

Cortisol is essential for a healthy stress response, say researchers

May 1 2023, by Theresa Larkin and Susan J Thomas



Credit: [Kinga Howard/Unsplash](#)

Have you been craving certain foods and gaining weight? Maybe you're fatigued and can't concentrate, then wake up in the middle of the night. The latest [TikTok wellness trend](#) would have you believe high cortisol levels are to blame.

It's true that cortisol affects our weight, [energy balance](#), metabolism and sleep. But so do [thyroid hormones](#), appetite hormones and sex hormones,

as well as diet and physical activity.

Cortisol also does more than this and regulates many other biological functions. It affects nearly all the cells of our body and is essential for survival.

Why is cortisol portrayed as bad?

Some of what is being blamed on cortisol are symptoms of chronic stress or depression—which makes sense, since these are linked.

Cortisol is the main "stress hormone" of the body. This might make people think cortisol is bad for them, but this is not the case.

Stress is an inevitable part of life, and our [stress response](#) has evolved as a [survival mechanism](#) so we can react quickly to dangerous situations. Both psychological and physical stresses elicit the [stress response](#).

Cortisol is essential for a healthy stress response

Our immediate reaction to a sudden threat is the fight-or-flight response. Adrenaline is released from the adrenal glands into our bloodstream. This instantly increases our [heart rate](#) and breathing rate so we can be ready to act quickly to escape or avoid danger. However, the adrenaline response is only very short-lived.

When a threat or stress persists for minutes rather than seconds, cortisol is released from the adrenal glands. Its main role is to increase [blood glucose](#) (sugar) for energy.

Cortisol [affects](#) the liver, muscle, fat and pancreas to increase glucose production and mobilize stored glucose. This increases glucose to the

brain so that we are mentally alert and to the muscles so we can move.

In a healthy and normal stress response, cortisol rises quickly in response to the stress and then rapidly reduces back to baseline levels after the stress has passed.

However, chronic stress and ongoing increased [cortisol secretion](#) are not healthy. Chronic stress can cause dysregulated cortisol secretion: when cortisol remains high even in the absence of an immediate stress.

It can take weeks for cortisol dysregulation to [return to normal](#) after chronic stress.

What's the link with depression?

Emerging evidence suggests chronic stress and dysregulated cortisol may contribute to the [development of depression](#). Our research team [has shown](#) that people with depression have, on average, higher cortisol than people who don't have depression. We also found that higher cortisol was associated with [more negative thinking](#) and lower [quality of life](#).

The symptoms described on TikTok as being due to [high cortisol](#) may be caused by stress, depression or anxiety. Depression can also [cause](#) insomnia, increased appetite, and weight gain or loss.

The [relationship](#) between cortisol, weight changes and depression are complex. High cortisol also increases the activity of adrenaline. This explains why when you are stressed you can be extra reactive and snap into fight-or-flight mode quickly.

However, some of the symptoms described on TikTok as due to "high cortisol" may actually reflect low cortisol. Low cortisol can be caused by chronic stress and high cortisol during childhood or earlier in life. This is

why some people with depression, particularly those with a long history of [depression](#), have low rather than high cortisol.

Low cortisol causes fatigue and weight gain. This is [more common](#) in women and we found this was linked to leptin, a satiety hormone.

How do you know if your cortisol is too high or low?

Despite claims on TikTok, we cannot tell whether our cortisol is in balance or high or low.

The only way to know is to have your blood, urine or saliva analyzed in a laboratory. This is not done routinely and would be a waste of resources. A doctor would only check this if they suspected you had a disorder of cortisol production, but these are rare.

Besides, your [cortisol levels](#) vary considerably across different times of the day and night.

Cortisol affects your body clock

One of the most important roles of cortisol is in the circadian system of the body. The hypothalamus in the brain sets the circadian (approximately 24-hour) rhythms of our biological functions to match the light-dark cycle. Cortisol communicates these signals from the brain to the rest of the body.

Cortisol secretion from the [adrenal glands](#) increases in the early hours of the morning, peaks at about 7am, and then is lowest from about midday until early morning.

Cortisol is our body's natural alarm clock. Higher cortisol during the

morning or at the end of the sleep period stimulates wakefulness, increased energy, and physical activity. Lower cortisol during the night encourages sleep and restorative functions.

How can you maintain healthy cortisol levels?

You can try to maintain healthy levels of cortisol by addressing the underlying causes of cortisol dysregulation.

Meditation, mindfulness and cognitive behavioral therapy can reduce the reactivity of the stress response.

[Exercise](#) during the day and good sleeping habits also help to reduce [chronic stress](#) and high [cortisol](#).

Finally, a healthy balanced diet gives your body the building blocks for good hormone health.

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