol levels, Dr. Sagarwala said, adding that even setting aside five minutes a day to relax and reset the mind might be beneficial. He recommended the "five senses" exercise, which can ground you in a moment of stress: List five things you can see, four things you can touch, three things you can hear, two things you can smell and one thing you can taste.

Exercise can also be helpful for regulating cortisol, Dr. Bennett said, especially moderate physical activity like jogging or cycling. Those movements prompt your body to mirror your stress response, raising your heart rate and then lowering it once you stop working out. That cycle effectively trains our bodies to activate and shut down our stress response appropriately.

People should identify the stress reduction methods that work best for them, Dr. Fogelman said. A few minutes of box breathing, for example, might soothe one person but not another. Once you find a strategy for alleviating stress, your cortisol levels can potentially become more stable, she added; this is true even for people who have been exposed to intense, long-term stress.

"Stress is not a bad word," Dr. Fricchione said. "Just being a living organism means that there's going to be stress."