Quantum Biology 5: COHERENT WATER = EZ WATER

Readers Summary

1. How much water does an American drink and is it enough?
2. What is bulk water compared to coherent water?
3. How did Plato affect evolution?
4. What is the shape or your liquid crystals when you are leptin resistant?
5. Does your microcosm equal your macrocosm?

The average American chugs nearly 30 gallons of bottled water a year, making it the second-most consumed commercial beverage in the United States. Sadly, it is not the *right kind* of water most of the time. The environment we evolved into is also in a rapid state of change and decline.

The air, the water, the earth is going to be wasted. The damages can be seen everywhere. Contamination, poisoning, plundering of the earth raw-material all break down the life-processes and destroy the energy sources. Our forests are dying, the food that we are eating is being destroyed. The quality of our lives is decreasing. This we can see daily, this is a fact well known to everybody even to those who are “vampiring” nature and to the scientists who are “thinking one octave to low” regarding the natures way of functioning and do not see the large energy-crises that are emerging.

When most people think of water they think of liquid water coming from their tap. Coherent water is a different animal altogether. It is water that is structured to be supremely cooperative in a living biologic system. It allows water to have local interactions with other molecules of water or something else so that the local interactions can have global effects, and this coherence means it is also bidirectional.

That means the global effects can affect local interactions. Coherent water is best thought of as the whole of its actions being much greater than the sum of its molecular parts. This is how life uses water.

Bulk liquid water is, therefore, a two-fluid system consisting of a coherent phase. Close to 40 percent of total volume of water at room temperature is actually capable of being coherent. Coherent portions of water can make free electrons to complete redox reactions. The remainder 60{a7b724a0454d92c70890dedf5ec22a026af4df067c7b55aa6009b4d34d5da3c6} is present as an incoherent phase of water.

Key Point: In the coherent phase, the water molecules oscillate between two electronic configurations in phase with a resonating EMF. *The EMF should be from the sun.*

Moreover, close to 65 years ago, the father of biochemistry, Hungarian born U.S. scientist Albert Szent-Gyorgyi had already highlighted the importance of water for life, and proposed that organized water existing ***close to surfaces***, such as found in cell membranes, is able to induce a very long lasting electronic excitation via resonant transfer of the different molecular species present in liquid crystals, thereby activating them and enabling their mutual attraction for reactions to take place. When electrons are added to surfaces they become more hydrophilic and they for an exclusion zone (EZ) in water. They are called exclusion zone because they exclude everything larger than the size of light hydrogen. This EZ has a large net negative charge and becomes a battery in water for electromagnetic radiations from the sun. ***Quantum coherent water = water in its exclusion zone formation.***

We saw in QB- 3, that ice forms tetrahedron molecules that are arranged in a hexagon (6 sides) rings. X-ray and neutron diffraction have shown us this to be factual. At the poles on earth, ice takes on another form of gas clathrates. In trapped methane gas at the bottom of the Arctic and Antarctic

oceans, water molecules form pentagonal arrays (5 sides). The difference in the forms may be due to the isoform of hydrogen used at the poles. The thing that may shock you is that polar ice from the North and South poles actually has been shown to communicate with one another!

Welcome quantum water to the stage of life

Physic Geeks: Roger A. Klein (QED chemist) at Bonn University has found evidence (2006) of coherence from electronic and quantum chemical computations in the formations of six and five-membered rings of ice. He also found that there is a greater stabilizing energy and much higher electron density at critical bond points for each hydrogen bond in the 5 and 6 membered rings compared to the single hydrogen bond between two liquid water molecules called dimers. The greater bond strength comes from hydrogen bond shortening within the clustered rings compared to the liquid forms. This is another property of water that really should have caught the attention of the biochemical world because it shows how water can act coherently from subatomic level to the macroscopic level on Earth in nature. It showed chemistry that cooperativity is more due to the increased tetrahedron bonds in water more than cluster sizing alone. This was no accident of nature. The hexagonal motif of ice and liquid crystalline water and the edge fused pentagonal motif in gas clathrates occur because of QED interactions. We now have firm evidence that these large clusters of water exist in liquid water under ordinary conditions on Earth as well. This implies that liquid water is fully capable of becoming a liquid crystal and enables coherent energy transfer to take place in cells.

Resonant energy transfer happens via hydrogen bonds in H_2O

Some of this is going to fly way above your head but I will give you the takeaways as we go. This is where the quantum dance of life happens folks.

Chemistry Geeks: at 300 K (27 C) 90{a7b724a0454d92c70890dedf5ec22a026af4df067c7b55aa6009b4d34d5da3c6} of water molecules are H-bonded normally. The structure of the hydrogen bonding network, however, fluctuates on time scales measured in femtoseconds to picoseconds. The network bonds change molecular orientations, distances, with many bonds breaking and reforming, and there is experimental evidence to show slower rotational motions as well. Water is very dynamic even at rest because of its molecular structure. The normal O-H bond stretching vibration is 270 cm -1 wide band centered at -3 400 cm-1 in the infrared region (in a wavenumber or frequency). As the temperature decreases, the maximum band shifts to lower frequencies and the envelop changes shape showing an enhancement of H-bonding. The O-H bond stretching vibration is an indication of both structural and dynamic changes possible in a water network. What causes the vibrations in the molecular bonding to alter?

Here is the take away: Temperature, pressure, and EMF resonant energies from the environment can connect to hydrogen in water via resonance. (think Schumann and the sun)

Why is this important?

We know this is true because of two-dimensional infrared photon echo spectroscopy studies that have been done on water. I also learned that researchers at Max Born Institute and the University of Toronto discovered that ultrafast resonant energy transfer takes place in water via dipole coupling in the H-bonded network. This was proven in their work on **heavy**

water (deuterium oxide).

Traditional bulk water is considered homogenous by most biochemists, and by most people, but this can no longer be held to be truthful as it was first described by 1901 Nobel laureate Wilhelm Roentgen who discovered X-rays. He believed water existed in two states and that at ordinary conditions it was at equilibrium as a mixture of both. Much later, Wilse Robinson at Texas Tech University breathed life back into Roentgen's initial work on water in the 1980's. In the early 1990's he showed that water had several densities over -30 to 70 degrees C, proving water clearly has a structure and *many iso-forms* and densities depending upon the environment water is in. His experiments also showed that water could be supercooled as we mentioned in the last few blogs. It is no longer arguable unless you are uninformed about the science. His work left more questions for us to answer for sure. This is especially true when we look at the quantize math around the formation and reorganization of the hydrogen bonding network in ice. We know it exceeds 95{a7b724a0454d92c70890dedf5ec22a026af4df067c7b55aa6009b4d34d5da3c6} of the bonds in ice but it is not as well worked on a space-time scale using picoseconds as it is for liquid water. We will get to the magic of liquid water and its quasicrystalline structure here soon.

Now, I would also direct your attention to Martin Chaplin. He is a scientist at London's South Bank University. He has an outstanding web resource for the water called "Water Structure and Science." He really looked the X-Ray diffraction data, vibration spectra and the presence of big water clusters and their special interactions with the hydrogen bonding network of water as it exists and its phase transitions. His work on **low-density water in gels** is particularly interesting to me because he implicates deuterium as a large effect in water.

The reason is in low-density water the amount of disorder

(entropy) is experimentally much lower than what is found in a random hydrogen bonding network in water. This might explain why water has the ability to "supercool" before its freezing point at 32 degrees F when it is pure from impurities. Supercooled water will not turn to ice as one would expect until -20 degrees. Medicine can take advantage of this effect once they understand how to use it best. This supercooling phenomenon releases a high heat of fusion when it freezes. This means as this water freezes it releases heat back to the environment. Heat is normally considered energy, but is it possible that it should be considered an information loss? This implies a large amount of energy is lost when water turns from a liquid to a solid. We see this anytime the climate changes cold or in an ice age. Any time there is a phase transition of water on Earth or in the Universe, there is a massive change in total energy and information transfer within the water. I should refer you to the Total energy equation in detail in the EMF series, so review it. Interestingly, that change in energy is often unique and based upon the current water quantized ability or effects. Those are directly tied to how much low-density water is present, as you will soon see. Evolutionary biology seems to take full advantage of these effects when it evolution acts. It is why extinction events and cold are intimately tied together to allow life to survive when there is a loss of energy for any reason.

Chaplin's work can be summarized by saying he showed that computer modeling of the hydrogen-bonded networks in water fluctuates locally into an icosahedron molecular forms. Deuterium changes this crystal.

The shape of the water molecule determines is molecular density and its ability to be coherent for energy transfers. The shape of these molecular networks is directly tied to the temperature that water finds itself in.

Coherent water at a glance

One small detail going wrong in a semiconductor is all it takes in a quantized state to change energy efficiency; I showed this to you when I asked you to visualize a clean room at an Intel semiconductor plant. We have the same need for molecular detailing in biology. The problem is, you and your doctor do not know that yet. You will if you keep reading this blog. **It turns out, details matter big when you first begin to realize biology is quantized.** One small detail about water is that when it loses the ability to supercool or superconduct, you become vastly energy inefficient. This is another way to say you are leptin resistant. When you are leptin resistant, your hormone panel is also suboptimal. When you lose water super-conduction you must mostly exist upon ATP for energy which is only efficiently made as we sleep. If you can not use water you do not sleep well either. Many other things happen. For example, this is where most spine disease comes from.

Loss of energy poses a major problem for your mitochondria. The loss of information poses the biggest issue for mitochondria. They can never catch up quickly recycling ATP fast enough to offset the information and energy production from semiconduction in proteins when water conduction is lost around them for any reason. Therefore for that cell and all its mitochondria, quantum time speeds up rapidly for your telomeres, and what happens then is first your labs get trashed and then you first get ill, and eventually, you die earlier than you should have.

Liquid water at an ambient temperature is traditionally thought of as a homogenous liquid with the same average structure of it chemical bonding. Roentgen (discovered X-rays) was the first of many to question this belief about water, as I mentioned above. Up until very recently, this was the dogmatically held belief concerning water. Wilse

Robinson at Texas Tech work showed it and it was later backed up by Martin Chaplin's work in London.

Chaplin found that water formed a **quasicrystal as a liquid in a special shape called an icosahedron**. This was postulated in the 1960's by Roger Penrose. You have heard me mention him before in the Brain Gut series for his work on consciousness and microtubules and gamma coherence. Penrose's ideas and work have now been verified, when in 2011, Daniel Shechtman won the Nobel Prize for his work on quasicrystals and their abilities to do things that we believed were not possible, just two years ago.

A quasicrystal is an ordered structure that is not periodic. It can fill all available space, but it lacks a translational symmetry. Formal crystals have rules that govern their chemistry. This is covered by **crystallographic restriction theorem**. It says crystals can have first through fourth order symmetry in nature. It turns out that quasicrystals can have forbidden orders of symmetry such as fifth and sixth order symmetry. Water is a quasi-crystal and these orders of symmetry are what allows water to have coherent properties. It turns out that Roger Penrose discovered quasicrystals in his work in mathematics called aperiodic tilings. Penrose is a very famous mathematical cosmologist/physicist who has worked on describing the physics of consciousness for many years. Aperiodic tilings were first discovered in the 1960's by mathematicians. Penrose originally described a two-dimensional tiling with a five-fold symmetry mathematically, and he was able to draw it out as you have seen if you already clicked on the hyperlinks above. You should. **These quasicrystals are now considered a new class of solids.**

This implies that liquid water you all know and love **is now considered to be both a liquid and a new kind of solid. How is that for a surprise!**

The most impressive feature of quasicrystals is that they hold

a mathematical irrational constant. It is considered this way because this constant cannot be formatted as a formal fraction. Therefore it is given a symbol in a Greek letter phi (φ) or referred to as the golden ratio or golden proportion. This constant is embedded in the structure of the quasicrystal itself. This, in turn, underpins a number sequence worked out by Fibonacci in the 13th century, where each number is the sum of the preceding two. Fibonacci math is tied directly to the fractal patterning of all things found that are living on this planet. This math shows us, humans, that everything that is used in our microcosm is patterned after the great design of our macrocosm. All one needs to do is look for the pattern and you will find it everywhere. It is really used in the molecular structure of water, especially coherent water. Make sure you watch the hyperlink on fractals above. Evolution is found to use fractal patterning over and over again using this aperiodic tiling found in things made from or with quasicrystals.

The Fibonacci sequence is a sequence of numbers, 1, 1, 2, 3, 5, 8, 13, 21, 34, 55, 89, 144, where the ratio of the number in the sequence to the previous number approaches the Greek letter phi (φ) of the golden ratio asymptomatically. That means more and more as the sequence goes on with bigger numbers the closer we get to the golden ratio or golden proportion. That ratio is approximately 1.61803398874989. It carries out infinitely and never stops, and therefore it can never be found as a round number. This completely jives with Heisenberg principle of uncertainty as well I have mentioned many times on this blog and on the forum.

Here is where nature and math meet. The icosahedron and dodecahedron (12 pentagonal sides) are the last two Platonic solids. The first three Platonic solids being the tetrahedron, the cube, and the octahedron. The icosahedron and dodecahedron are the only ones associated the golden proportion or golden ratio in its dimensions. Interestingly,

Plato associated the icosahedron with water and the dodecahedron with the universe in his writings. Once again, we see the microcosm of water meeting the macrocosm of the universe.

The golden ratio was the Greek ideal of beauty and harmony in all life. It had a tremendous influence their architecture, art, and design and it persists even today. Plastic surgeons still use it at times for facial surgery. Physicists have remarked that it is significant that quasicrystals do represent the minimum energy structures, and hence a kind of equilibrium between harmony and tension in just the correct degree where the beauty of nature lies. This place is where life took its form and from this form comes some of its amazing functions. Water is the ultimate liquid quasicrystal.

The two-state model of water was postulated, first by mathematicians and it has now been confirmed by X-ray scattering and X-ray Raman scattering at Stanford University. Researchers were able to show clearly that water at ordinary temperatures has two distinct states with no intermediate states. Low-density water (**LDW**), where water molecules are hydrogen bonded like ice in tetrahedron bonding patterns, and high-density water, (**HDW**) which has molecules linked by more distorted hydrogen bonds. Many times this is due to isoform variation. These two density states fluctuate occur over the length scale of ~1.2 nanometers. For visualization purposes, ~1.2 nm contains 160 molecules of water stacked together next to one another. At 24 degree Celcius, the proportion of **LDW** bonding is 28.6{a7b724a0454d92c70890dedf5ec22a026af4df067c7b55aa6009b4d34d5da3c6}, and it only disappears completely when water gets to its boiling point.

Why should this complicated math

and physics be important to you?

Well, it appears that **LDW** is how water is able to superconduct photons and electrons. This is when water is really coherent. Dr. Gerald Pollack has confirmed these findings in the 2000's with his experiments on exclusion zone water. His recent book on the subject makes this difficult math and physics simple to understand. The more **LDW** water has in its quasicrystalline form the more energy life has to evolve and adapt. The closer water gets to its boiling point the more **HDW** is present and the less **LDW** is present.

When a human being has a fever (*higher protons and lower pH*), their metabolic rate increase 13{a7b724a0454d92c70890dedf5ec22a026af4df067c7b55aa6009b4d34d5da3c6} for ever degree their temperature rises. Heat seems to favor H+ in mitochondria and this seems to increase biochemistry of the matrix in mitochondria. Do you see the congruency why this is true now given what you are learning about water here? Let me pose another thing for you to think about? When one is leptin resistant, it means their inflammatory levels are raised. We have shown that in many blogs. What do you suppose that means for the ratio of **LDW to HDW**? What does it mean for the EZ in water? When one is leptin resistant your EZ is smaller because you are lacking electrons and photons from the sun in your cell membranes and tissues. When the EZ is smaller it sets up the situation where lipids can be oxidized by peroxidases. When this occurs more deuterium is liberated from these PUFA's. the deuterium can slow cycling within the TCA cycle because of changes in hydrogen bonds in anions in the TCA. If you don't think this matters to you, consider the following research. **Realize that its results are drawn from the new work on the two-state model of water.**

In a German study, by Franz Volhard Clinical Research Center, Michael Boschmann MD tracked energy expenditures in men and

women who were healthy. After drinking 17 oz of water the patient's **metabolic rates increased 30{a7b724a0454d92c70890dedf5ec22a026af4df067c7b55aa6009b4d34d5da3c6}**. The water came from mountain melt runoff. The increase began ten minutes after drinking and maxed out at 30 to 40 minutes post drinking. **Rates, however, did differ in men and women.** In men, they burned more fat after drinking this water, while in women, they tended to break down carbohydrate substrates better with water ingestion. In fact, it also appears the colder this water was, the better the effect for women. These implications should make a lot of sense if you are beginning to understand the role of hydrogen and leptin in women's epigenetics.

In 2002, the Journal of Epidemiology found drinking more than 5 glasses of water a day reduced fatal heart attack by 50{a7b724a0454d92c70890dedf5ec22a026af4df067c7b55aa6009b4d34d5da3c6} in both sexes.

Doing that math, if you increase your water consumption 1.5 liters a day you will burn 17,400 calories and lose about 5 pounds.

You should never rely on thirst to dictate water consumption because it lags the real effect. Calculating your total body water deficit is another way to try to measure how badly your engine is working. Total body water is a function of metabolic rate and state of the mitochondrial matrix. We covered this in the April 2013 webinar. By the time thirst kicks in, your serum osmolarity is already impaired. Dehydration is a major cause of daytime fatigue as well, and dehydration slows your metabolism by 2-3{a7b724a0454d92c70890dedf5ec22a026af4df067c7b55aa6009b4d34d5da3c6}. As time goes on this imbalance can steepen dramatically in a person in an altered environment. In fact, just a 2{a7b724a0454d92c70890dedf5ec22a026af4df067c7b55aa6009b4d34d5da3c6} drop in total body water can cause neurologic changes to

show up. How do I know this? I am a neurosurgeon, and we see these swings all the time in trauma cases and brain tumors that are associated with syndromes called SIADH, cerebral salt wasting syndrome, and diabetes insipidus. Now think about what I mentioned in the April 2013 webinar for our members. Are you beginning to connect any dots that dehydration and nnEMF may be linked?

So drink your water un-fluoridated and COLD from polar regions at elevation! You might be beginning to understand how the quilt is built now. Limiting fluoride increases the EZ in water. Water then is cold carries more oxygen and electrons in it to enlarge the EZ in water. Mitochondria need oxygen and electrons in their inner mitochondrial membrane. Water is a repository of electromagnetic radiations which carry energy and information. Water is designed to work wirelessly with the sun, but its abilities can be usurped by man-made EMF's.

In a blue-lit microwaved world, EZ water is the ultimate Faraday cage for mitochondria in a cell provided it made from H^+ bonding.

Water allows the quantum dance to happen in all life, not just us. We are just beginning to unfold its mysteries and why it is vital to all life on this planet. Beta oxidation in mitochondria not only makes CO2 but it creates water!!! This isoform of water is the stage life is built upon.

Water is what makes all plants grow via photosynthesis. All animals need water to survive. When water falls from the sky as rain, it is distilled to a degree; at least it used to be before our atmosphere was polluted by modern chemicals and EMF's in the ionosphere.

If you use the photoelectric effect of the sun to enlarge the charge in cell water, and add grounding to Earth, your needs and want for water will begin to approach your aquatic ancestors and your brain will repair and re-grow faster. This is quite important in diseases like autism and

Alzheimer's disease. Signs of leptin sensitivity begin to appear and labs start to improve. Eventually, your thinking improves and your life re-evolves. I left some key details out in this blog post on purpose. As future series goes on you will see where this is all headed (quantum thermodynamics). It is time you begin to fill them in with the other lessons you have learned at this blog. The April 2013 webinar is a big clue in this path to Optimal that the story links to hydrogen. Enjoy!

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