

The Secret of Hydrate2o

Protons (H+) and Proton Donors

First the basic facts:

1. Only hydrogen can create the free proton, H⁺. It is a law of the universe. Water contains protons that can be donated to a reaction. Water disassociates into H⁺ and OH⁻.
2. The presence of protons, H⁺ has everything to do with acidic pH measurements and oxidation-reduction potential measurements (ORP). If you measure an acidic pH and a positive ORP in pure water you have free protons.
3. For every electron involved in a reaction, a proton, H⁺ must be donated to the set of oxidation-reduction reactions to keep the system electrically balanced. That is a law of oxidation - reduction reactions. The Krebs cycle is nothing but coupled oxidation- reduction reactions. Protons drive the Krebs cycle.
4. The mitochondria and the Krebs cycle must have protons or your body can not produce energy and you die. It is called the proton motive force. Dr. Krebs won a noble prize for this discovery
5. Proton Donors are nothing more complicated then being a source of protons to the mitochondria. Not all hydrogen containing compounds can be proton donors. It all depends on the size, shape and chemical composition of the molecule as to whether the proton can be donated. Indisputable fact about the role of the B-vitamins in the body; they are proton donors while other vitamins are not. People lack energy when they are short on B-vitamins.
6. Cell water is a source of protons to the enzymes of the Krebs cycle and cell water keeps the enzymes the proper distance apart from each other. Cell water is structured water that actively participates in the enzymatic reactions of the Krebs cycle by being a source of protons, in other words, cell water is a proton donor. Hydrate2o is designed to mimic cell water in all its functions, hydration and proton donor capacity.

ORP means Oxidation Reduction Potential. It measures the potential for a liquid solution to be an Oxidizer or a Reducer. Oxidizers strip electrons from another compound. Reducers donate electrons to other compounds. It is all about the flow of electrons. If you strip an electron from the hydrogen atom, H, you get H⁺, a proton. Only the hydrogen atom can create a proton. A Proton is a single positively charged unit of matter that exists in the nucleus of the atom. All atoms except hydrogen have more then one proton in the nucleus.

Hydrogen is the only element in the universe that has only one proton in its nucleus. When you strip the electron of the hydrogen atom it becomes a proton, H⁺. All other elements have two or more protons in their nucleus. For example, helium He has two protons and two electrons. If you strip an electron from a helium atom He, you get He⁺ but it is not a proton. It is a cation. There are still two protons inside the helium nucleus, but only one electron surrounding the nucleus.

If you strip the second electron you will get He^{+2} . It is still known as a cation with a positive two charge. Only hydrogen is a single proton atom. The electrons circulate outside the nucleus and He^+ means one electron has been stripped from the atom. For every neutral compound, there is one negatively charged electron for every positive proton $+$ in the atom. Electrons carry a negative charge and protons a positive charge. There is always a balance.

When dealing with electrons there is a further consideration. Quantum mechanics requires that there be two electrons in the outer shell or electron orbital of a molecule for a molecule to be stable. One electron has to have a positive $+1/2$ spin and the other has a negative $-1/2$ spin. Unpaired electrons create a reactive compound. Because the Hydrogen atom only has one electron, it is not stable. Two H atoms will bind together and share two electrons between them and you get hydrogen gas, H_2 . The hydrogen molecule H_2 has two protons and two electrons. One electron is a positive $1/2$ spin and the other is a negative $1/2$ spin. The electrons share an orbital between the two hydrogen nucleus and the world is happy. Spin is balanced and charge is balanced. No flow of protons and no flow of electrons.

Hydrogen is a reducer because it can donate its electron to another compound. When the hydrogen atom, H, donates an electron to another compound, it becomes H^+ , a proton. When helium donates an electron it becomes a positively charged molecule, He^+ a cation. It is still a reducer, but it does not create a proton. This is critical because the Krebs cycle requires protons H^+ to balance the flow of electrons, e^- .

He^+ has two protons but only one missing electron and weighs twice as much as the hydrogen proton H^+ . The size and shape and weight of the He^+ (helium) cation prevent it from being used by the enzymes of the mitochondria. The mitochondria can only use protons, H^+ , to counter the flow of electrons.

Only hydrogen can become a proton. The proton gets donated to the Krebs cycle and the substance which was the source of the hydrogen is called a proton donor. Chlorine CL is an oxidizer. It will strip an electron from another compound and become CL^- carrying the electron it just stole as a negative charge. Hydrogen H is a reducer. It will donate an electron to another compound and become a proton H^+ with a positive charge. The proton can then participate in oxidation- reduction reactions. Hydrochloric acid HCL is an ionic mixture of H^+ and CL^- . This chemical species can only exist in water. The amount of H^+ and CL^- determines the concentration of the acid.

CL can carry two electrons in its outer shell (this is quantum mechanics wave theory so I do not expect everyone involved with Hydrate2o to understand this principle), therefore CL^- is still looking to strip another electron from another compound to become $\text{CL}^{(-2)}$. Chlorine is a very strong oxidizer. [Just for clarity, two CL^- molecules can combine to share their single electrons with each other and form CL_2 , Chlorine gas, an electrically neutral compound in terms of quantum mechanics orbital wave theory. This is when you smell the chlorine coming from a pool.]

Hydrogen (H) only has one electron that it can donate, hence H^+ is the end of hydrogen's contribution when it comes to the flow of electrons. HCL in a liquid solution becomes H^+ CL^-

but the chlorine Cl^- is still looking to strip an electron. The liquid solution will test as an oxidizer. The ORP, the oxidation reduction potential will measure positive. This is true for even weak acids. Lactic acid is a weak acid produced by the body to be a source of protons, H^+ . Lactic acid in water will test with a positive ORP and a pH below 7. A neutral ORP is zero. Distilled water will measure zero.

Pure H_2O is $2H^+$ and O^{2-} where the electrons are continuously shared in the outer orbital. The oxidizing capacity of the oxygen is exactly balanced by the reducing capacity of the hydrogen. This water will also measure a pH of 7 (neutral), because the protons are not available to be donated. Water that contains strong oxidizers like chlorine will measure very positive ORP scores. Waters that contain strong reducers, like certain trace minerals will test as a negative ORP. But there are trace minerals that are oxidizers. All water is not created equal. Some can donate protons and some cannot.

The great secret to Hydrate2o is that we not only hydrate the cells, but we are by definition a proton donor. Our lab tests prove this beyond a shadow of a doubt.

In contrast to Hydrate2o, many people believe in the alkazone water purifier. The alkazone machine takes tap water and divides it into two streams through electrical ionization. One stream has the oxidizing trace minerals and the other the reducing trace minerals. The oxidizing stream will test positive on the ORP scale and the reducing stream will test negative on the ORP. It is all about the flow of electrons.

The alkazone people recommend you drink the negative ORP water. It will not be an oxidizer. It will not strip electrons. This is promoted to be beneficial to the body. The low ORP water is equated to be an alkaline water and good for neutralizing the acidic fluids of the body. Hence, the discussion about water always turns to acid and pH measurements.

The pH of hydrochloric acid [$H^+ Cl^-$] measures the concentration of H^+ or protons. A low pH means there are plenty of disassociated H^+ ions. The pH of stomach acid is a pH of 1 to 3. It will also measure very high on the ORP because stomach acid is HCL, hydrochloric acid. It is a strong oxidizer which gives it the ability to destroy bacteria and breakdown protein. A neutral pH is 7; it will neither oxidize nor reduce. A pH above 7 is alkaline or base.

Alkaline (basic) compounds neutralize acid compounds. You take Alka-Seltzer or Tums to neutralize stomach acid or heartburn. All acidic compounds have free protons H^+ , it is a definition. It is a law of pH. If you test acidic you have protons. Lactic acid, a compound formed by the body to provide protons to the Krebs cycle tests acidic on the pH scale. All acids provide protons.

All acids when added to water test with a positive ORP because they are also oxidizers due to the way they handle the flow of electrons. Oxygen is an oxidizer. When oxygen is dissolved in water the solution will test positive on the ORP scale. It will also test slightly acidic. Water structures itself around the Oxygen to give it a source of protons.

Hydrate2o water tests slightly acidic and has a positive ORP. It is by definition a source of protons. Hydrate2o has all the right measurements of viscosity, surface tension and NMR

readings to be classified as hydrating water. Independent clinical tests confirmed that Hydrate2o absorbs 8X more efficiently than standard tap water.

Hydrate2o supplies two critical items to the mitochondria to support energy production; Hydration to keep the cell volume and enzyme spacing in the correct physiological balance, plus protons to fuel the proton motive force of the mitochondria. No other water on the market even attempts to portray themselves as a proton donor. The market place has been lead to believe that alkaline water is a health promoting water or that ultra-purified water like distilled is the best water or a heavy mineral water is the best water. These waters are all outside the norms of human physiology.

Hydrate2o is manufactured to mimic bio-water; the water inside the cells of the body. Clinical studies have proven that Hydrate2o delivers the hydration your body needs to be physically fit and healthy.