

# Hydrogen Facts

**Get ready, your LOVE for Mother Nature is about to Grow Deeper:**

1. Molecular Hydrogen (H<sub>2</sub>) is not Plant Based so it behaves differently than traditional antioxidants (vitamins, etc.).
2. H<sub>2</sub> is a gas and the lightest molecule that easily diffuses into cells without expending any cellular energy.
3. H<sub>2</sub> communicates with cells to either up-regulate or down-regulate to boost metabolism or modulate oxidative stress respectively.
4. Because H<sub>2</sub> regulates (a.k.a., optimizes, or balances) cellular behavior, H<sub>2</sub> can boost metabolism & give a sense of energy (up-regulate) when cells are lethargic or calm (down-regulate) when feeling tense.

**Why is Molecular Hydrogen (H<sub>2</sub>) Water better than Alkaline Water?** The body must maintain a balanced pH of 7.35 - 7.40. The moment high pH Alkaline Water is consumed stomach acid neutralizes it, thus removing any health benefits.

**Is Hydrogen Safe ?** Yes it is. After 1,500+ published studies, there are no known side-effects of consuming too much Hydrogen.

**How Much Hydrogen is in each can?** We have optimized the process to have 1.6ppm per can, so there are as many H<sub>2</sub> molecules in 1 can of HyVIDA as vitamin C molecules in a small orange.

**What is the pH of HyVIDA?** HyVIDA's patent pending Hydrogen infusing process increases the pH to 5.0, making our Sparkling Water **25x less acidic** than typical sparkling waters. The result, a super smooth taste experience, that's easier on the belly & teeth enamel with reduced esophagus burn.

**Organic Flavors - What's the Source?** HyVIDA uses **Certified Organic Flavors** so all our products are GMO-free as nature intended.

**What is actually in each can of HyVIDA Sparkling Waters?** We keep it simple: Carbonated Water, Certified Organic Flavors, Magnesium & Hydrogen

**What is Oxidative Stress?** Like an apple turns brown when exposed to air, our cells can “rust” when we breathe due to oxidative stress, a process caused by free radicals. Our lifestyles are the largest contributor to oxidative stress such as our diet, smoking, exercising, pollution, sleep deprivation, and pressures of everyday life all impact oxidation. More precisely, oxidation is defined as the loss of at least one electron when two or more substances interact — this is where free radicals come into play.



**What are free radicals?** Free radicals are unstable molecules that damage or “oxidize” cells throughout the body in a process called oxidative stress. Over time, oxidative stress can leave our cells and tissues unable to function properly. Free radicals are believed to cause serious consequences to our health. Avoiding the causes of free radicals and adopting a lifestyle that helps you fight back against them can help you safeguard your health by preventing oxidative stress.

**What are Antioxidants?** Antioxidants are natural substances that limit the damage caused by free radicals. Antioxidants can protect and reverse the damage caused by oxidation to some extent.

**What are the limitations of Antioxidants?**

- Most antioxidants (e.g. Vitamin C) are very large (size and weight) making it difficult for these molecules to transport into cells where they are desperately needed.
- The brain gets the most oxidative stress damage because the brain consumes the most oxygen. However, many antioxidants struggle to penetrate the blood-brain-barrier to neutralize free radicals in the brain.
- Often antioxidants turn into weaker free radicals themselves after neutralizing free radicals. Example: when ascorbic acid donates a hydrogen and an electron

to a free radical ( $R^{\cdot}$ ) it becomes an ascorbyl radical, a weaker free radical byproduct. This ascorbyl radical needs to be taken care of by enzymatic processes which requires resources and energy. (need citation)

**Can you consume too many Antioxidants?** The consumption of antioxidants is so important. That said, consuming too many antioxidants through supplements can have a negative effect and has shown to hurt the ability to recover. Hydrogen fights free radicals without the negative effects of antioxidants, making hydrogen infused water an ideal complement to eating an organic and antioxidant rich diet.

### **How does Hydrogen neutralize free radicals?**

- Most free radicals are caused by your cells as part of the body's immune system. When your body is under extreme stress (out of balance), cells produce excess free radicals causing damage to your body.
- Molecular hydrogen ( $H_2$ ) easily penetrates your cells to regulates cellular behavior - restoring a healthy balance to cellular behavior.
- In contrast, plant based antioxidants scavenge (neutralize ) free radicals (like sacrificial soldiers).

**When have I consumed too much Hydrogen?** Different from Antioxidants, Hydrogen fights free radicals without the negative effects, making hydrogen infused water an ideal complement to eating an organic and antioxidant rich diet. Importantly, it appears that you cannot get too much hydrogen, as it doesn't build up in your system — you just exhale it out. In many cases there is a clear dose-dependent effect, meaning the more hydrogen the better or greater the effect. But more research needs to be done in this area

### **Plant-based Antioxidants vs Hydrogen**

#### **SIMILARITIES**

- They are both natural to the body.
- They are both neither artificial nor synthetic.
- They are both potential keys to longevity.
- They both promote health and wellness.

#### **DIFFERENCES**

- Molecular hydrogen also increases our body's own antioxidant systems.
- Molecular hydrogen also acts as a signaling molecule, thus having many other benefits such as regulating cellular behavior.
- Molecular hydrogen is the smallest molecule, and can easily enter the cells. (Note:  $H_2$  only weighs 2 g/mole vs. vitamin C at 176.2 g/mol).
- Molecular hydrogen has no known toxic effects, even at high intakes.

- Molecular hydrogen is easily consumed with no additional calories.  
reference: [Molecular Hydrogen Institute](#)

**Won't any dissolved hydrogen gas immediately escape out of the water.** Once opening the can, hydrogen does start coming out of the water (just like carbonated vacating sparkling water) but not immediately. Depending on the surface area, agitation, etc., the hydrogen gas can stay in the water for an hour or longer.

**How Much Water Should I drink daily?** We believe in the importance of increasing water consumption each day by adopting an 8 x 8 approach 8 glasses of 8 ounces of water each day. With a good healthy diet people should received approximately 20% of their water from food. Searching the web, you'll find many articles supporting the consumption of water and its many benefits including:

- **Weight Loss** -A recent study indicated that when its participants were asked to consume 500 ml of water before each meal every day, this led to the loss of 44% more weight in comparison to the others who were not regularly consuming water before eating<sup>ref</sup>.
  - **Pregnancy and New Mothers** - the Institute of Medicine states that pregnant women should make sure they drink at least 10 cups of fluid a day (2.3 liters); breastfeeding mothers should drink at least 13 cups of fluid per day (3.1 liters)
  - **Flavor** - sometimes drinking only water each and every day gets pretty boring. If you want to add some extra flavor without adding to your waistline, try adding some sliced up fruit pieces like lemons, strawberries, and limes. This will add some extra kick without adding to your calorie intake.
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- The amount you should take depends on your size, diet, and lifestyle. Below is a helpful reference:

<b>Weight</b>	<b>Ounces of Water Daily</b>
100 pounds	67 ounces
110 pounds	74 ounces
120 pounds	80 ounces
130 pounds	87 ounces
140 pounds	94 ounces
150 pounds	100 ounces
160 pounds	107 ounces
170 pounds	114 ounces
180 pounds	121 ounces
190 pounds	127 ounces
200 pounds	134 ounces
210 pounds	141 ounces
220 pounds	148 ounces
230 pounds	154 ounces
240 pounds	161 ounces
250 pounds	168 ounces

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