

Water

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Do we really need to drink all that water? Are eight 8-ounce glasses a day really necessary for optimal health? The “8 x 8” recommendation is so ubiquitous, it needs to be addressed.

There are a lot of papers published in the fitness literature showing benefit to drinking extra water. There are just as many that show no benefit. The US Army calculated one quart of water per soldier per hour for desert operations in Iraq. In the same environment, a Bedouin typically carries no more than a pint.

Physiologically, we need about half a liter of water per day to maintain basic kidney function. Does more make us healthier? Let’s look at what happens when we drink water.

First, the water has to pass through the wall of the gut and get into the blood. This expands blood volume, which is only about 5 liters total. The fluid expansion raises blood pressure which forces more fluid through the kidneys and increases diuresis (urine formation). Most of the water you drink goes straight out the kidneys, especially when taken rapidly in large amounts, like drinking a large glass all at once.

If there are to be any health benefits at all, the water needs to get from the blood into the space surrounding the cells, the extracellular compartment. To do this, the extracellular fluid (ECF), has to draw the water in. For that to happen, the ECF must be hyperosmolar (think “saltier”) relative to the blood. In biological systems, the osmolality cannot vary greatly. If it does, cells either shrink or burst and die. Over-

hydration can cause permanent neurological damage and be just as dangerous as dehydration.

So the first rule to remember is that water intake must be gentle. Sip slowly over time.

Getting water into the ECF is only part of the challenge. To wash out wastes, the water also has to leave. If the ECF is hyperosmolar relative to the blood, how is that going to happen? Water comes in, but very little leaves.

We can improve the draw of water into the extracellular space by sweating. Sweat comes from the ECF in the periphery near the skin, drawing away water along with some minerals and waste products. Pushing water out with sweat enhances the draw of water in from the blood and the net exchange of fluid in the ECF. This is one reason I'm a big fan of both exercise and sauna for improving metabolism. I have been able to achieve a flow of one liter every 15 minutes in the sauna. That is a lot of water flowing from the gut through the blood through the ECF and out the skin.

But under normal conditions, do we really benefit from 8 x 8?

No. There is no science behind that recommendation. It's completely arbitrary, meaning it sounded like a good idea to somebody. The injunction against coffee and beer because they increase diuresis and result in dehydration is also without merit. Their effects are so marginal relative to the quantity of water they contain that you can rest assured that drinking coffee, tea and beer will not deplete your body of water.

Does drinking eight glasses of water a day cause any harm? Probably not, if you drink slowly, so keep on doing it if you like. Drink more when you exercise. But relax in the realization that you can get all the water you need from water-containing foods and drinking whenever you feel thirsty.

What kind of water should you drink? Tap water is often of even higher quality than expensive bottled waters. I filter my water at home because the water where I live is notoriously bad, but most public water supplies are not (Flint, Michigan notwithstanding).

What about replacing lost electrolytes with Gatorade or mineral water? We used to do that long ago with salt tablets. They were available when I played high school football in the 1960's. In WWII the Army issued salt tablets to its soldiers in North Africa. The Germans did not. What was the result? The Germans did much better in the heat than the Brits and the Americans.

Your body will adjust the saltiness of the sweat and urine in order to preserve essential minerals. The untrained body in extreme conditions can be brought into a state of imbalance necessitating the replacement of electrolytes, but as in all else, moderation is

the key. Paul Bragg, the influential advocate of fasting for health in the last century, used to hike in Death Valley every year. He invited fit college athletes to hike with him and allowed them to eat and drink as much of whatever they wanted as they felt inclined. He fasted and drank only pure water. You can guess the result. He completed the hike every time and the athletes did not.

Bragg did not start out fasting and hiking in Death Valley. He worked up to it, allowing his body to adjust. If you train sensibly, you can maintain your mineral balance through eating whole foods just fine. In whole foods, the minerals and micronutrients are already in balance and in the form living systems need.

So save your money and stick with plain water, drink when you're thirsty, and eat whole foods.

Lloyd Sparks MD is a neuroscientist who writes on the subjects of health, fitness and fearless living.