NEW GENERATION OF ELECTROLYZED WATER

Esperer.H2O Hydration Machine

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(Preliminary Draft – For Distributors and Customers Only)

FUNCTIONAL (ENHANCED) WATER

- There is functional food, medicine and chemistry, so why not functional water (water that produces specific functions)
- Water that has been exposed to external energy fields (mechanical, electrical, electromagnetic, optical, or other fields or combinations thereof) that alter the physical or chemical characteristics, such that when the water is utilized by living organisms or industrial processes, there are functional benefits

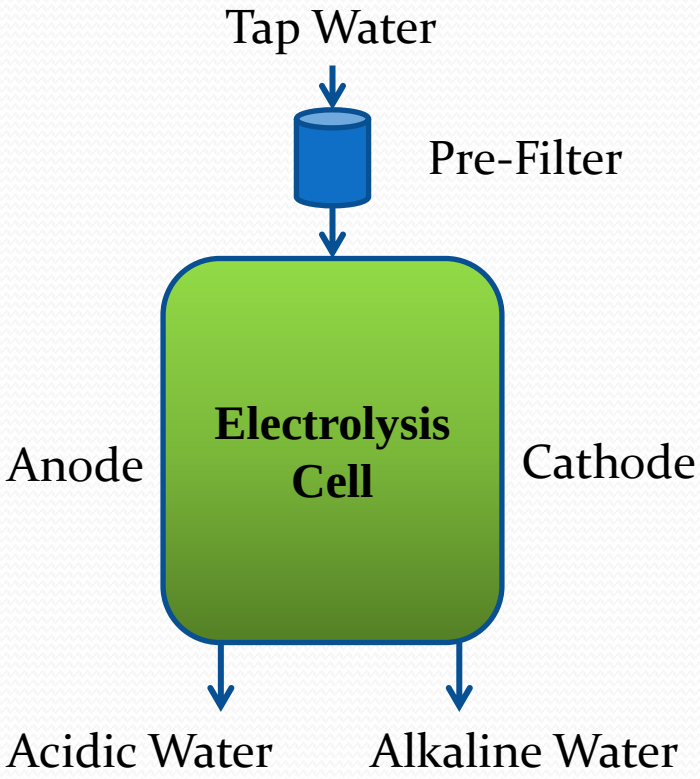
FUNCTIONAL WATER PRODUCTION

- There are many ways to produce functional water
- The most scientifically validated process for making functional water is electrolysis
- We used our extensive experience in electrolysis of water (over 120 man-years) to invent a new system that energizes the water to very high levels without affecting pH or wasting water

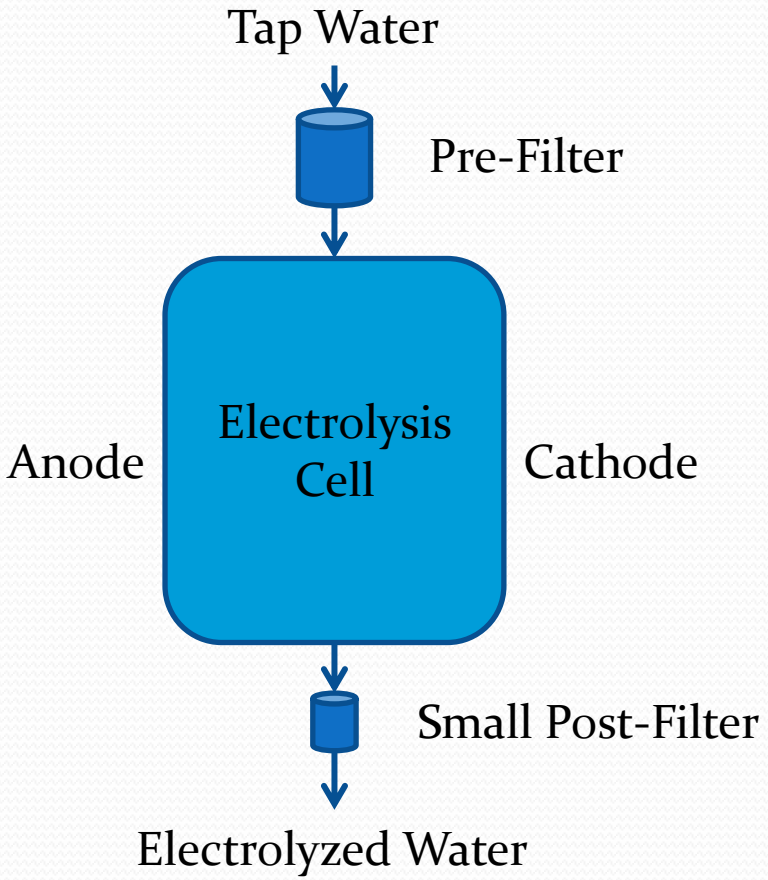
Original Laboratory/Production System

New Countertop System

COMPARISON OF ELECTROLYZERS



Conventional Electrolyzer



Advanced Hydration Machine

WHAT IS ELECTROLYSIS

- Electrolysis is an electrochemical process by which electrical energy is used to promote chemical reactions in a conducting solution with electrodes (anode +, cathode, -)
- Electrolysis of water is $H_2O \rightarrow H^+ + OH^-$
- Oxygen is produced at the anode and hydrogen is produced at the cathode
- Anions (Cl^-, CO_3^{2-}) are attracted to the anode
- Cations (Na^+, Ca^{2+}) are attracted to the cathode
- Oxidation (loss of electrons) occurs at the anode
- Reduction (gaining of electrons) occurs at the cathode
- Redox potential (ORP) characterizes the activity of electrons in water

WATER CHEMISTRY

Ion: Charged particle created by an atom or molecule which has either gained or lost electron(s)

Electrolyte: Substance which undergoes partial or complete dissociation into ions in solution and thus acts as a conductor of electricity

Pure Water Dissociation/Ionization:

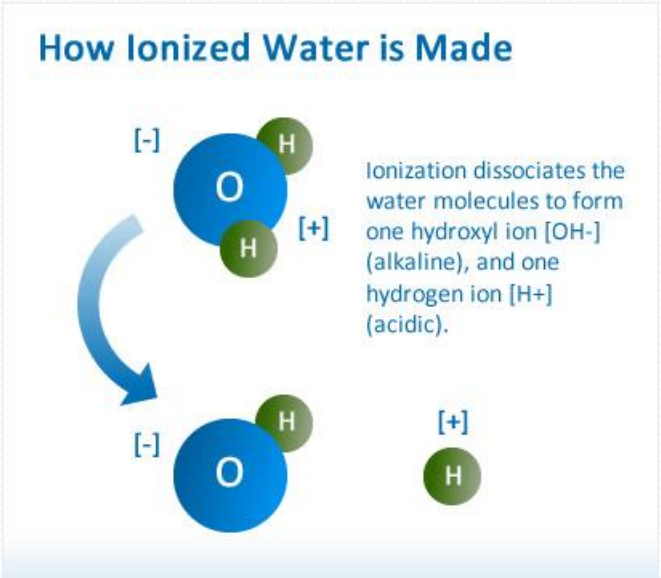
$H_2O \rightarrow 10^{-7}$ moles $H^+ + 10^{-7}$ moles OH^-

Ionization Potential (IP)

$IP = [H^+]\,[OH^-]/[H_2O] = 10^{-14}$

pH:

$pH = -\log [H^+] = -\log [10^{-7}] = 7$



IMPORTANT PARAMETERS IN ELECTROLYZED DRINKING WATER

- Solute
  - **pH** (H^+ or OH^-)
  - **ORP** (oxidation or reduction)
  - **DO** (dissolved oxygen)
  - **DH** (dissolved hydrogen)
- Solvent
  - **Dissociation activity** (*K*w or IP)
  - **Structure** (clusters, hydrogen bonds)

COMPARISON OF HYDRATION MACHINE WATER WITH OTHER WATERS - HANAOKA

Water	pH	ORP (mv)	DO (ppm)	DH (ppm)	IP	IP/IP(Tap)
Tap	7.31	305	7.16	0	$10^{-13.981}$	1
Electrolyzed Alkaline	10.0	-137	8.13	0.176	$10^{-13.88}$	1.32
Hydration Machine	7.62	-295	12.5	0.288	$10^{-13.19}$	6.45

MEASUREMENT OF ENERGY IN WATER (IP)

IP of Tap Water at 200 °F ~ 10^{-13}

IP of Tap Water at RT = 10^{-14}

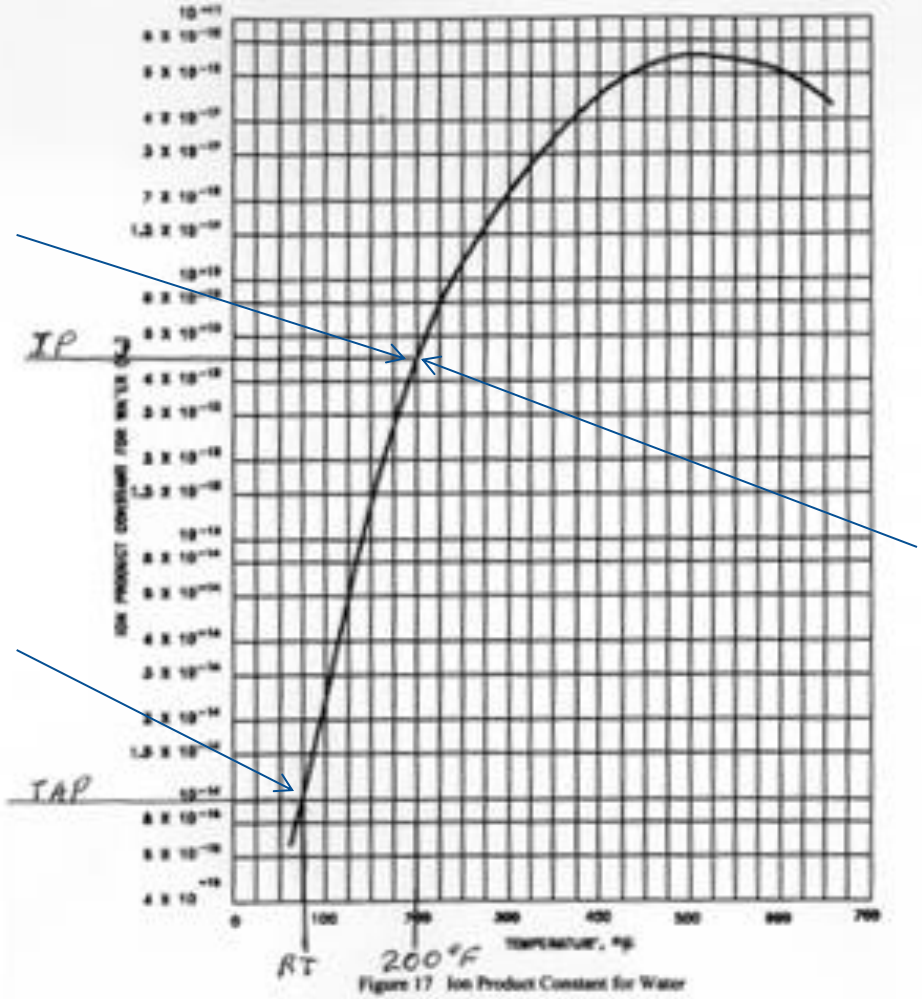


Figure 17 Ion Product Constant for Water

ACIDS, BASES, SALTS, AND pH DOE-HDBK-1015/1-93 Fundamentals of Chemistry CH-01 Page 52

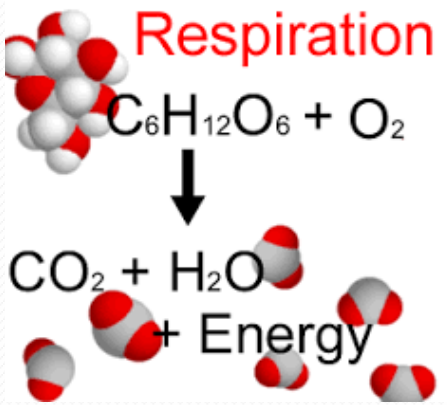
IP of Hydration Machine Water at <u>RT</u> ~ 10^{-13}

PROPERTIES OF HYDRATION MACHINE WATER

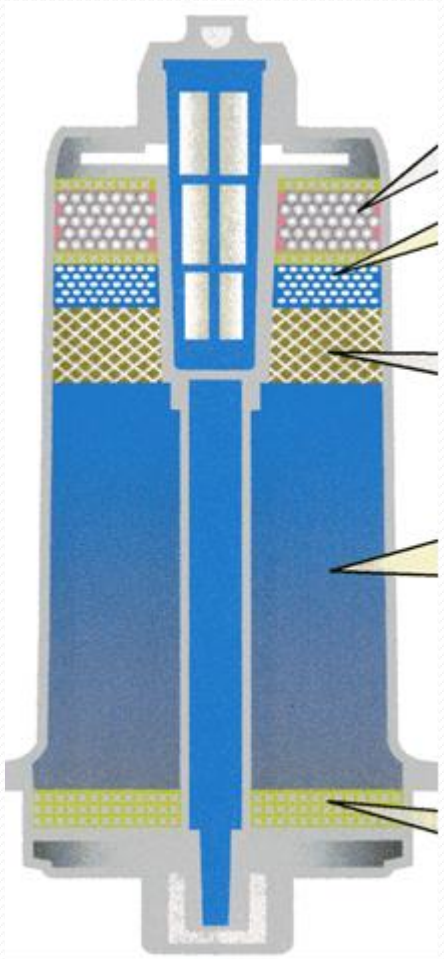
- **Energy**: >5 x tap, >4 x Electrolyzed Alkaline Water (EAW)
- **Hydrogen**: Higher concentration and more stable than EAW
- **Oxygen**: Higher than EAW
- **pH**: Little or no change of source water pH
- **No Water Wasted**: None – One water in, One water out
- **Operation**: Very simple – One button

BENEFITS OF HYDROGEN AND OXYGEN

- Hydrogen used for prevention and treatment of a variety of diseases, particularly those associated with ROS *(reactive oxygen species)* and inflammation (400+ reports)
- Oxygen used for aerobic metabolism (cell respiration) Respiration is the biochemical process in which the cells of an organism obtain energy by combining oxygen and glucose, resulting in the release of carbon dioxide, water, and **ATP**, the currency of energy in cells
- Hydration Machine water provides a good balance of hydrogen and oxygen



PROPERTIES OF HYDRATION MACHINE PRE-FILTER



Zeolite Ball Ceramics
(soften water)

Calcium sulfite
(removal of free chlorine)

Ion exchange resin
(removal of lead)

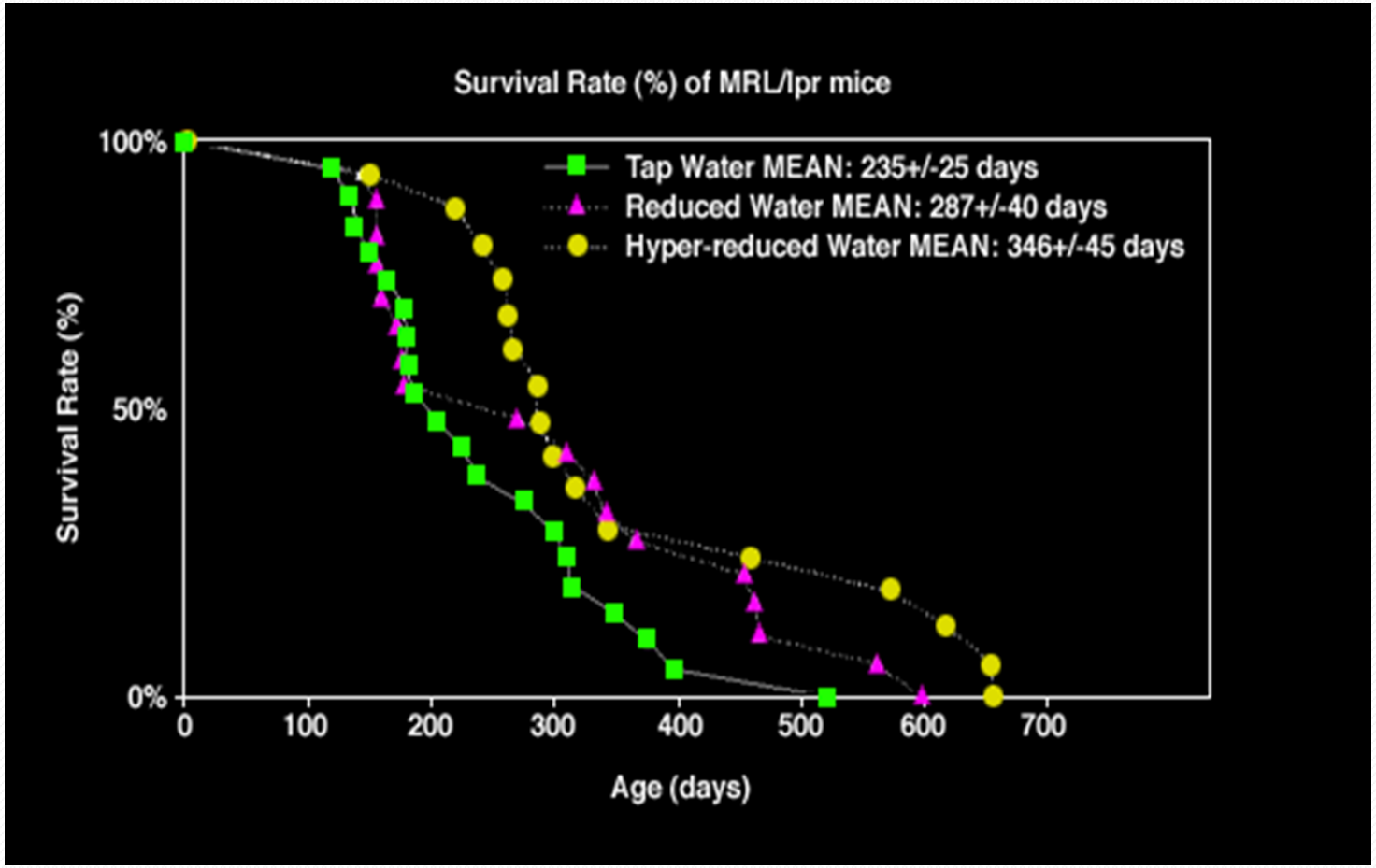
Active carbon with silver
(removal of odor, trihalomethanes,
agriculture chemicals, etc.)

Active carbon in resin state
(removal of contamination and cloudiness)

PRODUCT CLAIMS – FUNCTIONAL DRINKING WATER

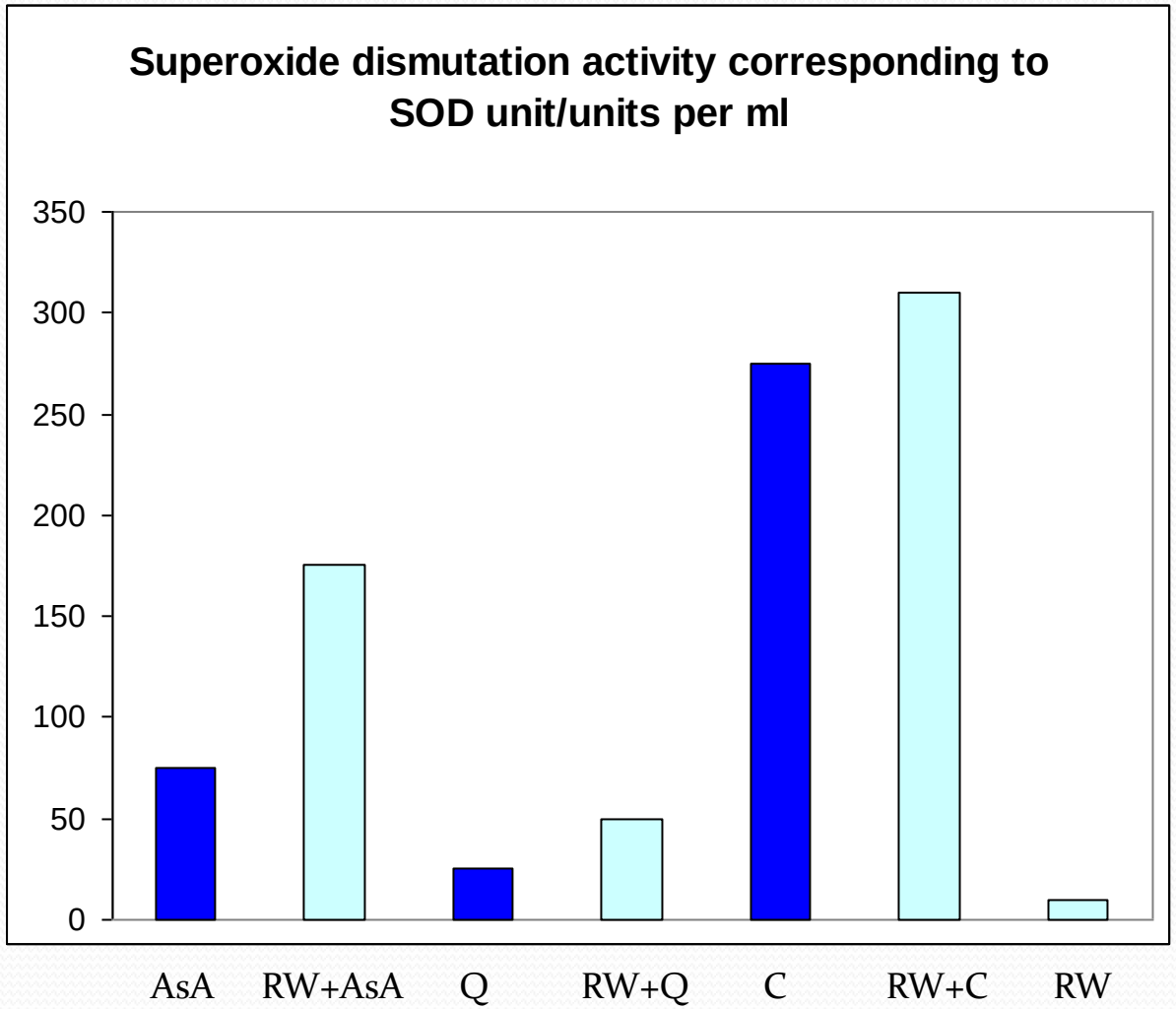
- Anti-aging - Extends lifespan of mice by 30%, enhances immune system, and scavenges free radicals
- Gastrointestinal – Reduces constipation, diarrhea, fermentation (gas), and increases absorption (calcium)
- Cellular – Increases hydration and improves biological terrain
- Anecdotal – Has shown benefits for diabetes, cancer, Parkinson disease, and addictive behavior

MICE FED ELECTROLYZED WATER LIVE LONGER - FERNANDES



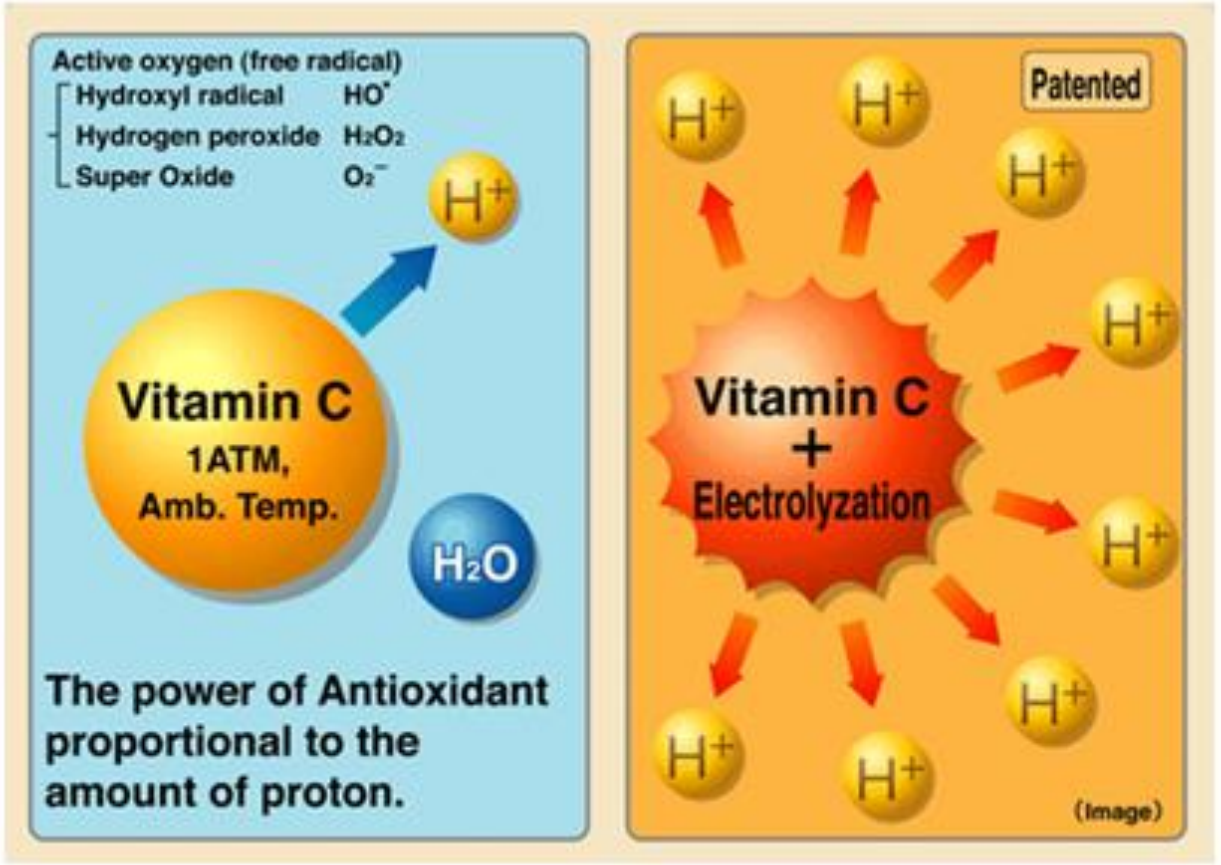
Note: Energy (IP) Increases from Tap → Reduced (pH=9) → Hyper-reduced (pH = 10) Water

SYNERGISTIC EFFECT OF ELECTROLYZED WATER (RW) ON ANTIOXIDANTS - HANAOKA



AsA – Ascorbic Acid
Q – Quercetin
C – Catechin
RW – Electrolyzed Water

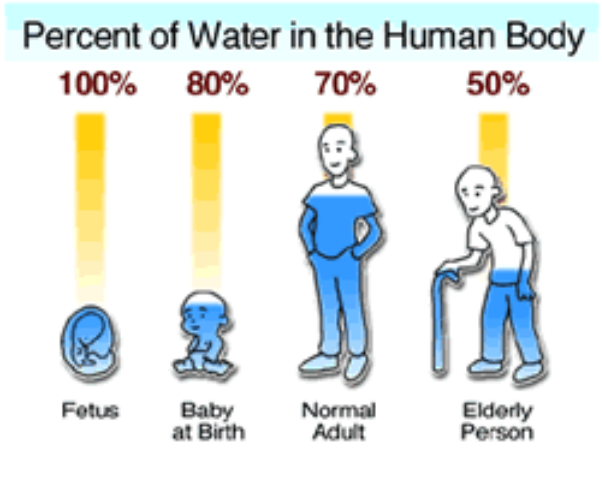
EFFECT OF ELECTROLYZED WATER ON VITAMIN C - HANAOKA



5 GENERATIONS OF HANDS

In this amazing picture of 5 generations of hands, what is the difference between the baby's hand in which the skin looks so Youthful, Plump and just beaming with Vitality and the hand of a 90 year old that looks dried out, leathery and near the end of life?

THE DIFFERENCE IS HYDRATION



IT'S ALL ABOUT HYDRATION

The difference is really hydration at the cellular level.

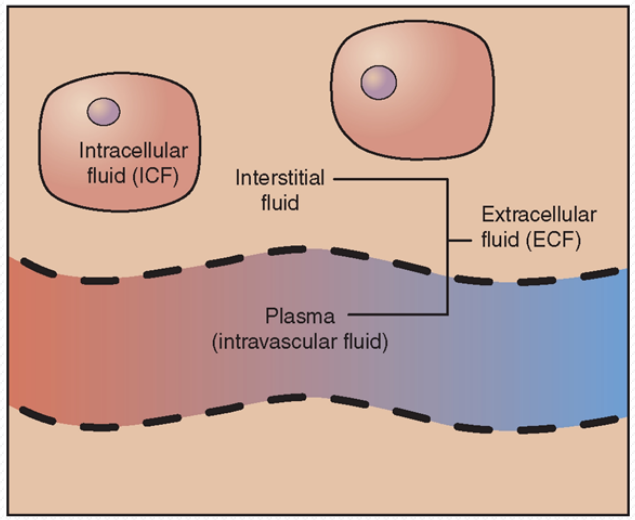
- A baby is 80% water
- An adult male is 60 -70% water
- A 80-90 year old is 50% water

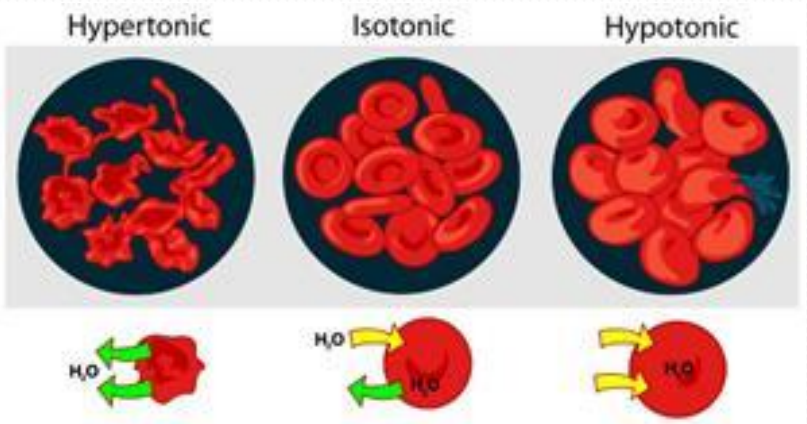
LIFE IN A FISHBOWL

- Fish cannot escape the fish bowl - it's their external environment
- If the fish bowl is not kept clean, then the fish will die
- Our cells are the same in that they live in the water that surrounds every cell
- This is the Extracellular Fluid (ECF) – Also called Extracellular Water (ECW)
- This ECF space is the largest organ in the body
- If this Extracellular Fluid gets too toxic or contaminated, then oxygen and other nutrients cannot get to the cells efficiently

BODY STRIVES FOR FLUID BALANCE

- In a steady state, the osmolarity* (concentration) in ECF is the same as in ICF (Isotonic)
- Cells either shrink or swell because intracellular and extracellular fluids have different osmolarity
- Increasing osmolarity (toxins) of ECF draws water out of the cells to dilute it and cells shrink (Hypertonic)
- Decreasing osmolarity of ECF draws water inside of cells and causes cells to swell (Hypotonic)





*__Osmolarity__ is the measure of solute concentration, defined as the number of osmoles (Osm) of solute per liter (L) of solution (osmol/L or Osm/L)

WHAT IS DEHYDRATION?

- To dilute the toxins in our Extracellular Fluid (ECF), Intracellular Fluid/Water (ICF) flows from the cells to the ECF to try and dilute the toxins in our internal fishbowl
- This decrease in Intracellular Fluid/Water (ICF) is dehydration
- Every chronic disease or condition involves dehydration
- Dehydration causes i**nflammation**
- This leads to **accelerated aging** of the cells

Are you going to be a plum or a prune?
How are you going to treat the 75 trillion cells in your fish bowl?

BALANCE OF INTRACELLULAR (ICW) AND EXTRACELLULAR WATER (ECW) IN THE BODY

Healthy/Young Person ICW > ECW

Aging ↓ ↑ Reverse Aging

Unhealthy/Older Person ICW < ECW

Hydration Machine water **shows greater increase of ICW over ECW than other waters (reverse aging)**

WATER PRODUCED BY THE HYDRATION MACHINE WILL

- Optimize hydration – THE KEY TO WELLNESS
- Greatly increase absorption of whatever you put in the water
- Safely detox your internal fish bowl – the water around every cell in your body
- Provide more hydrogen to your cells. Hydrogen is the best antioxidant on this planet and is required by the body to make cellular energy.
- Provide more dissolved oxygen to the body. This will help with aerobic metabolism vs. anaerobic metabolism.
- Reduce inflammation and prevent free radical formation and thus reduce aging.
- Make you look younger and feel younger and vibrant with more energy and vitality
- Hydrate your skin from the inside out

SOME BENEFITS OF HYDRATION MACHINE WATER

- Hydration – Increases intracellular water (ICW)
- Detoxing – Flushes and reduces extracellular water (ECW)
- Solubility – Increases concentration of solutes in solution
- Permeability – Increases diffusion/permeation through membranes
- Energy – Synergistic/catalytic effect on antioxidants, enzymes, etc.
- Culinary – Rehydration of dried foods, less ingredients needed (coffee)