

# Should We All Be Drinking Hydrogen-Rich Water?

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When my boss and I first discussed doing an article about a special kind of water called *hydrogen-rich* water, she was skeptical. “I like real food grown in the earth, not fake stuff concocted in a lab—so why would I want anyone tampering with my water?” she asked.

Still, the purported health benefits of hydrogen-rich water—which are said to stem primarily from protection against cell-damaging free radicals—merited further investigation. That’s why I contacted Atsunori Nakao, MD, PhD, a research associate professor of surgery at the University of Pittsburgh, who has conducted studies on the subject. He described research that, while preliminary, is nonetheless intriguing.



**How hydrogen works:** You no doubt recall that a molecule of water, or  $H_2O$ , consists of one atom of oxygen bound to two atoms of hydrogen. In our bodies, hydrogen functions as an antioxidant, helping to prevent cell damage and inflammation, protect DNA and combat out-of-control cell growth.

The problem is that the hydrogen in water is not very accessible to the cells in our bodies. That’s because “free” hydrogen (hydrogen molecules not bound to other molecules) is relatively rare and, being a light gas, evaporates quickly, Dr. Nakao said. The point of hydrogen-enriched water is to provide hydrogen that is easier for our cells to use. Hydrogen-rich water is created through a simple chemical reaction—when a ceramic stick containing metallic magnesium is placed in a bottle of plain water, the magnesium elicits a reaction that constantly generates hydrogen.

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Research on the health benefits of hydrogen-rich water is limited and there is scant data on long-term effects. *However, pilot studies on humans suggest that consuming hydrogen-rich water may help...*

**Prevent metabolic syndrome.** A disorder characterized by a constellation of symptoms (including obesity, insulin resistance, high cholesterol and hypertension), metabolic syndrome is associated with an increased risk for cardiovascular disease and type 2 diabetes. Dr. Nakao and colleagues conducted a study of 20 patients at risk for metabolic syndrome, instructing them to drink about two quarts of hydrogen-rich water per day for eight weeks. Blood tests were done at the start, middle and end of the study period. *Results:* After eight weeks, participants showed, on average, a 39% increase in blood levels of antioxidant enzymes, 8% increase in blood levels of HDL “good” cholesterol and 13% decrease in total cholesterol—levels of improvement that significantly lowered their risk for metabolic syndrome.

**Improve health for diabetes and prediabetes patients.** A Japanese study involved 36 patients with either type 2 diabetes or impaired glucose tolerance (a prediabetic condition in which blood glucose levels are higher than normal). Some patients drank about 30 ounces of hydrogen-rich water daily for eight weeks... the rest drank the same amount of plain water. *Results:* Hydrogen-rich water consumption was associated with significant decreases in LDL “bad” cholesterol and urinary markers of oxidative stress as

well as improved glucose metabolism... in two-thirds of prediabetes patients, oral glucose tolerance test results returned to normal. Among plain water drinkers, there were no significant changes.

**Ease the negative side effects of radiation treatment for cancer.** In a 2011 study, Dr. Nakao's team looked at 49 liver cancer patients undergoing radiation, a treatment that often increases fatigue and negatively affects quality of life. Participants who drank about two quarts of hydrogen-rich water daily for six weeks showed lower blood levels of oxidative markers (by-products of cell injury caused by free radicals) and reported higher quality of life than participants who drank tap water. Hydrogen-rich water did not compromise radiation's therapeutic antitumor effects, Dr. Nakao noted.

In addition, animal studies show that consumption of hydrogen-rich water may help reduce the risk for atherosclerosis... prevent stress-induced declines in learning and memory... slow the progression of Parkinson's disease... prevent or ease colitis... reduce allergic reactions... improve kidney function in kidney transplant patients... and lessen kidney toxicity and other side effects of the chemotherapy drug *cisplatin*.

**But is it safe?** Some people who drink hydrogen-rich water report loose stools, mild heartburn and/or headaches. Because excess magnesium can be dangerous, I asked Dr. Nakao whether there were any side effects associated with the increased intake of magnesium from the ceramic stick used to create the hydrogen-rich water. He said that any effects would be negligible because the amount of magnesium in a normal daily diet is almost 800 times more than what's in hydrogen-rich water. (Like other over-the-counter magnesium products, magnesium water sticks do not require FDA approval.) "I have been drinking hydrogen-rich water myself for years," Dr. Nakao added. "It is not an overstatement to say that hydrogen's impact on therapeutic and preventive medicine could be enormous in the future."

**If you are considering giving hydrogen-rich water a try:** Talk to your doctor about this intriguing research. While Dr. Nakao declined to recommend any particular brand, he confirmed that the magnesium sticks used to create hydrogen-rich water are sold online for about \$80 per stick at various sites. Resources include [www.LivingWaterUSA.com](http://www.LivingWaterUSA.com) and [www.HydrogenWaterStick.com](http://www.HydrogenWaterStick.com). How does hydrogen-rich water taste? Like regular water.

**Source:** Atsunori Nakao, MD, PhD, is a research associate professor of surgery at the Thomas E. Starzl Transplantation Institute at the University of Pittsburgh. He specializes in gas therapy and has published numerous research studies on the medicinal uses of gases, including hydrogen.