ELECTROLYTES

Do You Really Need to Replenish Your Electrolytes?

By Katja Vujić, a writer at The Cut covering culture, news, wellness, and style.

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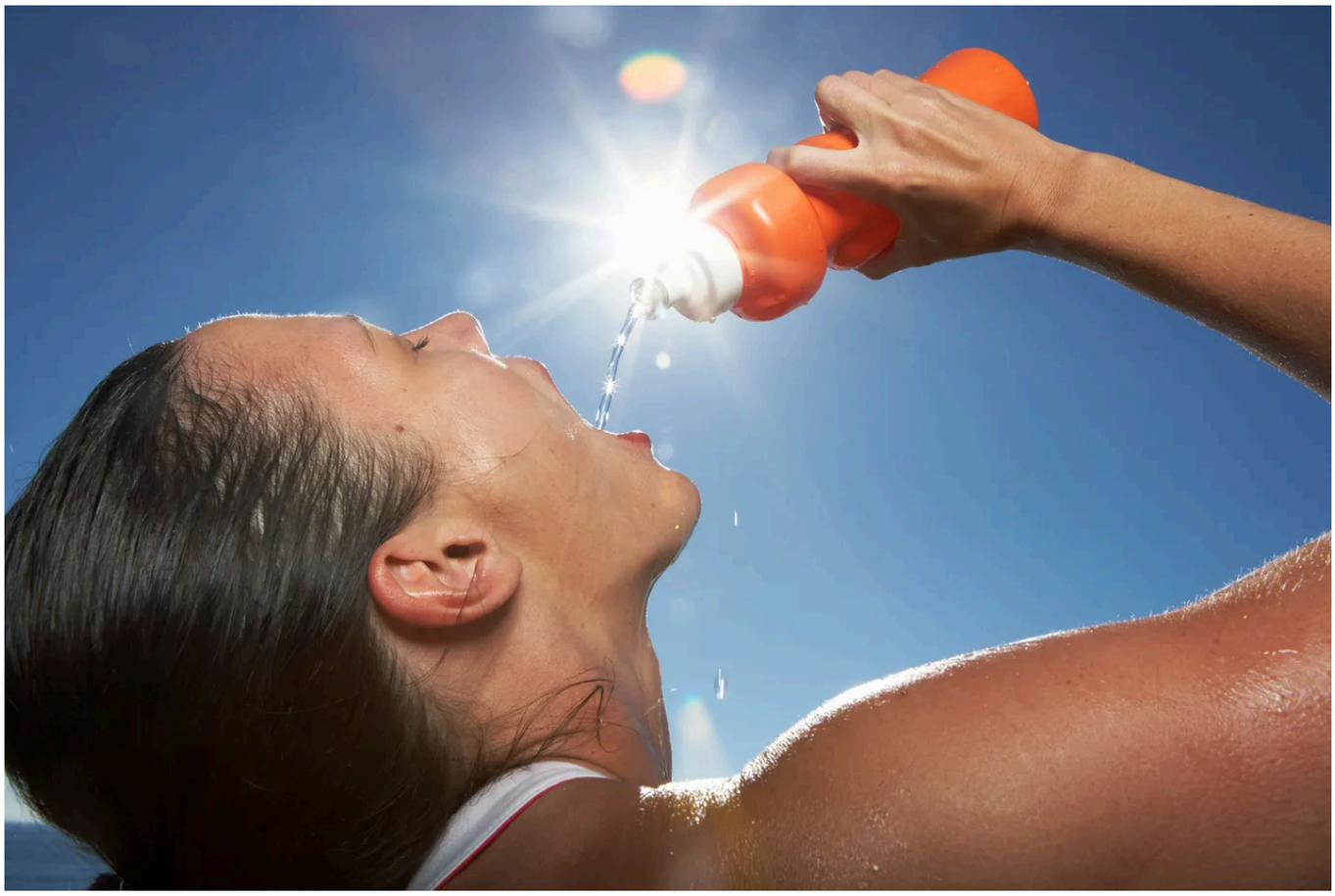

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The first time I participated in a school science experiment, I helped fashion a slanted plastic roof over a container of salt water. The teacher told us the salt water would create fresh-water condensation on the plastic, which would drip down into a container. It was a lifesaving device in case we ever got trapped on a deserted island. The takeaway that stuck with me deep in my innermost mind: Salt water is unquestionably undrinkable.

When I started seeing TikToks telling me to add salt to my water for *more* hydration, I was confused. In the videos on my feed, electrolyte-drink recipes (a.k.a. "nature's Gatorade") are usually straightforward: water or coconut water, some form of citrus, and a pinch of salt. Electrolytes are often described by devotees as a "hydration multiplier," but this didn't make intuitive sense to me, a girl whose high-school science curriculum consisted of activities like watching *Gattaca* and making caramel. My first question was the most basic one: What exactly *is* an electrolyte? As these drinks and powders proliferate, I spoke to experts to find out what the deal is.

What are electrolytes?

"They're called electrolytes because when you dissolve them in water, they have an electric charge," says Erika Der Sarkissian, M.S., R.D., who works as an outpatient-oncology dietitian for the Cedars-Sinai Patient and Family Support Program at the Huntington Hospital Cancer Center. As opposed to macronutrients, like protein and fat, electrolytes are considered micronutrients. "They don't necessarily provide calories or energy, but they play a lot of important roles in the body, like maintaining fluid balance, blood pressure, muscle contractions, nerve signaling — they help balance a lot of these functions in the body," Dr. Der Sarkissian says.

There are many electrolytes, all serving different purposes, but a few of the most important ones are potassium, magnesium, calcium, phosphate, and sodium. "They're either positively charged or negatively charged ions, and that allows them to send electric impulses through the body or transmit nerve signals," Der Sarkissian explains. Sodium, which has a positive charge, maintains your blood pressure and blood volume, helping the red blood cells move oxygen around the body. Potassium has a positive charge and helps with muscle contractions and nerve signaling.

So wait — do I need to take extra electrolytes?

Electrolytes are all about balance. Too few? Bad. Too many? Also bad. Electrolytes don't replace water or increase the amount of fluid in your body. Their function is more like replenishing the balance of the liquid inside you.

Sodium is a particularly important electrolyte, says David Goldfarb, M.D., a nephrologist, the clinical director of the Division of Nephrology at NYU Langone Health, and a professor of medicine and physiology at NYU Grossman School of Medicine. It's the one we're most likely to lose during a heat wave or after an intensive workout because it comes out in our sweat. Losing a lot of sodium quickly can lower your blood pressure, while too much sodium can raise your blood pressure. Your red blood cells need a specific sodium balance to move through the body, suspended in the plasma. "It maintains your blood volume," says Dr. Goldfarb.

How much do I need to worry about dehydration, just on a daily level?

According to Goldfarb, "dehydration" itself is a misnomer. "The word *dehydration* is a word that I don't let anyone say — the doctors I'm training, the future kidney doctors of the world," he says. He thinks about it as volume depletion. "The critical part of that is the loss of salt. It's

the salt that's gonna hold water in the vascular space, the blood vessels where the heart can pump it. Hydrating somebody, I'm usually giving them some version of salt water." The point is to maintain the proper concentration of salt in the body.

One of the major innovations there, Goldfarb says, was the dawn of Gatorade. It was invented in 1965 by James Robert Cade, a nephrologist working with football players at the University of Florida (and, yes, the drink was named after the school's mascot). "Gatorade is really important in the history of rehydration solutions because that guy recognized that the presence of glucose increases the intestine's absorption of sodium," says Goldfarb. Meaning a little sugar mixed in with the salt can help your body absorb what it needs quicker and more effectively. Another crucial electrolyte-adjacent innovation was the World Health Organization's oral-rehydration-salts solution, first formulated in 1969. (It tastes nasty, according to Der Sarkissian, but it has also saved literally millions of lives.)

Electrolyte powders are usually formulated for people who are losing a *lot* of sodium. So if you're drinking them as your daily morning beverage, or even for more mild forms of physical activity or outdoor time, you could be overdoing it. "If you're eating fruits and vegetables and you're not on a very restrictive diet, you're probably getting all the electrolytes you need from your food," says Der Sarkissian.

The average person in the United States is getting *more* than their daily recommended sodium intake from their food, according to reports from the Centers for Disease Control and Prevention and the National Institutes of Health, and your diet is the best source for it anyway. "It's difficult to overdose on vitamins and minerals when you get them from food sources," says Der Sarkissian.

If you're just a little sweaty, hung-over, or otherwise under the weather, Der Sarkissian says 100 to 300 milligrams of sodium, and up to six grams of sugar, is plenty in terms of helping you out. That could mean, yes, adding a pinch of salt to your lemon water, or it could mean checking the label of your powder or drink of choice — sodium content can range widely, anywhere from 250 milligrams to 1,000.

Is there any downside to taking electrolyte powders or downing Pedialyte?

Anecdotally, I've had the experience of adding an electrolyte powder to my drink, taking a few big gulps, and ending up with a stomachache. It's impossible to say for sure what was going on there, but Goldfarb has some ideas — most likely, it was a higher concentration of salt than I needed. "Salts pull water into your stomach," he says. "It has an osmotic effect. The salt gets absorbed and goes from your stomach into your blood. Before that happens, the salt might pull water *out* of the blood into the stomach, so things are moving in both directions." There are a variety of other stomach-irritation possibilities, but Goldfarb says this is the most likely explanation since I hadn't had any other issues drinking regular water.

"A lot of extra salt for no reason, over time, can lead to higher blood pressure and a lot of different health issues," says Der Sarkissian. "The concerning part for me is that a lot of these products aren't necessarily balanced." With any kind of unnecessary oral supplement, she says, "best case, you're paying for expensive urine, because you're just peeing out the excess."

None of this means you should avoid electrolyte drinks altogether; it's just important to know what you're ingesting and why. Der Sarkissian prescribes them to her cancer patients daily, and Goldfarb worked with two urologist colleagues to develop an electrolyte powder made with alkali citrate, an electrolyte used to prevent kidney stones. "I always advise caution on taking any supplement drinks that a doctor or dietitian hasn't recommended. It can be like the Wild West out there," says Der Sarkissian.

How do I stay hydrated most effectively, if not with electrolytes?

Do you need to add a pinch of salt to your water every day? No, but if you're hung-over or extremely sweaty, drinking Pedialyte, Nuun, Liquid I.V., or DripDrop might be a good idea. Still, drinking something formulated for football players just to go on your morning walk probably isn't necessary.

"Look to food first," says Der Sarkissian. "An orange has vitamin C and fiber and micronutrients and macronutrients. You could take all those elements separately and they're not going to have as good of an effect as eating an orange. Nature is really smart; it knows what it's doing."

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