

What Urine Odor Says About Your Health

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STORY AT-A-GLANCE

- > Your urine's color and smell are important health indicators. Normal urine is 91% to 96% water, with darker colors and strong odors typically signaling a health issue
- > Common causes of unusual urine odor include dehydration, certain foods (like asparagus), medications, urinary tract infections (UTIs), diabetes, kidney problems and other health conditions
- > The "eight glasses of water daily" rule lacks scientific basis. Instead, use thirst and urine color as guides, aiming for pale yellow color, while maintaining proper electrolyte balance
- > UTIs affect millions annually, particularly women. Prevention includes proper hydration, good hygiene practices and consuming beneficial foods like cranberries, which contain infection-fighting compounds
- > High-oxalate foods like spinach, almonds and peanut butter contribute to kidney stones. Limiting these foods and being temporarily cutting back collagen-rich proteins will help prevent kidney stone formation

Urine is the liquid byproduct of your kidneys after filtering extra water and waste from your blood. While it's normally 91% to 96% water, urine also contains minerals, vitamins and uric acid.¹

Your urine color is an important gauge of your hydration status. But have you ever paid attention to its smell, too? As it turns out, the odor of your urine is also a reliable indicator of dehydration, and can signal an underlying health condition.

Does Your Urine Smell Bad?

According to the Mayo Clinic, urine that has lots of waste and little water results in a concentrated mixture, resulting in a strong odor in the form of ammonia. There are several factors that affect this, such as:^{2,3,4}

Dehydration — According to Dr. Bilal Kaaki from UnityPoint Health, the most common reason for bad-smelling urine is dehydration. "You always have a certain amount of ammonia in your urine. When you have more water, the ammonia is diluted, and it smells less intense. Whereas with dehydration, the concentration of ammonia is going to be higher and the smell would be stronger."

Food — Once food is digested, it breaks down into metabolites, some of which are excreted via your urine. Certain foods, such as asparagus, are known for producing sulfuric metabolites that drastically affect the odor of your urine.⁵

Medications — Some pharmaceutical drugs, such as sulfonamide antibiotics, diabetes medication and arthritis medication, will drastically alter your urine's odor. Taking high doses of thiamin and choline, as well as undergoing chemotherapy also affect urine odor.

Infections — Urinary tract infections (UTIs), which are caused by an overgrowth of bacteria, cause noticeable changes in urine odor.

Diabetes — Having high levels of sugar in the blood will give your urine a noticeably sweet odor. Those who also don't produce enough insulin will transition to burning fat for fuel, and when this happens, ketones flood the system (diabetic ketoacidosis), causing changes in urine odor.

Kidney problems — People who experience kidney stones report a strong odor upon urination, which is often accompanied by other symptoms such as nausea, pain and blood in the urine.

Other health conditions – Bacterial vaginosis, which is a bacterial imbalance in the vagina, results in a distinct, fishy smell during urination. Liver problems also produce dark, smelly urine.

Pay Attention to Your Urine's Color, Too

If you notice your urine has a smelly odor, you're probably dehydrated. According to Kaaki, it's the top reason for bad-smelling urine.⁶ The question is, how much water is ideal for proper hydration?

The best answer is to listen to your thirst current thirst levels. Use it as a guide to know how much water you need to drink to ensure you're properly hydrated throughout the day. For better accuracy, use this visual marker – healthy urine is ideally a pale straw or light-yellow color. Again, dark yellow or amber-colored urine, along with a strong odor, indicates dehydration.

Don't fall for the myth of drinking eight glasses of water per day. Even though it's one of the most popular hydration recommendations, the truth is that it has no scientific basis. It was perpetuated by Dr. Christopher Labos from McGill University, who recommended drinking 2.5 liters of water daily.⁷ Thankfully, the medical community is pushing back from this recommendation.⁸

Note, however, that drinking enough water simply won't do. It's also about having proper salt levels in your system. That's because your body needs electrolytes along with hydration. Essentially, electrolytes are minerals, such as sodium, magnesium, potassium and calcium, that play an important role in various functions, such as cellular waste removal and muscle function.

As you drink water, the balance of electrolytes shifts. And if you're hydrated, suddenly drinking too much water will dilute these crucial minerals. This condition, according to the Cleveland Clinic, is called water intoxication:⁹

"Drinking too much water dilutes your blood and decreases the electrolytes in your body, especially sodium (hyponatremia). As a result, water moves into your body's cells and causes them to swell.

When you get too much water in your brain cells, it increases pressure on your brain and affects how it works. This leads to changes in your awareness, movement and behavior (altered mental status). Water intoxication is also potentially fatal."

Tips to Maintain Optimal Electrolyte Balance

So, how do you maintain a proper balance between water intake and electrolytes? **There are natural options available**, such as mineral water, tea (loose leaves) with raw honey, fresh-squeezed fruit juice, coconut water and grass fed milk. When you're just drinking plain water, make sure it's filtered properly to remove common contaminants like fluoride, chlorine and disinfection byproducts.

If you happen to be sweating profusely due to exercise or working in a hot environment for a time, remember to add electrolytes to your drinking water. One simple way to do that is to simply dissolve a small pinch of Himalayan salt into your water. Other sources of electrolytes include Mediterranean sea salt and Celtic sea salt.

I strongly recommend avoiding regular table salt, as it is highly processed. Anticaking agents and undesirable contaminants, such as microplastics, are routinely found in this product. Finally, if you don't like drinking lightly salted water, add a squeeze of lemon juice or lime to not only improve the flavor, but also provide nutrients (like vitamin C) to support your health.

How much salt is ideal? Research recommends around 3,500 mg daily.¹⁰ Another way to find out whether you have proper salt levels is to get a fasting chemistry profile of your serum sodium. The ideal level is 139, with an optimal range of 136 to 142.

How to Protect Your Urinary Tract from Future Infections

According to a report¹¹ published in Medscape, UTIs account for at least 8 million visits to the hospital every year, with women being the most affected. An overgrowth of bacteria in the urinary tract is usually the cause, resulting in symptoms such as urinary incontinence, fever and pain while urinating.¹² To reduce your risk of developing a UTI, these tips will help:

Drink plenty of pure, filtered water every day

Urinate when you feel the need; don't resist the urge to go

Wipe from front to back to prevent bacteria from entering your urethra

Take showers instead of baths; avoid hot tubs/Jacuzzis

Cleanse your genital area prior to sexual intercourse

Avoid using feminine hygiene sprays, which could irritate your urethra

Use a bidet instead of just wiping with toilet paper

Eat fermented foods such as kefir, sauerkraut and other fermented vegetables, which are great for your overall health, including your urinary system

Another helpful strategy is adding cranberries to your diet. Research¹³ has shown that it contains D-mannose, which helps treat acute cases of UTI. Another study¹⁴ goes deeper into the mechanisms of this benefit, noting that this berry contains proanthocyanidins that help prevent E. coli from sticking to the urothelial cells lining the bladder.

The researchers concluded their study by endorsing the use of cranberry products to lower the risk of symptomatic, culture-verified urinary tract infections (UTIs) in women with recurrent UTIs, children, and individuals prone to UTIs after medical interventions.¹⁵

I recommend implementing certain dietary changes as well, such as paying attention to the source of your meat due to bacterial concerns. One example is factory farmed chicken, which I generally don't recommend because it contains high amounts of linoleic

acid. If you do eat chicken, choose organic, pasture-raised options. Ideally, any meat you eat should come from a local farmer using regenerative farming methods the way nature intended.

If you do get a UTI, consider using methylene blue. It is an effective agent against UTIs, as noted in a study¹⁶ published in Research and Reports in Urology.

Beware of Oxalates in Your Diet

Kidney stones are another potential cause of UTIs, and this is a growing problem in America. According to a report by NBC News,¹⁷ kidney stones were originally regarded as a disease for middle-aged adults. Now, even children as young as 5 years old are affected by this condition. What is the cause? Oxalates.

Oxalates are natural compounds found in many plant foods, including beans, grains, seeds and nuts, fruits, berries and herbs.¹⁸ They're also called dicarboxylic acid, meaning they are composed of two carbon dioxide (CO₂) molecules. The crux of the issue is the way the molecules lose protons under certain physiological conditions. This results in a negative charge, allowing them to bind to positively charged ions like calcium.

Chemically speaking, oxalate is a salt. When it binds with calcium, calcium oxalate crystals form. Structurally, they're microscopic but razor-sharp, causing significant tissue damage. And since they're not soluble, they accumulate and eventually cause a blockage. According to the Urology Care Foundation, calcium oxalate stones make up 80% of kidney stone cases.¹⁹

The first and most actionable strategy to protect yourself from kidney stones is limiting your intake of high-oxalate foods. In my interview with [Sally Norton](#), an expert on oxalates, she outlines specific foods high with oxalates. The list will surprise you, as many of them are regularly enjoyed by many people:

- **Spinach** — Its oxalate levels are as high as 600 to 800 mg per 100 grams.

- **Almonds** – Almonds generally contain about 122 mg of oxalates per 100 grams. However, all nuts in general are particularly problematic, since they contain linoleic acid (LA). Even macadamia nuts add to your toxic load, as they contain oleic acid, which could just be as bad as LA. If you're still eating these nuts, I recommend removing them from your diet.
- **Peanut butter** – Peanut butter has around 140 mg of oxalate per 100 grams.
- **Sweet potatoes** – They contain about 30 mg of oxalate per 100 grams. (Although this is considered high compared to other vegetables, it's actually much lower than spinach or nuts)
- **Figs** – They have approximately 40 mg of oxalate per 100 grams.

Aside from spinach, several leafy greens considered to be "superfoods," such as Swiss chard and beet greens, are high in oxalates. If you're prone to kidney stones, it would be wise to limit their intake as well. In addition, if you're struggling with kidney stones, you may want to temporarily avoid collagen-rich protein sources, as collagen breakdown leads to oxalate production and can aggravate kidney stones:

- Bone broth
- Gelatin
- Animal skins, tendon and ligaments
- Meat cuts with connective tissues such as oxtail, neck and shank
- Organ meats like heart and liver

Sources and References

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