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Diet & Lifestyle

How Does Stress Affect the Body?

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[Wellness blog](#) > [./blog](#)). **How Does Stress Affect the Body?**

According to an annual market research study conducted in collaboration with the American Psychological Association (APA), participant's self-

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reported stress levels in 2020 increased significantly in several different categories compared to previous years.

(15

[.https://www.apa.org/news/press/releases/stress/2020/report-october](https://www.apa.org/news/press/releases/stress/2020/report-october)))

Some types of stress are normal and necessary, generating the impetus necessary to convert thought into action, whether that action is planting a garden, meeting a deadline, or escaping from a fire or flood. In fact, stress has been the force behind much of our progress through the ages. But when stress becomes a frequent occurrence, our health, goals, and relationships can all suffer. That's because stress can affect our moods and our ability to think clearly. It can also weaken our immune system and make us more susceptible to getting sick. (6

[.https://pubmed.ncbi.nlm.nih.gov/24798553/](https://pubmed.ncbi.nlm.nih.gov/24798553/)))

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What is stress?

At its core, stress is essential to our survival. When faced with danger, whether real or perceived, we experience a built-in fight or flight response. Different structures of the central nervous system and peripheral tissues such as the hypothalamus, and the pituitary and adrenal glands, help mediate the stress response. These structures encompass what's referred to as the

[hypothalamic-pituitary-adrenal \(HPA\) axis](#)

[.https://fullscript.com/blog/hpa-axis](https://fullscript.com/blog/hpa-axis)). (14

[.https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3181830/](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3181830/)))

(17

[.https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5915631/](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5915631/)))



Once activated, the HPA axis instantly puts us on alert and primes the body to either flee the situation or defend against it. This response begins in the hypothalamus, a tiny cluster of cells at the base of the brain that controls functions such as your body temperature, thirst, sleep (<https://fullscript.com/blog/sleep-hygiene>), cycles, and energy (<https://fullscript.com/blog/energy>), levels. The hypothalamus also releases a compound called corticotropin-releasing hormone (CRH) that drives your hormonal response to stress. (3 (<https://www.ncbi.nlm.nih.gov/books/NBK541120/>))(14 (<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3181830/>)) Once CRH is released, it travels to the pituitary gland, causing it to secrete a hormone called adrenocorticotrophic hormone (ACTH) that cues the adrenal glands (<https://fullscript.com/blog/adrenal-support-supplements>) to produce stress hormones, especially cortisol. (3 (<https://www.ncbi.nlm.nih.gov/books/NBK541120/>))



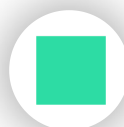
The HPA axis is responsible for your “fight or flight” response to stress.



Did you know? Cortisol is a hormone that helps your body respond to stress, fight infection, regulate blood pressure, blood sugar, metabolism, and affects multiple organs and tissues. (4
(<https://medlineplus.gov/lab-tests/cortisol-test/>))

The hypothalamus also triggers nerve cells to release norepinephrine, a naturally occurring chemical in the body that acts as both a stress hormone and a neurotransmitter. In response to norepinephrine, your muscles become tight and your senses sharpen. At the same time, your adrenal glands release epinephrine, better known as adrenaline, which makes the heart pump faster and the lungs work harder to flood the body with oxygen. (10
(<https://www.ncbi.nlm.nih.gov/pubmed/7570024>))(14
(<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3181830/?report=classic>))

Once an acute threat has passed, the body returns to normal. However, when the body is exposed to long-term, chronic stress
(<https://fullscript.com/blog/supplements-to-manage-stress>), negative health effects can occur as a result. When the stress response becomes constant, the HPA axis remains active. Think of it like a stuck gas pedal that constantly revs the engine in your car, flooding it with a steady stream of gas (cortisol). Over time, this can lead to a dysfunctional HPA axis—and that can result in severe adrenal exhaustion. Conditions related to HPA axis dysfunction include cardiovascular disease, cognitive impairment, diabetes, gastrointestinal problems, obesity, skin rashes, asthma, arthritis, and depression. (14
(<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5979578/>))



Symptoms of stress

The following changes may be signs that an individual is overly stressed:

- Changes in appetite or weight
- Changes in sleep patterns
- Loss of interest in activities previously enjoyed
- Restlessness
- Sadness, guilt, or feelings of irritability
- Thinking negatively (9

(<https://www.canada.ca/en/health-canada/services/healthy-living/your-health/lifestyles/your-health-mental-health-coping-stress-health-canada-2008.html>))

How stress affects the body

Chronically high levels of stress may suppress immunity, leaving individuals vulnerable to more serious conditions, some of which are outlined below. (20
(<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5579396/>))





How does **stress** affect the body?



Immune health

Stress can increase levels of cortisol. High cortisol levels may reduce natural killer cell activity, immune cells that limit the spread of certain viruses and tumors.



Heart health

Chronically high cortisol levels may increase blood pressure, blood sugar, cholesterol, and triglycerides—all factors that can increase your risk of hypertension, stroke, and heart attack.



Gastrointestinal health

Stress may cause GI symptoms such as heartburn, indigestion, nausea and vomiting, diarrhea, constipation, or belly pain.



Diabetes

If you have diabetes, stress can inhibit insulin production, potentially contributing to more diabetic complications.



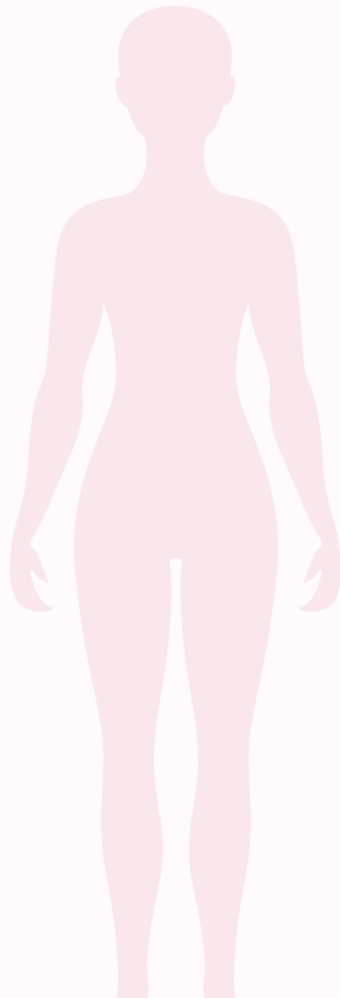
Epilepsy

Stress may trigger a seizure in individuals with epilepsy.



Inflammation

Stress may lead to a manifestation of atopic dermatitis (an inflammatory skin condition), asthma, or allergies.



Symptoms of stress

- Changes in appetite or weight
- Changes in sleep patterns
- Loss of interest in activities previously enjoyed
- Restlessness
- Sadness, guilt, or feelings of irritability

Learn how stress affects the body.

Stress and the immune system

Although immune activity initially increases during the fight or flight response, if stress persists, the nutrients needed to meet the demands of stress—for example, B



vitamins (<https://fullscript.com/blog/b-vitamins>).— may become depleted. Chronic stress also results in immune-suppressing levels of the stress hormones epinephrine and norepinephrine. High cortisol levels may also reduce natural killer cell activity, immune cells that limit the spread of certain viruses and tumors. (5
(<https://www.karger.com/Article/PDF/216188>))

Stress and cardiovascular health

Cortisol can have a negative impact on your cardiovascular system. Studies show that chronically high cortisol levels can increase blood pressure, blood sugar (<https://fullscript.com/blog/herbs-for-blood-sugar-support>), cholesterol (<https://fullscript.com/blog/high-cholesterol-supplements>), and triglycerides—all factors that can increase your risk of hypertension (<https://fullscript.com/blog/high-blood-pressure-hypertension>), stroke, and heart attack. (18
(<https://www.urmc.rochester.edu/encyclopedia/content.aspx?ContentTypeId=1&ContentID=2171>))(19
(<https://www.ncbi.nlm.nih.gov/pubmed/?term=Urinary+Cortisol+and+Six-Year+Risk+of+All-Cause+and+Cardiovascular+Mortality>))





Chronic stress can undermine your immune system and lead to a variety of health problems.

Stress and the gastrointestinal system

Chronic stress may also negatively affect your gastrointestinal system by either delaying the emptying of the digestive tract or by speeding up the amount of time it takes food and waste to pass through the colon. As a result, stress may lead to heartburn, indigestion, nausea and vomiting, diarrhea, constipation, or belly pain. (20

[\(https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5579396/\)\)](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5579396/)

When we're in a state of stress, the body reacts with a protective automatic fight or flight response, signaling a potential danger. However, when we're in a state of fight or flight, the body can't focus on digestive processes as effectively as when we're in a relaxed state. (1

[\(https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7219460/\)\)](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7219460/)

(13



[\(https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4202343/\)](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4202343/)

(20

[\(https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5579396/\)](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5579396/))

Did you know? Chronic stress can trigger gastrointestinal inflammation and may be linked to conditions such as irritable bowel syndrome, and inflammatory bowel disease. (13
[\(https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4202343/\)](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4202343/))

Stress and diabetes

Stress may also aggravate a pre-existing medical condition. People with diabetes are significantly affected by stress since physical or psychological stressors can inhibit insulin production. One clinical trial published in the journal *Diabetes Care* found that this can lead to more diabetic complications. (2
[\(https://www.ncbi.nlm.nih.gov/pubmed/17192338/\)](https://www.ncbi.nlm.nih.gov/pubmed/17192338/))

Stress and epilepsy

People with seizure disorders such as epilepsy also find that stress can trigger an attack. In one retrospective study, Dutch scientists compared the seizure activity of 30 epileptic patients suddenly evacuated because of an impending flood to 30 patients living outside the evacuation area. What they found was that one third of the evacuees experienced a significant increase in the frequency of their seizures compared to those who had not experienced the flood-related stress. (12
[\(https://onlinelibrary.wiley.com/doi/full/10.1111/epi.12377/\)](https://onlinelibrary.wiley.com/doi/full/10.1111/epi.12377/))



Stress and inflammation

Those suffering from asthma and allergies may also be more susceptible to attacks following a stressful event.

A survey of more than 10,000 college students found an association between stress and atopic dermatitis (an inflammatory skin condition), nasal congestion, and asthma (<https://fullscript.com/blog/asthma-and-diet>).

(11 (<https://www.ncbi.nlm.nih.gov/pubmed/?term=stressful+life+events+promote+the+manifestation+of+asthma+and+atopic+disease>).

Did you know? Too much stress may lead to poor concentration and feelings of depression. (7 (<https://www.ncbi.nlm.nih.gov/pubmed/28605986>)) (16 (<https://www.ncbi.nlm.nih.gov/pubmed/15677427>))



Overscheduling your life can set you up for stress overload.

Managing stress



Coping with stress will look different depending on the individual, however, the following strategies may be helpful for reducing stress levels:

1. Identify what is causing you stress.
2. Consider strategies to overcome your stress (e.g., working fewer hours).
3. Talk to others about how you're feeling (e.g., friends, family, coworkers, a therapist).
4. Consider taking a course or class on stress management.
5. Consider participating in physical and mental exercise such as walking, running, or meditation.
6. Work on improving your nutrition with the assistance of a qualified healthcare practitioner.
7. Participate in a hobby that you enjoy.
8. Don't be too hard on yourself and take things one day at a time. (8
(<https://pubmed.ncbi.nlm.nih.gov/25455067/>))(9
(<https://www.canada.ca/en/health-canada/services/healthy-living/your-health/lifestyles/your-health-mental-health-coping-stress-health-canada-2008.html>))

The bottom line

Stress is a natural and helpful bodily reaction, however, chronic stress may negatively affect health and lead to or exacerbate more serious health conditions related to a suppressed immune system and chronic inflammation. Stress management techniques and coping mechanisms such as therapy, exercise, meditation, a healthy diet, and participating in hobbies can help reduce stress



levels. Speak with your integrative healthcare practitioner if you're feeling stressed and to receive advice on how to reduce stress levels.

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