

---

# MOLECULAR HYDROGEN

---

GREAT ELEMENT BENEFITS  
FOR YOUR HEALTH



#SHIFTWITHCJ

# TABLE OF CONTENTS

## PAGES

• <b>WHAT IS MOLECULAR HYDROGEN?</b>	<b>01</b>
• <b>MOLECULAR HYDROGEN FOR HEALTH</b>	<b>02</b>
• <b>WHAT ARE FREE RADICALS? HOW THEY ARE GENERATED AND WHY THEY ARE DANGEROUS?</b>	<b>04</b>
• How are Free Radical generated?	<b>04</b>
• What is oxidative stress?	<b>05</b>
• <b>WHAT ARE ANTIOXIDANTS? AND HOW THEY PROTECT US FROM FREE RADICAL DAMAGE</b>	
• Antioxidants and its benefits	<b>06</b>
• Molecular Hydrogen effects	<b>07</b>
• 5 reasons why Hydrogen water is the ultimate antioxidant:	<b>08</b>
• Select the best Hydrogen water for you	<b>09</b>
• All about Hydrogen water for you	<b>10</b>
• Tips on Selecting the Best Hydrogen Water for You	<b>11</b>
• Frequently Asked Questions	<b>12</b>

# WHAT IS MOLECULAR HYDROGEN?

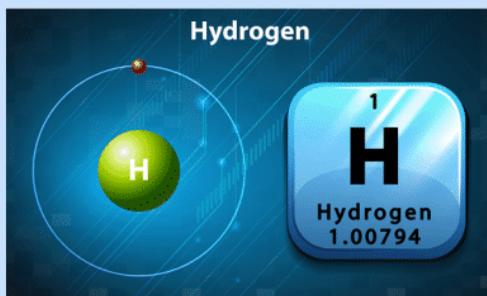
## MOLECULAR HYDROGEN

The molecular formula of hydrogen is  $H_2$ . Hydrogen is the most abundantly found chemical substance in the universe. It is the lightest element with the symbol H and atomic number is 1. It is the smallest molecule in the universe and it passes easily from the body and has the ability to cross cell membranes and the blood-brain barrier.

Hydrogen also plays an important role in acid–base reactions. On the earth, hydrogen exists in molecular forms, for example, water or other organic compounds.

Hydrogen is colorless, odorless, tasteless, flammable gaseous substance and can be inhaled as a gas or infused into water.

Molecular hydrogen known as a powerful antioxidant and anti-inflammatory that has protective effects on cells and organs.



# MOLECULAR HYDROGEN FOR HEALTH

## MOLECULAR HYDROGEN BENEFITS

Molecular hydrogen has many great benefits and acts as a powerful antioxidant neutralizing free radicals that contribute to disease progression.

It has ability to reduce inflammation. When the body is stressed by trauma or infection, it sends out inflammatory mediators, that give signal to the body that it needs healing. This signal initiate an increase in fluid to the affected area, which results in inflammation.

There are several methods to ingest or consume H<sub>2</sub>; inhaling H<sub>2</sub> gas, drinking H<sub>2</sub>-dissolved water (H<sub>2</sub>-water), injecting H<sub>2</sub>-dissolved saline (H<sub>2</sub>-saline), taking an H<sub>2</sub> bath, or dropping H<sub>2</sub>-saline into the eyes.

Molecular hydrogen is going to be one of the biggest health and wellness trends because of its benefits. These are:

### 1. Acts as an antioxidant

Hydrogen gas acts as powerful antioxidant and has been shown to protect cells from even the most cytotoxic reactive oxygen species. The inhalation of H<sub>2</sub> gas markedly suppressed brain injury by buffering the effects of oxidative stress.



# MOLECULAR HYDROGEN FOR HEALTH

## 2. Protects your muscles & can speed up sport-related recovery

Hydrogen boosted the natural production of glutathione which is often called master antioxidant. The effects of hydrogen on athletes and exercise is a promising area worth keeping your eye on.

## 3. Protects organs protective against cancer

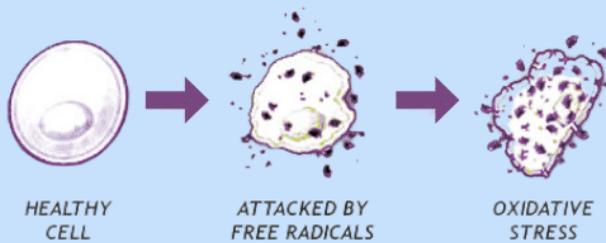
Hydrogen has been observed to be protective against damage to numerous organs including the brain, pancreas, heart, liver, eyes, and lungs. This is to be believed because of hydrogen's anti-inflammatory, antiapoptotic, and oxidative stress fighting effects.

Also, it can protect against oxidative stress and damage to the DNA. Hydrogen has been observed to help reduce side effects of chemotherapy in some patients.

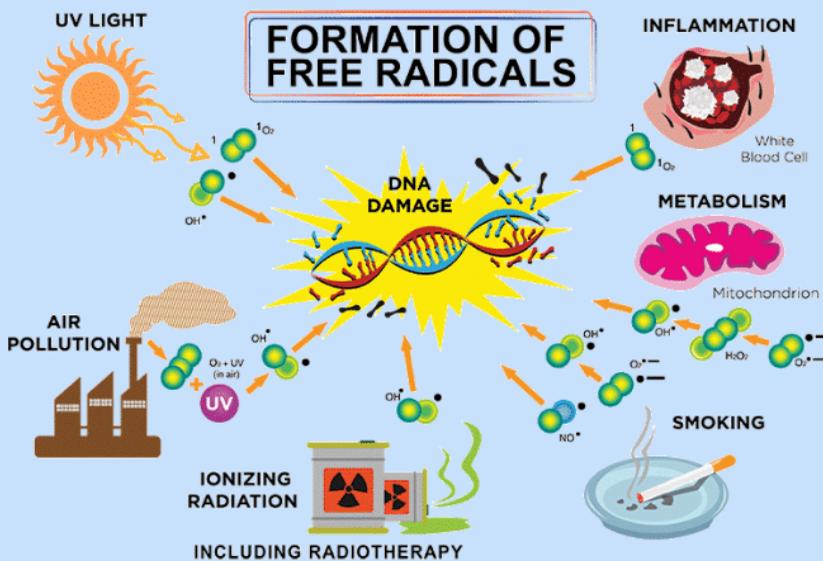


# WHAT ARE FREE RADICALS? HOW THEY ARE GENERATED AND WHY THEY ARE DANGEROUS?

**Free radicals** are oxygen-containing molecules with an uneven number of electrons. The uneven number allows them to easily react with other the molecules. Free radicals can cause large chain chemical reactions in your body because they easily react with other molecules. These reactions are called oxidation. They can be beneficial or harmful.



You may also be exposed to free radicals in the environment.



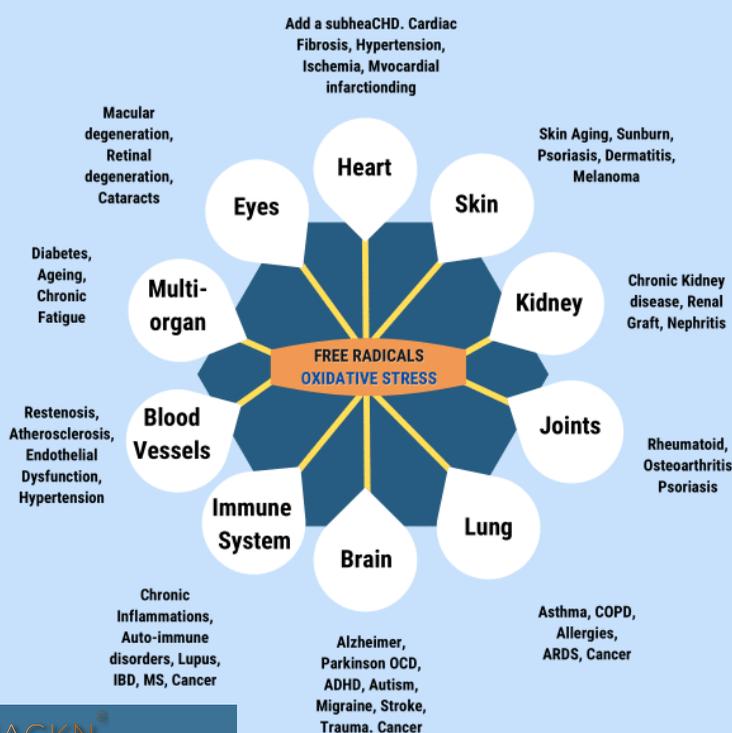
# WHAT ARE FREE RADICALS? HOW THEY ARE GENERATED AND WHY THEY ARE DANGEROUS?

Particular cause of free radicals is the Oxidative Stress that can cause our bodies to age. As we get old, our internal defense system declines, allowing oxidative stress to accumulate and resulting in cell damage, disease and death. Oxidation is a normal and necessary process that takes place in your body. Oxidative stress, on the other hand, occurs when there's an imbalance between free radical activity and antioxidant activity.

## What is oxidative stress?

**Oxidative stress** occurs when there's an imbalance between free radical activity and antioxidant activity. When functioning properly, free radicals can help fight off pathogens. Pathogens lead to infections.

Unfortunately, oxidative stress raises the risk of heart disease, cancers, type 2 diabetes and many other chronic diseases. However, you need to enhance the antioxidants inside your cells by supplementing your diet with antioxidant-rich foods, following a healthier lifestyle, and utilizing H2. Antioxidants can neutralize excess free radicals efficiently.



# WHAT ARE ANTIOXIDANTS? AND HOW THEY PROTECT US FROM FREE RADICAL DAMAGE?

## Antioxidants and its benefits

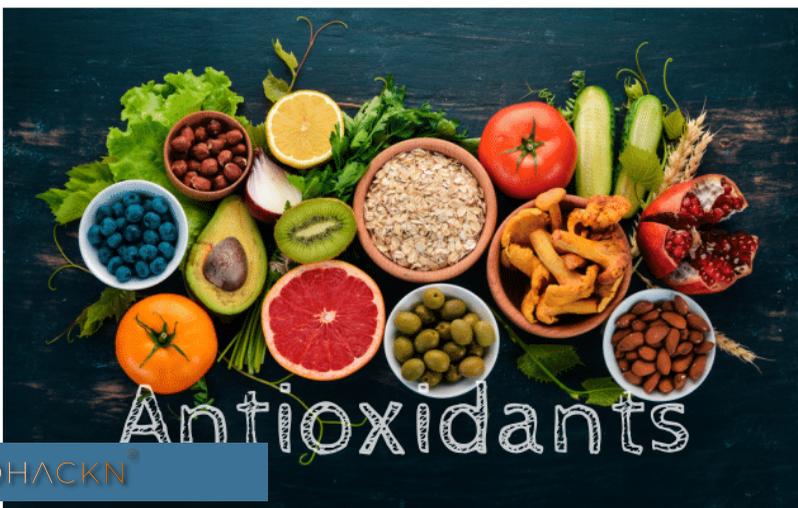
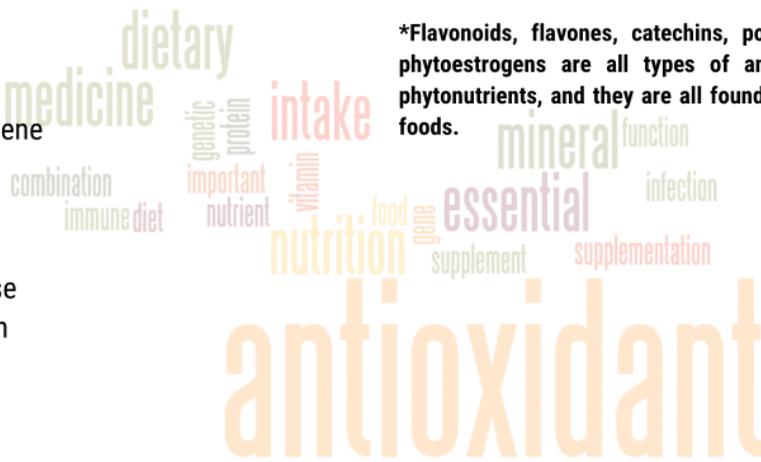
**Antioxidants** are substances that help protect or reduce the damage of free radicals in your body. It also reduce the damage caused by oxidation. Antioxidants, found on the food, such as vitamins C and E and carotenoids, may help protect your cell damage caused by free radicals.

Eating a diet rich in antioxidants especially fruits and vegetables can help increase your blood antioxidant levels to fight oxidative stress and has been linked to a lower rate of chronic diseases.

Examples of antioxidants that come from outside the body include:

- vitamin A
- vitamin C
- vitamin E
- beta-carotene
- lycopene
- lutein
- selenium
- manganese
- zeaxanthin

\*Flavonoids, flavones, catechins, polyphenols, and phytoestrogens are all types of antioxidants and phytonutrients, and they are all found in plant-based foods.



# Molecular Hydrogen effects

Many studies have reported that H(2) (inhaled or orally ingested, typically as approximately 0.8 mM H(2)-saturated water), can exert beneficial effects in diverse animal models of ischemia-reperfusion injury, and inflammatory and neurological disease. In the clinic, oral administration of H(2)-saturated water is reported to improve lipid and glucose metabolism in subjects with diabetes or impaired glucose tolerance; promising results have also been obtained in reducing inflammation in hemodialysis patients and treating metabolic syndrome. These studies suggest H(2) has selective antioxidant properties, and can exert antiapoptotic, anti-inflammatory and antiallergy effects.

Hydrogen water is regular pure water with extra hydrogen molecules added to it. It also marketed to decrease inflammation, boost athletic performance, and even slow your aging process. Below are just some of the few studies regarding Molecular Hydrogen that we wanted to share with you.

**Hydrogen-rich water, or simply hydrogen water, is produced when protons and electrons are added to regular water. Molecule thoroughly hydrate and rejuvenate skin.**



Enhances Skin/Battles Aging

Read More: [Hydrogen Water Boosts Skin Health](#)

**Consuming molecular hydrogen suppresses obesity.**



Suppresses obesity

Read More: [Hydrogen Water Boosts Skin Health](#)

# 5 reasons why Hydrogen water is the ultimate antioxidant:

## 1. Molecular Hydrogen is the smallest and purest Antioxidant that exists.

- Because of its size, it can easily pass through the blood-brain barrier to provide protection against Free Radicals.

## 2. Molecular Hydrogen is the “smart” Antioxidant

- H<sub>2</sub> selectively targets only the toxic oxygen radicals, and also neutralizes every type of harmful Free Radical in our cells.

## 3. Molecular Hydrogen is 100% natural and completely safe.

- H<sub>2</sub> is absolutely safe because it is perfectly natural to the body and has no known toxic effect.

## 4. Molecular Hydrogen improves the body’s natural Antioxidant systems

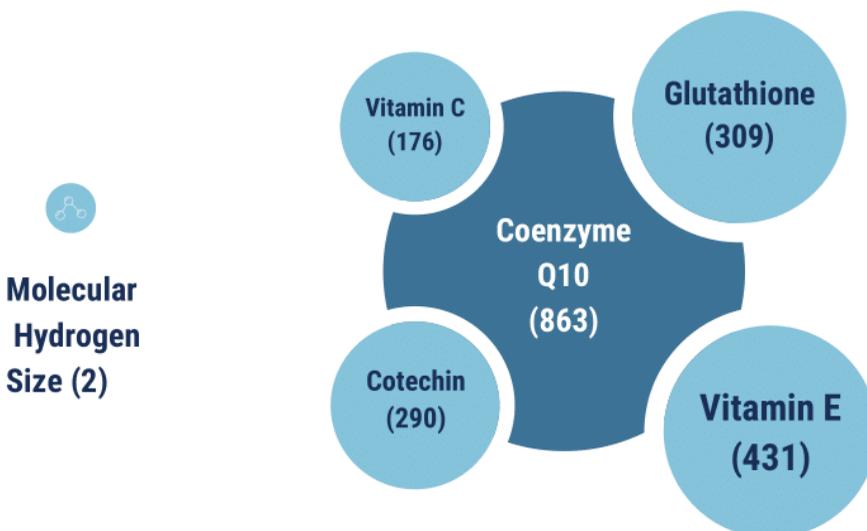
- H<sub>2</sub> activates our body’s existing cyto-protective proteins and Antioxidant enzymes, such as catalase, superoxide dismutase, and glutathione. Each one of these enzymes protect against different Free Radicals in the body.

Hydrogen-rich water reduces inflammatory responses and prevents apoptosis of peripheral blood cells in healthy adults

## 5. Molecular Hydrogen provides anti-obesity effects, anti-inflammatory effects and anti-allergy effects.

- H<sub>2</sub> does this through supporting cell metabolism, cell signaling, and gene expression. Hydrogen-rich water reduces inflammatory responses and prevents apoptosis of peripheral blood cells in healthy adults..

Also, hydrogen-rich water reduces oxidative stress and has a good effect on kidney injury.



# Select the best Hydrogen Water for you

## Potential Health Benefits of Hydrogen Water

Staying hydrated is a great way to stay healthy. But experts believe there may be some benefits to drinking hydrogen water.

- Reduce Side Effects from Radiation Therapy

There are study of 49 people with liver cancer showed that drinking hydrogen-rich water for six weeks during radiation therapy could improve quality of life during treatment.

This study showed that quality of life were higher in the group of people that drank hydrogen water, versus the placebo group consuming regular water. But further study is needed.



- Improve Athletic Performance

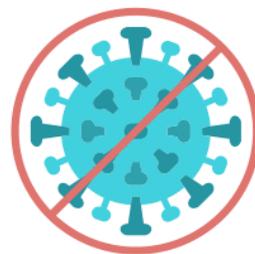
Hydrogen water is said to increase energy, reduce inflammation, and reduce recovery times after workouts.

Study showed that drinking hydrogen water may reduce muscle fatigue and muscle function decline caused by exercising.



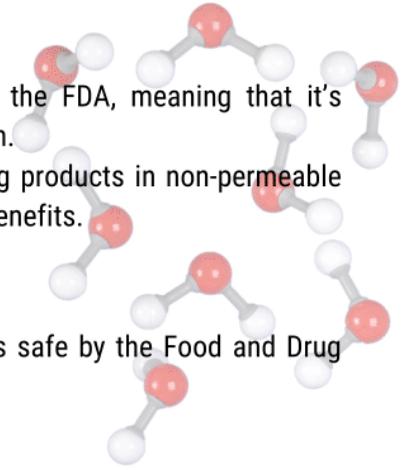
- Disease Prevention

H<sub>2</sub> contain antioxidants. Antioxidants help prevent stress comes from both normal body functions and external forces, including sun exposure and industrial chemicals. H<sub>2</sub> quality may reduce the risk of heart disease and other life-threatening diseases.



# ALL ABOUT HYDROGEN WATER

Hydrogen water is generally recognized as safe (GRAS) by the FDA, meaning that it's approved for human consumption and not known to cause harm. If you'd like to try hydrogen water, experts suggest purchasing products in non-permeable containers and drinking the water quickly to obtain maximum benefits.



## Is hydrogen water safe?

Like alkaline water, hydrogen water is generally recognized as safe by the Food and Drug Administration.

## Will hydrogen water make me feel more energized?

Hydrogen may help to reduce muscle fatigue and soreness by limiting lactate build-up and improving the rate at which your cells are producing energy, therefore improving your performance in aerobic exercise.

## Hydrogen Water is Nature's Best Antioxidant

### 1.5 liters of Hydrogen water per day

Equivalent to the antioxidant value provided by hundreds of fruits and vegetables.



Drink healthy water

## Tips on Selecting the Best Hydrogen Water for You

Hydrogen can be produced from diverse, domestic resources, including fossil fuels, biomass, and water electrolysis with electricity. The environmental impact and energy efficiency of hydrogen depends on how it is produced. Several projects are underway to decrease costs associated with

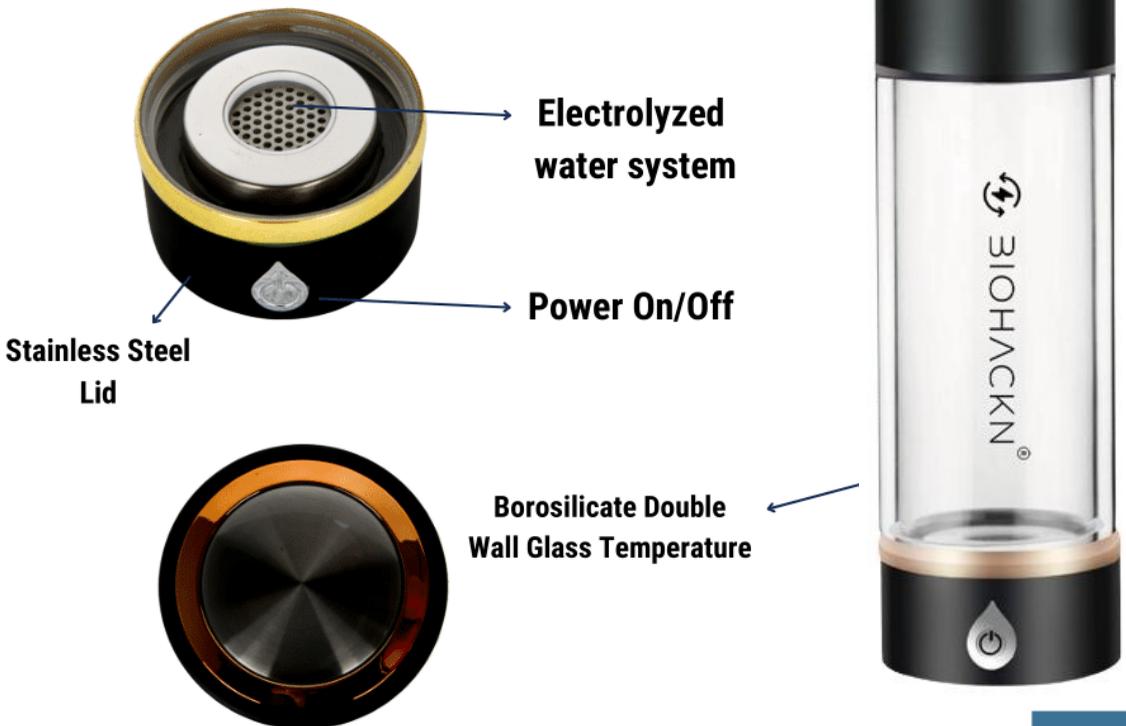
1. Research has shown that the hydrogen levels must be at least 1000 ppb (1.0ppm) of hydrogen or more. This will ensure the amount of hydrogen that is generated has high enough concentrations of hydrogen to be therapeutic.

2. Many hydrogen water generator manufacturers still use older hydrogen technology which do not use newest SPE/PEM membrane. With older membrane technologies, your Hydrogen generator could be producing water that has residual chlorine & ozone which is not healthy.

So it is important to make sure that the hydrogen water generator that you pick uses the latest SPE/PEM membrane. The SPE/PEM membrane remove any residual chlorine or ozone gases through a waste valve. Learn about why SPE/PEM technology is important.



### Features



## Frequently Asked Questions

A wide variety of questions with regard to drinking hydrogen-enriched water arise again. We listed the most important and frequently asked questions.

### 1. Which part of the body is affected by hydrogen-rich water?

If you drink water, it is already absorbed from the digestive tract after one minute, reaches the brain in three minutes, the skin tissue in ten minutes and the liver in twenty minutes. While there are many antioxidants that can remove free radicals, hydrogen molecules, due to their small size, are able to freely reach and penetrate every tissue and cell. Once in the cells, these hydrogen molecules react with reactive oxygen species and turn into water, which is then excreted from the body.

### 2. How long do you need to drink hydrogen-rich water to see its effects?

It depends on the daily dosage and physical condition. Since human cells have an average lifespan of about 4 weeks, it is recommended to drink it regularly for more than a month.

### 3. How much hydrogen-rich water should I drink per day?

The human body usually needs 2.6 litres of water per day, 1.6 litres of which have to be replenished by drinking. We, therefore, recommend drinking at least 1.6 litres of hydrogen-rich water a day.



## Frequently Asked Questions

A wide variety of questions with regard to drinking hydrogen-enriched water arise again. We listed the most important and frequently asked questions.

### **4. What does your product do, and what is hydrogen water?**

Our product has advanced and science-backed technology, which allows us to create hydrogen-rich water, or you can even call it water enriched by hydrogen. Think of your regular soda, which contains a gas called carbon dioxide (CO<sub>2</sub>), or water with extra oxygen, which has dissolved oxygen (O<sub>2</sub>). Following the same principle, our product dissolves hydrogen into the water, with many health benefits.

### **5. I have heard hydrogen can be explosive. Is that true?**

Yes, you have your facts right. Hydrogen is indeed very explosive because it is one of the most energy-dense molecules by mass. So why would we use it? It is because as hydrogen gets dissolved in water, it isn't explosive. Fun fact hydrogen is only flammable in the air at 4.6% concentration by volume, which is way more than what we can produce in our device.

### **6. If the chemical structure for water is H<sub>2</sub>O which means there are already two hydrogen atoms present, what is your device doing?**

You got the chemistry partly right. You are correct. The water molecules have two hydrogen atoms; however, they are chemically bound to the oxygen atom. When we think about the health benefits, this is completely different than only Hydrogen H<sub>2</sub>. Think about the question for a second, and let's reverse it a bit. If we want oxygen to survive on this planet and water is H<sub>2</sub>O so it does have an atom of oxygen, can you survive by only drinking water? This is also why water isn't flammable or doesn't burn as it contains hydrogen, which is flammable, and we actually use it to extinguish fires. This is due to the specific chemical bonds.

## Frequently Asked Questions

A wide variety of questions with regard to drinking hydrogen-enriched water arise again. We listed the most important and frequently asked questions.

### **7. Is hydrogen-rich water acidic ?**

One of the ways the water can be acidic is when it is rich in positive hydrogen ions  $H^+$  but with our device we produce neutral hydrogen ( $H_2$ ). To find out if the water is acidic or alkaline we normally refer to the PH scale, the P stands for potential and H stands for the hydrogen ions ( just a proton and no electron) That means the PH is only logarithmic concentration of the hydrogen ion but what our device does is making an neutral hydrogen gas in the water.

### **8. Doesn't adding hydrogen to water make hydrogen peroxide, a popular antiseptic/ mouthwash solution?**

Let's look at the chemistry again, hydrogen peroxide is  $H_2O_2$  and water is  $H_2O$ . When you compare them then you would see that there is a extra oxygen and not hydrogen atom. This is why it wont form hydrogen peroxide. With our device we are only dissolving the hydrogen in water and not creating any chemical bonds.

### **9. I've heard its difficult to dissolve hydrogen into the water, is that true?**

Molecular hydrogen is the lightest molecule in the universe. One common mistake people make is that they compare the number of grams instead of the number of molecules. Lets take another famous antioxidant Vitamin C for example which weighs 176.2g/molecule which is 88 times more than hydrogen that stands at 2g/molecule. Therefore at low doses, 1.6mg of hydrogen can be compared to 100mg of vitamin C. Therefore, you don't need so much of hydrogen to dissolve in water to see its therapeutic benefits.

### **10. Wont the hydrogen gas disappear when I open the lid of your device?**

No it doesn't just disappear. Hydrogen starts coming out of water, but it takes time and depends on multiple factors such as surface area, agitation and much more. Hydrogen can stay in the water for a few hours and then starts loosing its healing effect. This of your regular soda containing  $CO_2$  doesn't disappear as soon as you open the lid, right?.

## Frequently Asked Questions

A wide variety of questions with regard to drinking hydrogen-enriched water arise again. We listed the most important and frequently asked questions.

### **11. I've heard its difficult to dissolve hydrogen into the water, is that true?**

Molecular hydrogen is the lightest molecule in the universe. One common mistake people make is that they compare the number of grams instead of the number of molecules. Lets take another famous antioxidant Vitamin C for example which weighs 176.2g/molecule which is 88 times more than hydrogen that stands at 2g/molecule. Therefore at low doses, 1.6mg of hydrogen can be compared to 100mg of vitamin C. Therefore, you don't need so much of hydrogen to dissolve in water to see its therapeutic benefits.

### **12. Wont the hydrogen gas disappear when I open the lid of your device?**

No it doesn't just disappear. Hydrogen starts coming out of water, but it takes time and depends on multiple factors such as surface area, agitation and much more. Hydrogen can stay in the water for a few hours and then starts loosing its healing effect. This of your regular soda containing CO<sub>2</sub> doesn't disappear as soon as you open the lid, right?.

# LEARN ABOUT HYDROGEN

For further research, here are some links to help broaden your knowledge and additional ideas on Molecular Hydrogen.

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3788323/>

<http://www.molecularhydrogeninstitute.com/>

<https://www.hydrogenhealth.net.au/>

<https://www.sciencedirect.com/>

<https://www.britannica.com/>