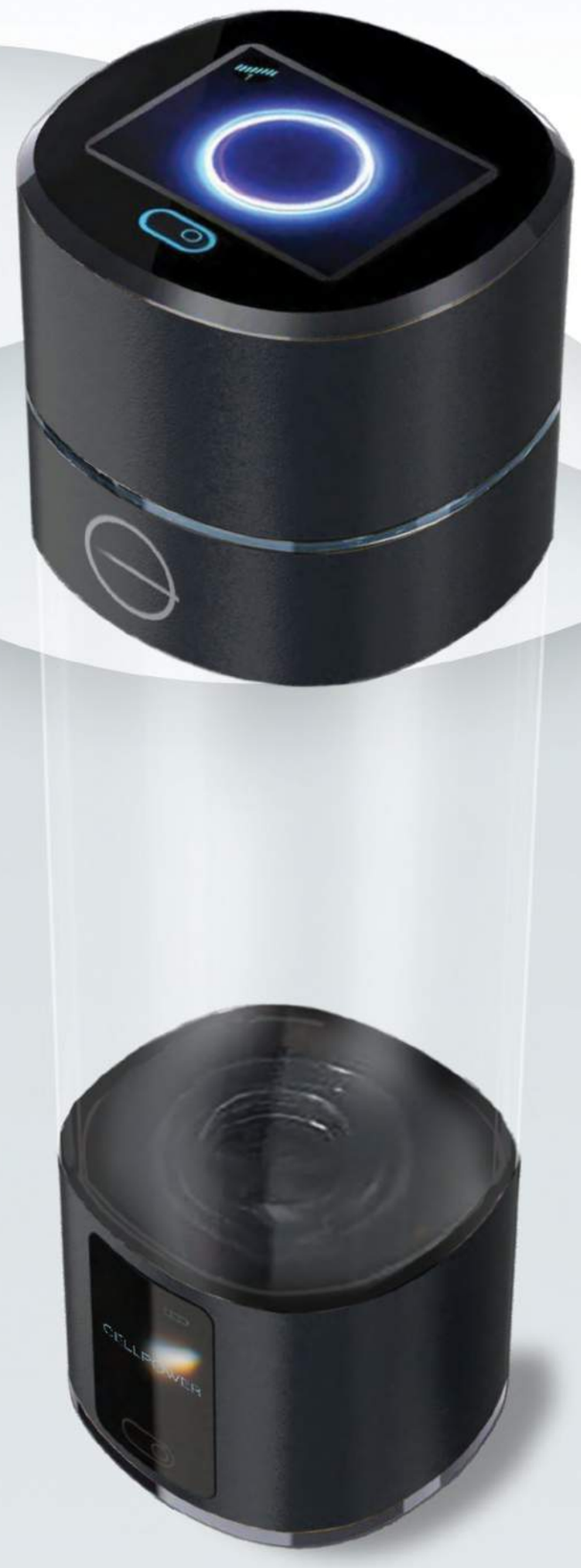
CELLPOWER

THE ULTIMATE HYDROGEN EXPERIENCE



CELLPOWER HYDROGEN WATER VS. ALKALINE WATER IONIZERS

Alkaline Water Ionizers were already being used in the commercial sphere well before Molecular Hydrogen garnered attention as a potential therapeutic agent in water. The focus of these devices was on crafting water with an alkaline pH that might offer certain health benefits.

It was only later that Molecular Hydrogen was discovered to be the sole reason for the therapeutic benefits, rather than the alkaline pH or negative ORP, which had previously been the focus.

This distinction emphasizes the evolution of understanding surrounding the properties and applications of water generated through these devices. By grasping these systems, you'll have the knowledge to confidently choose the water type that aligns most effectively with your requirements.

	Alkaline Water Ionizers	CellPower Hydrogen Water
Origin	The concept of water ionization, including the creation of alkaline water, dates back to the **early 20th century**. Research on electrolyzed water started around 1931 in Japan where it gained popularity in the 1950's. However, the broader commercialization of alkaline water ionizers began some years later when companies introduced their water ionizer machines to the market.	The concept of hydrogen-infused water and its potential health benefits gained attention in the **21st century**. In 2004, Nuno Nina began the development of water devices in collaboration with a team of Russian engineers. In 2017, he introduced his first portable hydrogen water device to the global market, particularly through his clinics. Now, in 2023, Nuno Nina is launching a unique technology aimed at unlocking a new realm of hydration, well-being, and vitality.
Goal	The primary intention of these systems is to **generate water with an alkaline pH**, not hydrogen rich water.	The goal is to **infuse water with molecular hydrogen/ hydrogen gas**, without altering the initial pH of the water. The ideal ratio between H_2 concentration and ORP, rH_2, and pH values plays a prominent role in this device.

Water generated	**Alkaline reduced water** It also produces water with different pH levels, each with its own applications such as cleaning and disinfection.	**Hydrogen-rich water** Drinking water that contains a higher concentration of molecular hydrogen (H_2) than regular water.
Technology	**Electrolysis** The cathode produces hydrogen gas by drawing in electrons that bond with protons originating from water molecules. As a result, the water molecules become hydroxide ions (OH-) and **contribute to the alkalinity of the water.**	**Electrolysis** Designed in a way to **concentrate molecular hydrogen in the water**. Unlike alkaline water systems, CellPower Hydrogen Water device do not alter the pH of the water.
Voltage	**Usually 24V** The higher the voltage, the less control there is over the production of undesirable by-products, which is why a portion of the water is discarded and not recommended for human consumption (referred to as acidic water).	**2.3 V** As the voltage is so low, the production of undesirable by-products is minimal and controlled, making it unnecessary to discard any water or have a separate tank - there's a continuous flow that releases all gases and occasional waterdroplets.
Membrane	**Ionic Exchange Membrane** Keeps the water separate but allows electrons to flow through.	**PEM - Proton Exchange Membrane** Keeps the water separate but allows electrons AND hydrogen protons to flow through. The membrane itself is conductive and does not rely on the conductivity of the water. The distinctive properties of PEM membranes facilitate the movement of hydrogen cations towards the cathode, facilitating a constant generation of hydrogen gas.
Hydrogen Content	○ These machines were not primarily designed to produce hydrogen, resulting in inconsistent and uncertain hydrogen levels. For therapeutic effects, water must contain a minimum dissolved hydrogen level. Moreover, these systems heavily rely on the source water's conductivity (mineral content) to generate significant hydrogen levels. Typically, they exhibit very low hydrogen levels, sometimes even undetectable using accurate methods like a reagent to measure the concentration of dissolved hydrogen gas. Due to these low levels, one would need to consume a substantially larger amount of water to attain a therapeutic dose, potentially leading to negative consequences if consumed excessively.	✓ CellPower consistently achieves higher concentrations of dissolved hydrogen, irrespective of the initial conditions of the source water. Our device also integrates a dissolution technology to optimize the infusion of molecular hydrogen into the water, thereby retaining it for an extended duration. By consuming CellPower Hydrogen Water, you can attain therapeutic levels of molecular hydrogen with less water intake.

pH	The idea of alkaline water lacks scientific substantiation and contradicts human biology directly.	CellPower Hydrogen Water device do not alter the pH of the water. CellPower advocates for the consumption of slightly acidic (pH 5-7) water to avoid any negative interference with the stomach's digestive process.

A recent review on this topic concludes that, indeed, only molecular hydrogen is responsible for the therapeutic effects:

"Electrolyzed-Reduced Water has been used for many decades, but it was not until recently that it was conclusively demonstrated that ***molecular hydrogen is responsible for both the negative ORP and the observed biological benefits.****"*

A second scientific review carried out by the same authors confirms the same idea that *"the benefits of Electrolyzed-Reduced Water have been clearly shown to be* ***due to the dissolved molecular hydrogen and not the other claimed properties.****"*

There are also safety concerns with ERW, particularly at high pH levels. The most alarming are reports of hyperkalemia, which are likely attributed to tissue damage caused by metals leached into the water during electrolysis.

The authors concluded, *"Given the potential safety risks of ERW,* ***some users might explore alternative methods that can deliver more consistent and elevated H_2 concentrations*** *without necessitating extensive maintenance and frequent H_2 measurements."*

See Study 1 See Study 2

SO...WHY DO PEOPLE REPORT GETTING GOOD RESULTS WITH ALKALINE IONIZED WATER?

1. Acquiring these devices is often linked to an **overall lifestyle change** (healthy eating, regular exercise, quitting consumption of sodas and alcohol, etc.) contributing to better results.

2. Acquiring these devices - especially due to the novelty factor and their high price - prompts people to **drink more water**, increasing their hydration levels, and of course, leading to improved results.

3. The **placebo effect**, also considered a possible theory, is a psychological phenomenon where patients experience real improvements in symptoms due to their belief in a treatment's efficacy, even if the treatment is inactive or fake.

4. From a scientific standpoint, the most plausible reason is the **presence of molecular hydrogen** in the water - even in low concentrations. However, as mentioned above, we know that alkaline water ionizers are not the ideal way to produce hydrogen water and they do not guarantee that the produced water will have sufficient amounts of molecular hydrogen.

KEY CONCEPTS

Electrolysis involves breaking down water into its elemental components using an electric current. This procedure entails a cathode (negative electrode) and an anode (positive electrode). At the cathode, reduction occurs, leading to the production of hydrogen gas, while at the anode, oxidation takes place, resulting in the production of oxygen gas.
Although this process is present in both devices, there are some essential differences that lead to different outcomes: