

Hydrogen Water Benefits? A Doctor's Opinion

What do you think is the healthiest beverage in the world? Well, the answer may be surprising for you. It is 'water'. That's right! Science confirms the fact that the best drink you can have is water. But remember to filter it before use. If we compare it to other beverages, it is free from sugar and salt that can impact your health negatively.

So, what does water do in our bodies? Well, you can say that it performs all the vital functions in our bodies. Water carries nutrients and oxygen to your cells. It flushes bacteria from your bladder and aids in digestion. Almost three-quarters of your brain is water. That means you need water to maintain normal optimal brain functioning. It also normalizes blood pressure and stabilizes heartbeat.

This makes it clear why you should hydrate properly. But can you do it better? Yes, there is a better option. It's hydrogenated water. You'll not only hydrate but also get the added benefits of hydrogen present in it. In this research paper, we explain why opting for hydrogen water is beneficial for your health.

What Is Hydrogen Water?

Regular water + Hydrogen = Hydrogen water

It's a simple equation. Hydrogenated water is just pure water with an addition of hydrogen gas into it. Nothing else is added to it. All the benefits attributed to hydrogen water are due to the hydrogen molecules present in it.

Hydrogen (H₂) is a colorless, tasteless, and nontoxic gas. It possesses a lot of potential health benefits. If you look at your body, hydrogen is a key part of its building blocks. The molecular structure of your body is made up of carbon (C) and hydrogen (H). It is also part of two compounds that we use on daily basis i.e., water and sugar. Hydrogen bonds with oxygen to form water and carbon to form sugar.

Although there are two molecules of hydrogen present in water as well, they are not available to our body. As they are bound with oxygen, our body can't utilize them. For effective absorption of hydrogen, it has to be readily available to our body.

That's what hydrogen water provides to the body — easily available molecular hydrogen. To produce hydrogen water, pure hydrogen gas is bubbled into the water. As it is a tasteless gas, it does not affect the taste of the water.

What Role Hydrogen Water Plays In Your Body?

Hydrogen gas is a great therapeutic tool in several diseases and disorders. The potential mechanism of action of hydrogen is being unearthed recently. It is a combination of anti-oxidant, anti-inflammatory, and anti-apoptotic properties that prevents disease development.

Antioxidant Properties Of Hydrogen Water

Of all the health benefits, the most prominent is the antioxidant property of hydrogen. Oxidative stress is caused by free radicals in your cells. Free radicals are unstable atoms that constantly search for other atoms to bind. They attack molecules in the mitochondrion — the energy center of the cell — and other vital organelles in the cells. By damaging all the important machinery of a cell, it halts its growth as well as normal functioning. Free radicals are either produced by our cells as a by-product of metabolism or by air pollutants, X-rays exposure, cigarette smoking, and industrial chemical wastes. They are a major cause of disease and inflammation in your body. Persistent oxidative stress leads to severe diseases including cancer.

Hydrogen (H₂) neutralizes free radicals in the cell. Each hydrogen molecule destroys two free radicals produced during day-to-day stress. The positive anti-oxidant response has been reported in different scientific studies. For example, a study investigated the beneficial effects of hydrogen water in patients undergoing radiotherapy against liver cancer. The results indicated that people who consumed hydrogen-rich water had lower levels of free radicals in their blood¹.

¹ [Effects of drinking hydrogen-rich water on the quality of life of patients treated with radiotherapy for liver tumors](https://pubmed.ncbi.nlm.nih.gov)
pubmed.ncbi.nlm.nih.gov

Stress is also a big factor in the production of free radicals in your body. This could be due to excessive workload, performance pressure, or schoolwork. All these stresses lead to chronic inflammation and accumulation of free radicals in your body. A recent study involving 26 participants has reported that consumption of around 600 ml of hydrogen-added water a day for 4 weeks help minimize the levels of free radical in their body². The study also indicated that hydrogen improves mood and cognitive function.

Hydrogen Water As A Potential Treatment Option In Rheumatoid Arthritis (RA)

Rheumatoid arthritis (RA) is a chronic inflammatory condition that causes the destruction of bone and cartilage. Hydroxyl radicals are prominent in the progression of this disease. Hydrogen water has been shown to alleviate the symptoms of the disease in RA patients³. Hydrogen scavenges the free radicals produced in RA disease. H₂-water can complement normal treatment in rheumatoid arthritis.

Positive Impact Of Hydrogen Water In Metabolic Syndrome

Hydrogen water shows promising results in controlling metabolic syndrome which is a great risk factor for cardiovascular diseases. Metabolic syndrome is characterized by excessive body fat, diabetes, hypertension, and high cholesterol. All these conditions contribute to inflammation and oxidative stress in your body.

Some scientific research has signaled a positive impact of hydrogen water in metabolic syndrome. A study found that people consuming 0.9-1 liter of hydrogen-enriched water for 10 weeks had reduced 'bad' LDL cholesterol⁴.

Hydrogen Water Against Chronic Inflammation

From heart diseases to gastric disorders like inflammatory bowel disease (IBD), inflammation is everywhere. It is the root cause of almost all diseases that humanity faces. Around 50% of

² [Hydrogen-rich water for improvements of mood, anxiety, and autonomic nerve function in daily life](https://pubmed.ncbi.nlm.nih.gov) pubmed.ncbi.nlm.nih.gov

³ [Consumption of water containing a high concentration of molecular hydrogen reduces oxidative stress and disease activity in patients with rheumatoid arthritis: an open-label pilot study](https://pubmed.ncbi.nlm.nih.gov) pubmed.ncbi.nlm.nih.gov

⁴ [Hydrogen-rich water decreases serum LDL-cholesterol levels and improves HDL function in patients with potential metabolic syndrome](https://pubmed.ncbi.nlm.nih.gov) pubmed.ncbi.nlm.nih.gov

worldwide deaths are attributed to chronic inflammation. As chronic inflammation goes on for a long period, its exact impact remains unknown.

A study published in the journal *Nature* highlights that hydrogen water has the capacity to reduce inflammation in the body⁵. The study states that the inflammatory signals are significantly reduced in people consuming hydrogen water compared to the control group.

Hydrogen Water For Athletes

Athletes can benefit from hydrogen water by two key mechanisms. One is the reduction in inflammation in the body and the other is a decrease in the accumulation of lactate in the blood. Lactate is a sign of muscle fatigue that is produced due to anaerobic respiration in muscles during training. Muscle contraction during strenuous workouts also causes oxidative stress. Sometimes there could be inflammation in the muscles during hard training.

A pilot study found that elite athletes who drink 1.5 liters of hydrogenated water per day have reduced levels of lactate and less fatigue⁶. This could be beneficial for the athlete to avoid burnout during training and have less amount of free radicals in their body.

Anti-aging Effect Of Hydrogen Water

Animals with higher metabolism have a short life span⁷. This theory has been around for over a century. When scientists investigated the relationship between metabolism and life span, they found that it is actually oxidative stress that damages the cells. Higher metabolism means more free radicals, hence more cell damage.

The same is seen in the case of aging. As you age, you keep accumulating free radicals that damage the cells. Antioxidants prevent free radicals, thus controlling cell damage. In a way, antioxidants and anti-aging go hand in hand. Hydrogen being a strong antioxidant slows down

⁵ [Hydrogen-rich water reduces inflammatory responses and prevents apoptosis of peripheral blood cells in healthy adults: a randomized, double-blind, controlled trial](#) nature.com

⁶ [Pilot study: Effects of drinking hydrogen-rich water on muscle fatigue caused by acute exercise in elite athletes](#) pubmed.ncbi.nlm.nih.gov

⁷ [Oxidants, oxidative stress and the biology of ageing](#) nature.com

oxidative damage. This not only works as an anti-aging agent but also keeps you young and fresh.

Hydrogen Water Boosts Cognitive Function

Most brain disorders involve oxidative stress along with other potential causes. For example, Alzheimer's disease involves inflammatory response and oxidative stress along with amyloid β peptide ($A\beta$) deposition — the main feature of the disease. Hydrogen, due to its potential antioxidant properties can alleviate oxidative stress in Alzheimer's disease⁸.

Apart from helping in mental illnesses, hydrogen water has been proven to bring mental clarity and boosts mental focus.

Aid In Cancer Treatment

A study published in 2015 reported that hydrogen-rich water is the novel therapeutic option in the treatment of colorectal cancer in mice⁹. Hydrogen water improved the survival rate in mice. It also improved apoptosis — programmed cell death — in cancer cells. This indicates the potential of hydrogen water in cancer therapy along with conventional chemotherapy.

Why you should try it?

Optimal hydration is necessary for maintaining good health. According to the U.S. National Academies of Sciences, Engineering, and Medicine recommendations, the average fluid intake for men is 15-16 cups of water daily whereas the amount is slightly less in women (11-12 cups). You can easily meet the daily fluid requirement with hydrogen water while obtaining additional health benefits of hydrogen.

⁸ [Hydrogen-rich water improves cognitive impairment gender-dependently in APP/PS1 mice without affecting \$A\beta\$ clearance](https://pubmed.ncbi.nlm.nih.gov) pubmed.ncbi.nlm.nih.gov

⁹ [Hydrogen-rich water exerts anti-tumor effects comparable to 5- fluorouracil in a colorectal cancer xenograft model](http://www.wjgnet.com) www.wjgnet.com

Regarding the safety of hydrogen water, the US Food and Drug Administration (FDA) has acknowledged (GRAS Notice No. 520) hydrogen to be safe for human use¹⁰. This refutes any claims made by some superstitious people regarding the safety of hydrogen water.

Hydrogen water is a wise option for everybody whether you are fighting some chronic disease or not. People who are in their sublime health can also use this amazing water to minimize oxidative stress and inflammation in their bodies.

-Dr. R.D. Stephenic, M.D. Environmental Health Sciences TSU

¹⁰ [The Food and Drug Administration \(FDA\): Agency Response Letter GRAS Notice No. 520 pubmed.ncbi.nlm.nih.gov](https://pubmed.ncbi.nlm.nih.gov)