

Can Chronic Dehydration Age You More Quickly?

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✓ Fact Checked

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STORY AT-A-GLANCE

- › One of the simplest steps you can take to improve your health is to provide your body with optimal hydration, which reduces your risk of being biologically older than your chronological age, developing chronic diseases and dying prematurely
- › Data show participants with serum sodium levels outside the narrow range of 137 mEq/L to 142 mEq/L had a 10% to 15% higher risk of being biologically older than their chronological age. The current acceptable normal range of serum sodium is 135 mEq/L to 145 mEq/L
- › Signs you could be dehydrated include bad breath, headache, confusion, decreased alertness, sugar craving and constipation. Based on their higher body water content and smaller size, infants and children are more vulnerable to the effects of dehydration
- › Several factors affect how much water you need, including your health status, activity level, climate and your age. Don't get bogged down in an exact amount but instead listen to your body's signals – thirst and the color of your urine
- › Overhydration, also called water intoxication or water poisoning, leads to low sodium levels and electrolyte imbalances. This is a serious medical situation and can be life-threatening

One of the easiest steps you can take to improve your health is to provide your body with optimal hydration in the form of pure water. Researchers¹ found that middle-aged people whose serum sodium is higher than normal, indicating dehydration, had an increased

risk of being biologically older than their chronological age, of developing chronic diseases and of dying prematurely.

This is logical since your body is made up of mostly water. An infant's body weight is 75% water, which drops to 55% in the elderly.² Optimal water balance is essential for survival. If you become dehydrated, your body activates several hormonal and neuroregulatory mechanisms, among which are feeling thirsty to help remind you to drink water and your urine output declines.

However, this also means that the waste products excreted by the kidneys will be more concentrated. Water plays a significant role in your bodily functions, including keeping your skin healthy, eliminating toxins and facilitating digestion.³

Dehydration occurs when you have lost more water than you replace. Research has demonstrated that even mild dehydration can decrease your brain tissue fluid that changes your brain volume.⁴ It can compromise your ability to regulate temperature and makes your blood more viscous, straining your cardiovascular system.⁵

After losing just 1% to 2% of your fluid, you'll feel thirsty, which is your body's way of telling you to start drinking. Mild dehydration is easily treated, but extreme dehydration can be life-threatening and requires immediate medical attention.

Chronic Dehydration Accelerates Biological Aging

The researchers began with the premise that some people obviously age faster than others.⁶ Faced with a rapidly aging population and chronic disease epidemic, they sought to find preventive measures that might slow the aging process and reduce the number of chronic illnesses and diseases in the elderly.

Using data from the Atherosclerosis Risk in Communities study (ARIC) and a 25-year follow-up, the researchers analyzed serum sodium as a means of estimating the hydration habits of individuals. The ARIC cohort included 15,792 black and white men and women from ages 45 to 66 years.

Since the study sought to analyze the effects of hydration that were measured through levels of serum sodium, they excluded individuals whose sodium levels may have been affected by other health factors. For example, they excluded people who were obese, had abnormal water/salt balance regulation, and whose average sodium concentration was outside the normal reference range.

They also excluded people with blood sugar higher than 140 mg/dL, since high blood sugar not only causes dehydration but also reduces serum sodium concentration.⁷ After individuals were excluded, the researchers ended with 6,956 individuals in the cohort.

A normal serum sodium blood value is 135 milliequivalents per liter (mEq/L) to 145 mEq/L. However, while 145 mEq/L is at the high end of normal, the researchers found⁸ those with serum sodium levels greater than 142 mEq/L had a 39% increased risk of developing chronic diseases and those with blood levels greater than 144 mEq/L had a 21% increased risk of premature mortality.

Additionally, they found when an individual's serum sodium levels were outside the range from 137 mEq/L to 142 mEq/L, their risk of being biologically older than their chronological age was 10% to 15% higher than those whose levels were inside the range. In a statement from the NIH, study scientist Natalia Dmitrieva, Ph.D., commented:⁹

"On the global level, this can have a big impact. 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."

The researchers also cited data showing close to half of people worldwide do not meet the recommended water intake. Animal studies¹⁰ have shown that chronic subclinical dehydration causes subtle changes in hydration levels but profound effects on long-term health.

A 2019 study¹¹ showed that even mild water restriction in mice shortened their lifespan, despite showing no signs of distress after adapting to the slightly lower water intake.

During the second part of the study, the researchers analyzed human data and found a strong association between serum sodium concentration in middle age and markers of inflammation, coagulation and the development of age-dependent degenerative diseases.

Signs You Could Be Dehydrated

It's best to drink before you experience the signs of mild to moderate dehydration and get into a habit of staying well hydrated. Signs of mild to moderate dehydration include:^{12,13,14}

Dry, sticky mouth	Bad breath	Chills
Sleepiness or tiredness	Decreased alertness and fatigue ¹⁵	Dizziness or lightheadedness
Headache	Confusion	Constipation
A decline in athletic performance	Few or no tears when crying	Minimal amount of dark-colored urine
Dry, cool skin	Sugar craving	Muscle cramps

Based on their higher water content and smaller size, infants and children are more vulnerable to the effects of dehydration. Immediate attention should be given to infants and children if they exhibit the following symptoms:¹⁶

Mild to moderate dehydration

Urinate less frequently (for infants, fewer than six wet diapers per day)

Plays less than usual

Parched, dry mouth	Fewer tears when crying
Sunken soft spot on the head (fontanelle)	Loose stools (if dehydration is caused by diarrhea)

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

How Much Is Enough?

Interestingly, the scientists in the featured study also found that people with serum sodium levels on the low end of normal also had a higher risk of premature death.¹⁷ It appears the data from this study demonstrates the range of "normal" for serum sodium levels could have a narrower and more conservative range.

Since it's highly unlikely your serum sodium is consistently measured to determine whether or not you're fully hydrated, it is important to know how your body tells you that you have had too much or too little water. You have probably heard the recommendation that you should drink eight 8-ounce glasses of water every day to stay healthy. This is often stated as scientific fact, but it's not quite that simple.

Several factors affect how much water you need, including your health status, activity level, climate and your age. A review¹⁸ published in the American Journal of Physiology sought to determine the scientific validity of what is often colloquially called "8 x 8."

The researcher could find no scientific basis for the rule and put to rest other myths regarding water consumption, such as waiting to drink until you're thirsty is too late because by then you're already dehydrated.

As the late Heinz Valtin, professor of physiology who spent for decades studying biological mechanisms that regulate the balance of water in our bodies, wrote, "... thirst is so sensitive, quick and accurate that it is hard to imagine that evolutionary development left us with a chronic water deficit that has to be compensated by forcing fluid intake."¹⁹

Ultimately, you do not need to get bogged down trying to figure out the exact amount of water your body needs or tracking how many glasses you've drunk that day. Your body will let you know when you need more water.

Two indicators are your thirst and the color of your urine. Thirst helps ensure your needs are met on a day-to-day basis. The color of your urine can also be used as a guide. While your urine color can be influenced by medication or supplements, overall, if it's a deep dark yellow, you are likely not drinking enough water.

Adequate hydration is indicated by pale, straw-colored or light-yellow urine. Most healthy individuals urinate on average seven to eight times each day. If you aren't urinating at least every 2 to 3 hours while you're awake, it may indicate that you're not drinking enough.

What Happens When You Drink Too Much Water?

Your body requires a water balance. In other words, you can drink too little water, but you can also drink too much water. While overhydration is rarely a problem for healthy people, it can cause a serious electrolyte imbalance that can become life-threatening. When you listen to your body's signals, you'll likely stay in a healthy range.

Overhydration is also called water intoxication or water poisoning. The greatest risk is from hyponatremia, or a dilution of sodium in the blood. When sodium levels fall below 135 mEq/L, fluid moves inside the cells,²⁰ including the brain.

This is called cerebral edema and it increases the pressure inside the skull causing symptoms that include headaches, nausea and vomiting. Other symptoms of water

intoxication can include increased blood pressure, double vision, confusion and drowsiness.

Water intoxication has led to the death of students during fraternity hazing²¹ and one participant in a radio contest in California where the prize went to the person who could drink the most water before urinating.²² However, it's important to remember that these were uncommon situations that most people don't experience.

Some medical situations rarely result in hyponatremia, including case studies of individuals who experienced hyponatremia and water intoxication during oral bowel preparation for a colonoscopy²³ or during labor stimulation with oxytocin.²⁴ Water intoxication can also be the result of primary or psychogenic polydipsia, which is the term used to describe excessive thirst or an abnormal urge to drink fluids.

Polydipsia can be a sign of Type 2 diabetes, which leads to excessive thirst and urination.²⁵ Other conditions related to polydipsia are diabetes insipidus, low blood potassium and cystic disease, which is a condition in which cysts develop on or around your kidneys.

Psychogenic polydipsia is a mental health disorder that is associated with anxiety and schizophrenia. Medical conditions, such as liver failure, kidney failure, burns and sepsis can result in the loss of bodily fluids and lead to polydipsia.

Sources and References

- ^{1, 6, 7, 17} [The Lancet, 2023; doi.org/10.1016/j.ebiom.2022.104404](https://doi.org/10.1016/j.ebiom.2022.104404)
- ^{2, 10, 11} [JCI Insight, 2019; doi.org/10.1172/jci.insight.130949](https://doi.org/10.1172/jci.insight.130949)
- ³ [Great Lakes Gastroenterology, August 3, 2020](#)
- ⁴ [American Journal of Neuroradiology, 2015;36\(12\)](#)
- ⁵ [Nutrients 2019, 11\(8\)](#)
- ⁸ [The Epoch Times, January 9, 2023](#)
- ⁹ [NIH, January 3, 2023, and para 3 from bottom](#)
- ¹² [Mayo Clinic, Dehydration Symptoms adult](#)
- ¹³ [Cleveland Clinic, Dehydration, what are the signs of dehydration](#)
- ¹⁴ [Health, October 4, 2022](#)
- ¹⁵ [British Journal of Nutrition 2013 Jan 28;109\(2\)](#)

- ¹⁶ Healthy Children, Signs of Dehydration in Infants and Children
- ^{18, 19} American Journal of Physiology, 2002; doi.org/10.1152/ajpregu.00365.2002
- ²⁰ Mayo Clinic, Hyponatremia
- ²¹ CBS News, February 4, 2005
- ²² ABC News November 1, 2009
- ²³ BMC nephrology, 2017; 18(1)
- ²⁴ Ginekologia Polska, 2021;92(7)
- ²⁵ Cleveland Clinic, Polydipsia, what causes excessive thirst?