MERCOLA
Take Control of Your Health

Stressed? It Could Be a Sign You're Not Drinking Enough Water

Analysis by Dr. Joseph Mercola | November 20, 2025

STORY AT-A-GLANCE

- Researchers from Liverpool John Moores University found that drinking less than 1.5 liters of water daily raised stress hormones by 50%, suggesting that dehydration can add to your stress load
- When you're dehydrated, hormones like vasopressin quietly kick in, signaling stress and triggering cortisol
- Signs of dehydration go beyond thirst. Fatigue, headaches, sugar cravings, and dry skin are your body's early warning signs that it's running low on water and energy
- It's also possible to drink too much water. Overhydrating dilutes minerals like sodium, causing fatigue, confusion, or nausea
- Aside from drinking when you're thirsty, you can stay hydrated by consuming water-rich foods like watermelon. Adding a pinch of salt and a splash of lemon or organic juice to plain water helps improve electrolyte absorption

Feeling burned out from the daily grind? If your routine feels like a blur of deadlines and distractions, you're not alone. Stress builds quietly — until it spills over. And in the middle of all that hustle, it's easy to forget something simple: drinking water. When was the last time you slowed down and took a sip?

These days, staying hydrated is widely promoted across social media. From #WaterTok videos to wellness reels, the message to "drink more water" is everywhere. Yet many people are still unaware that they're chronically dehydrated[1] — and it could be a contributing factor to the high levels of stress they are struggling with day after day.

Recent Study Highlights the Link Between Water Intake and Stress

A clinical study published in the Journal of Applied Physiology explored how daily water intake affects the body's hormonal response to stress. Conducted by researchers from Liverpool John Moores University, the study tracked the hydration habits of 32 healthy adults to see the effects on their stress load.[2]

- **Hydration was isolated as the key stress variable —** To determine whether water intake alone could influence stress responses, researchers controlled for sleep quality, psychological traits, and perceived stress. The participants were healthy, aged 18 to 35, non-smokers, and free from immune, cardiovascular, metabolic, or sleep disorders. Those who consumed excessive caffeine or alcohol were excluded.[3]

- **Participants were divided into LOW and HIGH fluid intake groups —** Using national fluid intake data, researchers identified individuals with the lowest and highest daily water consumption. The LOW group drank less than 1.5 liters per day, while the HIGH group met recommended intakes (2 liters for women and 2.5 liters for men). Each group had 16 participants matched for age, gender, sleep quality, and anxiety levels.[4]

- **Hydration levels were tracked before a stress simulation —** For seven days, participants recorded their fluid intake using smart bottles. On the eighth day, they underwent the Trier Social Stress Test (TSST), which simulates real-world stress through public speaking and mental arithmetic.

Hydration was assessed using urine concentration and color, as well as checking blood levels of copeptin (a hormone that helps regulate water balance and blood volume). The LOW group consistently showed darker urine, higher urine concentration, and elevated copeptin, which are clear signs of dehydration.[5,6]

- **Cortisol spikes were significantly higher in the low-fluid group —** Saliva samples taken after the TSST also revealed that levels of cortisol, the stress hormone, were 50% higher in the LOW group. Both groups experienced similar increases in heart rate and anxiety, but only the LOW group showed a significant increase in cortisol.[7,8]

- **Thirst did not reflect actual hydration status —** Despite similar thirst ratings and blood concentration levels, the LOW group had more concentrated urine and exaggerated cortisol responses. This shows that thirst is not always a reliable indicator of hydration.[9]

- **Poor hydration may increase long-term health risks —** The study concluded that the exaggerated cortisol reactivity seen in the LOW group is associated with poor hydration and may contribute to long-term health problems. Chronic low fluid intake has also been linked to higher risks of metabolic, renal, and cardiovascular disease.[10]

- **The study's weeklong design added real-world credibility —** Unlike one-time observational studies, this research prospectively monitored participants for seven days while they maintained their usual drinking habits. This allowed researchers to observe how consistent hydration patterns influenced stress hormone responses, rather than relying on short-term or artificial changes.[11]

The findings of this study show how hydration may help protect long-term health and keep chronic diseases at bay. According to Prof. Neil Walsh, the study's lead author:

> *"Cortisol is the body's primary stress hormone, and exaggerated cortisol reactivity to stress is associated with an increased risk of heart disease, diabetes, and depression. If you know you have a looming deadline or a speech*

to make, keeping a water bottle close could be a good habit with potential benefits for your long-term health."[12]

How Dehydration Quietly Activates Your Stress Response

Even if you don't feel thirsty, your body may already be under stress. One of the first hormones to respond is vasopressin, a water-regulating signal made in the brain. It helps your body hold onto fluid, but it also triggers your body's built-in stress response.

- **Vasopressin protects circulation when fluid is low —** During dehydration, vasopressin signals your kidneys to conserve water and constricts blood vessels to raise blood pressure. This helps maintain blood flow to vital organs like the brain and heart, especially during heat, exertion, or emotional stress. It's a survival mechanism — but over time, it can strain your cardiovascular system.[13]

- **Vasopressin helps trigger cortisol —** When you're stressed or dehydrated, vasopressin sends signals to your brain that lead to cortisol release. Cortisol helps your body stay alert and manage pressure, but too much of it, especially when triggered silently by dehydration, can wear down your heart, kidneys, and nerves over time.[14]

- **Too much or too little vasopressin disrupts your health —** If your body produces too much vasopressin, you may retain excess water and dilute your blood. Too little or poor kidney response leads to dehydration and electrolyte imbalance. Both extremes may strain your heart, kidneys, and nervous system, especially during periods of stress.[15]

Your Body Pays a Price When It's Dehydrated

Even mild dehydration affects how your brain works. A review published in the British Journal of Nutrition by researchers from the University of Reading found that losing just 1% to 2% of your body's water slows down memory, focus, and problem-solving.[16]

Over time, chronic dehydration may shrink brain cells, a change often seen in older adults. When fluid levels drop, blood flow slows and chemical messengers like serotonin and dopamine don't work as efficiently, making it harder to stay sharp and emotionally steady.

- **Low hydration reduces blood flow to the brain —** When you're dehydrated, your blood becomes thicker and flows more slowly. This means less oxygen and nutrients reach your brain, which leads to fatigue and slower reaction times.[17]

- **Your brain shrinks and slows down —** Magnetic resonance imaging (MRI) scans show that even slight dehydration causes brain cells to contract. This shrinkage affects memory, decision-making, and overall mental clarity. In older adults, long-term dehydration is linked to reduced brain mass and volume, both markers of faster aging in the brain.[18]

- **Mood-regulating chemicals become less effective —** Dehydration affects how your brain uses serotonin and dopamine, which help regulate mood, motivation, and emotional stability. When they're disrupted, you may feel anxious, irritable, or mentally drained.[19]

- **Chronic dehydration may quietly accelerate aging —** A 25-year study from the National Institutes of Health analyzed data from the Atherosclerosis Risk in Communities study, which followed 15,792 adults. Researchers found that serum sodium levels above 142 milliequivalents per liter (mEq/L) increased chronic disease risk by 39%, and levels above 144 milliequivalents per liter raised mortality risk by 21%.

  People with sodium levels outside the ideal range were also 10% to 15% more likely to be biologically older than their actual age. As study author Natalia Dmitrieva, Ph.D., explained:[20]

  > *"Decreased body water content is the most common factor that increases serum sodium, which is why the results suggest that staying well hydrated may slow down the aging process and prevent or delay chronic disease."*

Even mild dehydration made participants biologically older than their actual age. This suggests that dehydration doesn't just affect how you feel — it may increase your vulnerability to inflammation, degenerative diseases, and premature aging. If you want to know more about this, check out my article, "**Can Chronic Dehydration Age You More Quickly?**"

Signs You're Dehydrated

Water keeps everything running, from digestion to brain function. So if you're not drinking enough, your body will start sending signals to alert you to hydrate. Thirst is one sign; however, there are other quieter signals that are easy to miss yet reveal that dehydration is already taking a toll.

- **Urine color and odor reflect hydration and mineral balance** — Use your urine as a visual guide to assess hydration throughout the day. Healthy urine should be pale straw or light yellow. If it appears dark yellow or amber and carries a strong odor, it likely signals dehydration. This odor intensifies when waste compounds become concentrated due to insufficient water intake.

- **Sugar cravings and constipation can be signs of dehydration as well** — When your body lacks water, digestion slows down. You might crave sugary foods for quick energy, and bowel movements can become difficult because water helps move waste through your intestines.

- **Your body sends signals before thirst kicks in** — Dry mouth, fatigue,[21] headaches, and confusion are early signs your body is low on water. These symptoms show up before you feel thirsty, making dehydration easy to miss. Other symptoms to take note of are:

  Mild to moderate dehydration

  - Confusion
  - Bad breath

- Chills
- Sleepiness or tiredness
- Constipation
- Dizziness or lightheadedness
- A decline in athletic performance
- Few or no tears when crying
- Minimal amount of dark-colored urine
- Dry, cool skin
- Muscle cramps

Severe dehydration

- Very fussy
- Excessively sleepy
- Sunken eyes
- Cool, discolored hands and feet
- Wrinkled skin
- Urinating only once or twice a day

Smart Ways to Stay Hydrated

As essential as water is, hydration isn't just about how much you drink — it's also about how well your body absorbs and retains it. To truly support cellular health, you need to consider electrolyte balance, structured water, and environmental factors. Here are strategies that go beyond the glass:

- **Hydration works best when paired with electrolytes —** Natural salts like Himalayan pink salt, Celtic sea salt, and Mediterranean Sea salt support fluid balance without the contaminants found in processed table salt. If you're sweating heavily or

drinking large amounts of water, add a pinch of salt and a splash of lemon or organic juice to improve absorption.

You can also hydrate through foods like watermelon, cooked vegetables, coconut water, raw milk, and herbal teas. These are all rich in minerals and natural sugars that help water enter your cells.

- **Support structured water inside your cells —** Your body doesn't just use liquid water — it also relies on a gel-like form called structured water, or exclusion zone (EZ) water. This type of water exists inside your cells and helps maintain their shape and function.

  You can increase structured water by eating well-cooked leafy greens and exposing your skin to sunlight, especially near-infrared and UV light. These practices help your body build and maintain hydration from the inside out.

- **Balance sodium and potassium for heart and heat health —** A healthy sodium-to-potassium ratio is key for blood pressure regulation, heart function, and heat resilience. Processed foods tend to be high in sodium and low in potassium, which throws this ratio off. Focus on whole foods like bananas, sweet potatoes, and leafy greens to restore balance. I explore this further in my article, "Surprise! Everything You've Been Told About Salt Is Wrong."

- **Stay safe during extreme heat —** Hydration is only part of the equation. To protect yourself during hot weather, avoid sugary sodas and sports drinks — they worsen dehydration and strain your kidneys. Wear breathable, light-colored clothing, limit strenuous activity during peak heat, and use fans and cooling compresses or take cold showers to regulate body temperature.[22]

There are plenty of hydrating beverages you can drink, but at the end of the day, water remains your body's first choice. Hydration doesn't have to be formulaic. When you understand how your body uses water, you're less likely to feel bogged down with each sip of the world's favorite quencher.

Frequently Asked Questions (FAQs) About Dehydration

Q: How can dehydration increase stress levels?

A: Even mild dehydration triggers your body's stress response. When fluid levels drop, your brain releases vasopressin to conserve water — and this also raises cortisol, your main stress hormone. The result? Increased anxiety, fatigue, and strain on your heart, even before you notice anything's wrong.

Q: Why isn't thirst a reliable sign of dehydration?

A: Thirst kicks in only after your body's already low on fluids. Many people stay mildly dehydrated without realizing it, experiencing fatigue or brain fog instead of thirst, especially when they're busy or distracted.

Q: Can dehydration really affect brain function?

A: Yes. Even 1% to 2% dehydration causes brain cells to shrink and reduces blood flow. This slows thinking, weakens memory, and disrupts neurotransmitters like serotonin and dopamine, making it harder to stay calm and focused.

Q: Is it possible to drink too much water?

A: Overhydration dilutes sodium levels, causing hyponatremia, a condition leading to confusion, nausea, and in severe cases, brain swelling. Listen to your body's cues and hydrate steadily, not excessively.

Q: What's the healthiest way to stay hydrated daily?

A: Staying hydrated isn't only about drinking water. Eating fruits, vegetables, and small amounts of natural salts can help support healthy fluid balance throughout your day.

Sources and References

- [1] CNN, May 24, 2025
- [2, 3, 5, 7, 11] J Appl Physiol, 2025;139(3):698
- [4, 6, 8, 10] News-Medical.Net, September 26, 2025
- [9] ScienceDaily, September 23, 2025
- [12, 14] Real Simple, September 24, 2025
- [13, 15] Your Hormones, Anti-diuretic hormone
- [16] BJ Nutr, 2014;111(10):1841–1852
- [17] Am J Physiol Heart Circ Physiol. 2015 Nov;309(9):H1598-607
- [18] AJNR, 2015;36(12):2277–2284
- [19] Trinova Medical, Feeling Foggy
- [20] eBioMedicine. 2023 Jan 2;87:104404
- [21] Br J Nutr. 2013 Jan 28;109(2):313-21
- [22] HEAT SAFETY, National Weather Service, 2018