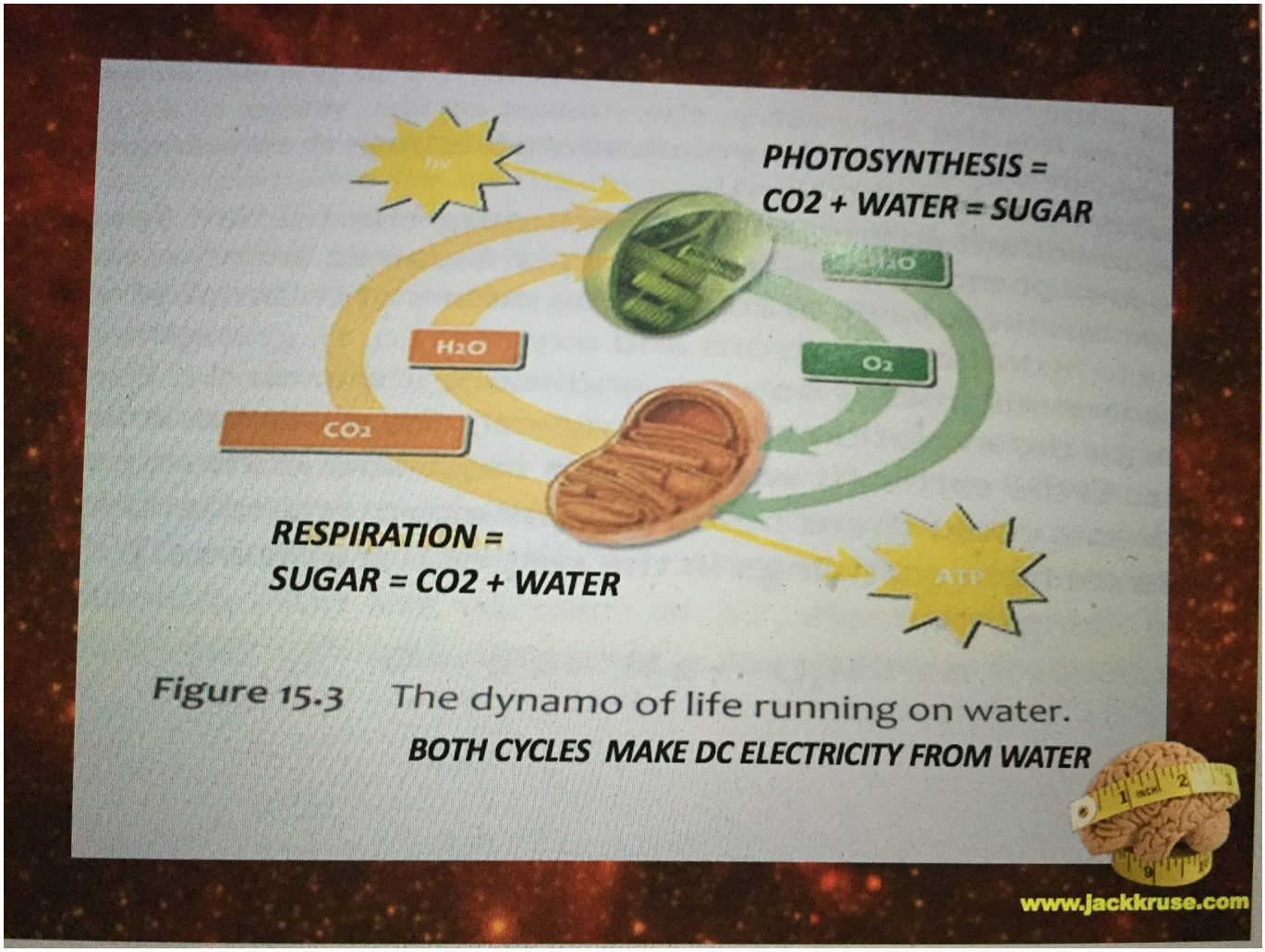
[jwplayer player=”1″ mediaid=”3604″]

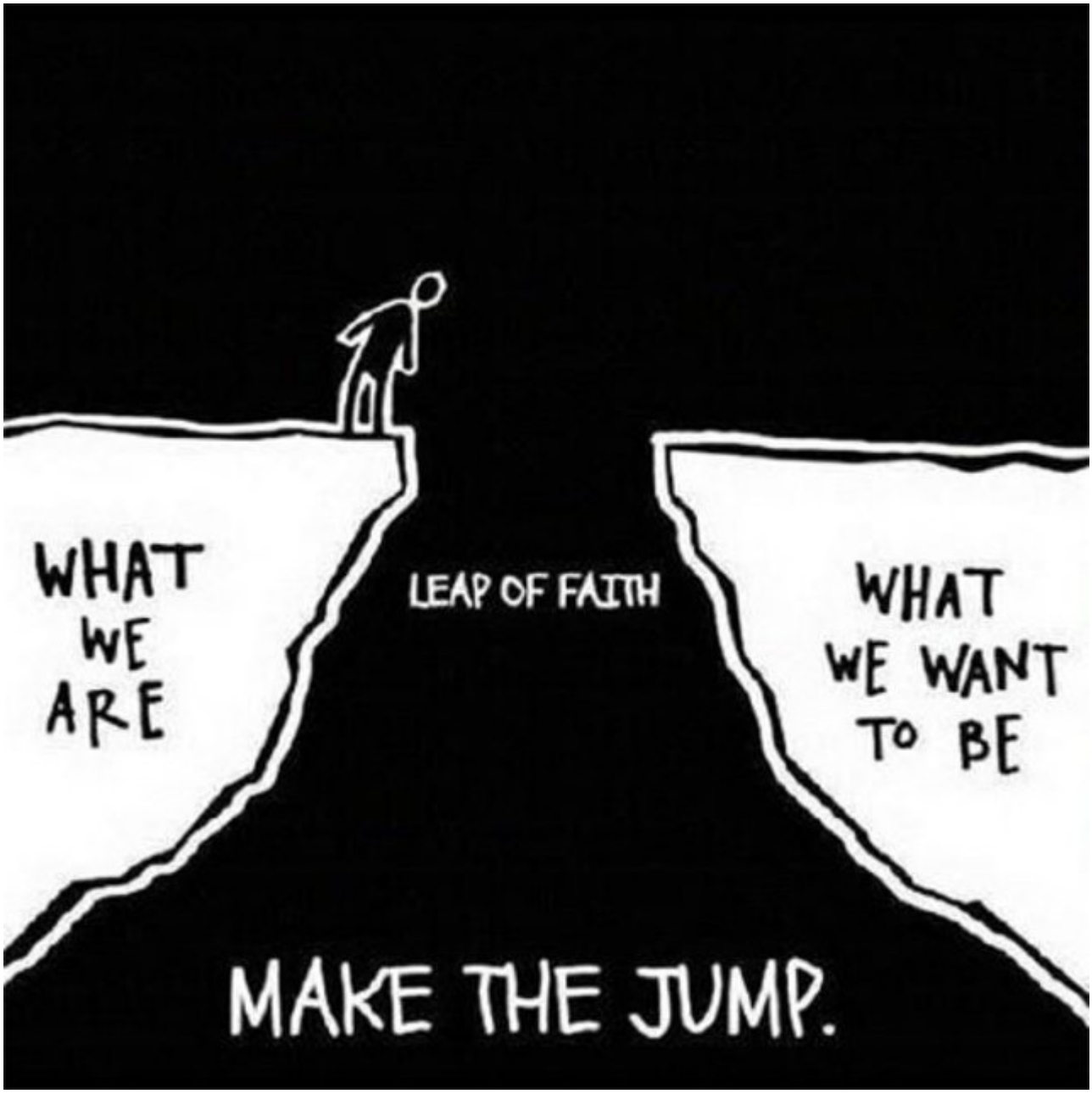
(This blog is the written version of the November 2017 Webinar: A Breakdown of The Proton Side)

THE TAKE HOME: Metabolism has two key purposes in life: One is to make water in the mitochondrial and the other is to recycle hydrogen protons to protium form. The goal is to make you realize why life is the way it is. You might think life is about any which way, but quantum mechanics puts some brakes on that idea. Before going any further watch the ENTIRE VIDEO above.

Astronomy is the oldest of the sciences, while geology is one of the newest. But the two sciences have one thing in common; the sun connects both disciplines. This connection is why both disciplines are granted a magnificence of outlook over all the other sciences. Today the reality series is going to tackle a very obscure topic for most of you. There is only one person I know of that has focused in on proton motive forces and ketosis in their blogs. This was Peter D. from the Hyperlipid blog. Three to four years ago I pushed him, in the comment section of his blog, to go deeper into the story of protons in mitochondria but he did not. He had a massive blog series on protons but sadly he missed the key point of why protons had to be recycled by mitochondria and chloroplasts in living systems because of the differences in their atomic mass and spin. The food guru’s have completely forgotten that the entire food web links to photosynthesis and this process has 3 different bio-synthetic pathways in which to make carbon mass. Each photochemical process handles hydrogen differently. The 3 photosyntheitc pathways are CAM, C3, and C4. They also forget that ox/phos in mitochondria reverse the photosynthetic pathways completely. Within the mitochondria are 3 de-hydrogenase enzymes whose job it is to remove hydrogen from foods. It turns out mitochondria are very picky about the hydrogens they select to remove and use from food to make water from metabolism.



The differences in the protons people harvest from foods is tied to the reason why young athletes with lower heteroplasmy rates perceive they need carbohydrates over fats for performance, while living in a world of blue light and nnEMF radiation? I covered this topic in the EMF 4 blog on my site close to 5 years ago.



Peter was as close as any clinician scientist I have read to getting this story of protons correctly nailed down. Sadly he gave up on his proton series way too early. He tackled the process from the metabolic pathways and I told him that I was covering the same ground but using bio-physics. You could head over to his blog to see all my supportive comments in those blogs in years past. I was hoping he would make the next step……..the quantum leap,

so to speak as pictured above. This quantized sotry of charge, mass, and spin of the proton is critical in the story of why ketosis and water production are linked to the sun via photosynthetic webs. Sunlight appears to know precisely how to recycle bad DNA and RNA by attacking certain carbons on the backbone of the ribose sugars in our nucleic acids using the isotopes of hydrogen as their guide. Deuterium is much more sensitive to the electromagnetic radiation in light because of its mass and spin. Both of these nuclear aspect alter its magnetic moment which makes it highly sensitive to electric and magnetic fields. This is the reason it occurs.

PROTONS ARE HOW EPIGENETICS BEGAN WITH THE SUN'S DIRECTION

Geology has taught us that the Earth's primitive oceans were loaded with dueterium (comets), which is an isotope of hydrogen that is relatively devoid of light hydrogen. H+ is called protium. The bacteria and archea domains of life might have changed the ratios of hydrogen isotopes in the oceans over 4 billion years to give us a rather different picture of ocean water today. This is important because the entire water cycle on Earth is tied to our seas. Now the trend in ocean water, over that 3.8 billion years, has reversed where deuterium is no longer the dominant isotope. This had massive implications for all 3 domains of life because of the physical chemical differences between both isotopes.

I believe ancient cell membranes and the primordial ATPase formed under quantum control by the red light emitted from H+ in the solar photosphere. This red light could then control H+ in the seas by a resonance phenomena. From the solar spectrum's light emissions, both electric and magnetic resonace would have been the controlling wand to select bio-molecules in the seas to control how life could construct itself thermodynamically. Since the sun destroys its deuterium as soon as it is made there would have been no resonance phenomena available to control deuterium on Earth to build things using the redox potential of chemical ions. Deuterium creation in the sun is very short lived, so no light is emitted in the solar spectrum that could travel to Earth to program deuterium proton's here. There would have been ample red light to control H+ isotope of hydrogen. I believe this is why H+ was selected by the ATPase before life was innovated in the first domains of life. After this

‘quantum selection’ by light, light hydrogen became the fuel choice of ALL living things on Earth. I think bacteria and archea also chose light hydrogen because it was thermodynamically favorable to do so even though H+ isootpe was not as common as it is today in sea water. Deuterium laced water slows the growth of bacteria and archea. What help them to change? When deuterium is incorparated into their circular DNA it created instability, havoc, and change because deuterium is more sensitive to light radiations. This is what drove initial evolution in the two domains for 3.5 billion years. Why did life remain simple and not complex? Environmental deuterium slows the growth of prokaryotes because the spin and mass effect bond strength and chemical reaction speeds. The reason is simple. D20 is more viscous than H20 because of its extra mass and spin.

For the living system, the deuteration of its circular DNA created a lot of activity. That activity helped resolve the redox chemistry of the early metabolic pathways that nature allowed based upon the thermodynamics on Earth. To this day mtDNA is 3-4 times more reactive than nuclear DNA. It appears the sun’s thermodynamics was critical in making the choice of what molecules could work with the circular DNA. For the evolving system, this can be revolutionary development.

WHY YOU ASK?

The physical properties of deuterium compounds can exhibit significant kinetic isotope effects and other physical and chemical property differences. D2O is more viscous than H2O. Much more so than the exclusion zone that is made from light hydrogen. This affects the way light is slowed in the lattice of D20. Chemically, there are differences in bond energy and length for compounds of heavy hydrogen isotopes compared to normal hydrogen, which are LARGER than the isotopic differences in ANY other element.

Bonds involving deuterium and tritium are somewhat STRONGER than the corresponding bonds in hydrogen, and these differences are enough to cause significant changes in biological reactions. This alters standard redox chemistry that occurs in light hydrogen compounds. It’s been known for years in the pharmaceutical industry that deuterium is more

DIFFICULT to remove from carbon than light hydrogen. That difficulty was a problem for Mother Nature too, because she needed to be able to move hydrogen around in most of the metabolic pathways to sustain life inside a mitochondrion freely.

Protons always have “spin.” Spin = precession. Quantum spin value for H+ protons is 1/2. For the deuterium it is 1. This is a big deal when an ATPase is being created to make energy from sunlight. Remember the aTPase is used in all domains of life. It is a bigger deal for bacteria and Archea too. It is a massive deal for a mitochondria, specifically because of the small change in mass in deuterium compared to H+. It is small to us as humans but at the quantum scale deuterium has twice the mass. The small change in mass of deuterium means the magnetic moment of the protons and deuteron are also radically different. The magnetic moment of a particle is parallel to its quantum spin. Since quantum spin is directly related to its electrical and magnetic properties of a particle, this means D20 reacts very differently than H20 would in the Earth electric and magnetic fields when sunlight first hit the primative oceans dominated by deuterium.

Today, we know that our oceans are dominated by H20 and not D20. It turns out, H20 produced by mitochondria in all eukaryotes also needs to be non deuterated because of how the proton channel is built by nature. People have forgotten that the mitochondria’s main job is the recycling of water in many TCA intermediates in the Kreb/Szent Georygi cycle. In fact, it was Szent Georygi in the 1930’s, who initally realized that the main fuel source of life is really hydrogen, and not ATP. Using deuterium over H+ would have cost primative life massive amounts of energy. They can only generate energy across their simple membranes so there was no way for them to use the heavier isotope.

It would have taken massive amounts of energy to use D20 over H20 in the primordial oceans. I believe the key reason light hydrogen was used over D20 was because it was a cheaper fuel source and because sunlight made H+ from seawater when it charge separated H20 into H302 and light hydrogen. The light hydrogen created this way would have more easily evaporated into the atmosphere because it was two times less massive and been the basis of the entire hydrology cycle of Earth. Cooling, freezing, and heating would have firther

made more H+ because the extra mass of deuterium alters the freezing and boiling points of water. Since H+ is ionized in the sun to create red light, the 42% of the sun's light has been red in the sun's spectrum. We know red light is too weak to work photoelectricall with electrons but red light is optimized to move things with mass. It turns out a proton has 1836 times more mass than an electrons so red light is optimized for proton motions in cells. H+ light can control the motions of H+ biomolecules in a cell as well via the electric and magnetic resoance of light from the sun.

When you think about the shear amount of D20 water on the primitive Earth it might seem hard to make sense why H+ was chosen and favored by life, but the thermodynamic advantages outweighed any other factors present. For this reason light hydrogen was the fuel source chosen to design the construction of the ancient ATPase. When you understand how the red continuous spectra is made in the sun, then the idea of why life chose light hydrogen over the more abundant deuterium makes perfect sense. The sun solar spectrum gave life that "idea" to control the motion of the rudimentary biomolecules around the hydrothermal vents in the deep seas made by serpentization. The advantage was "naturally selected" by sunlight.

Even at the deep sea vents, the heat emitted comes from a solar source via the magnetic dynamo interaction with the solar wind. Why life is what it is can be traced back to this curious set of thermodynamic givens in the primitive oceans. This is why life shows us today that bacteria, archea, and eukaryotes mitochondria ALL prefer light hydrogen and modern mitochondria exclusively still make light hydrogen water.

Here is the key that evolutionary biologists like Nick Lane might have missed. Prokaryotic organisms, like bacteria and archea, can survive and grow in pure heavy water, though they develop extremely slowly. This is why the domains, archea and bacteria, wallowed for 3.8 billion years until eukaryotes showed up 1 billion years ago seemingly out of the blue. This explains the bottleneck in the evolutionary record. Eukaryotes exploded when the "conditions of existence" thermodynamically became favorable on Earth. I think this given occured before the great oxygenation event and the quantum state of the solar spectrum allowed for

the explosion of complex life in eukaryotes intially. When light hydrogen became more common, then life expoded around the Cambrian explosion. I believe the solar spectrum changed 600-740 millions years ago because of the class of star our sun is. Around this time it would have hit mid age. Mid age is when astronomy tells us a G class star begins to emit more UV light a this time. It turns out the EZ of hydrogen protons absorbs at 270nm of light in the UV range. This gave eukaryotic life and energy boost with oxygen and DHA to explode.

Lets look at this more carefully.

Heavy water is slightly toxic in eukaryotic animals, because they have mitochondria that have been genetically modified by the dark matter in the human genome that is populated with HERV viruses. Most evolutionary biologists think endosymbiosis was an entanglement of an archeon and bacteria. They also seem to leave the viral particles that would have been in the oceans, out of the equation of life. I don't buy it because the thrid domain of life is loaded with extrons of viral DNA. Considering how different and complex an eukaryotic cell is compared to the other 2 domains, this has never made sense to me considering the evidence the human genome project has given us. Eukaryotes contain massive amplifications of viral components in their branch of the tree of life. Viruses are well known to cause massive changes in both bacteria and in archea. UV light also increase the growth of viruses in water based systems.

Let's jump back to cells today.

If deuterium has a 25% substitution of the body water in eukaryotes (humans) it causes mitochondrial heteroplasmy to rise and causing cell division problems and sterility. Those heavy protons in our DNA and RNA really cause some massive issues because they lead to mtDNA and nuclear changes. In fact, if eukaryotes get a 50% substitution of deuterium in the proteins and/or sugars in their cells it can cause death by cytotoxic syndrome. This is when bone marrow fails and their is gastrointestinal lining failure. This mimics radiation sickness because deuterium absrbs more light radiation. This mimics a leaky gut syndrome, that seems to be a new disease in the 21st century. Do I believe that leaky gut syndrome comes

form poor protons recycling in the metabolic pathways in our enterocytes when we eat or drink thing that are high in deuterium? Yes, I do. This should wake up the mitochondriac of what is behind this disease today. Could too many deuterium ions be why mitochondrial heteroplasmy really arises to begin with? Yep.

WHAT IS THE DEAL WITH PROTON SPIN?

The direction and strength of a proton's spin determines its magnetic and electrical properties. Changes to the proton's spin also alter its structure. Protons are made up of quarks. It turns out quarks also are sensitive to electric and magnetic fields. This means protons can be affected by many aspects of the light spectrum differently than electrons can be. For example, RF light radiation alters the spin of protons. We use this in MRI which used to be nuclear magnetic resonance. The entire electromagnetic spectrum of light has the ability to polarize things with mass. Protons have a specific mass and this is very different from a deuterium isotope.

Parts of the spectrum of light have the unique ability to polarize streams of particles like protons. Electric currents and magnetic currents can do the same thing to protons. This means that they coordinate the particles' spins so that they are aligned in the same direction. The same electric current in a cell will not create the same spin characteristics in hydrogen and deuterium either. This means the level of deuterium is critical in optimal cell function and polarization. This means the level of deuterium also will affect the optics in the EZ of water too. It will slow light's ability to operate down much further slowing all pathways down, but especially the ones that use protons in signaling like the GTP type A rhodopsin molecular clocks. This creates circadian mismatches. Remember deuterium will absorb more light so the more it absorbs the more altered clock function will be.

Physicists have now realized that the proton's structure isn't simple at all. It's an ocean of shifting quarks and gluons that can be changed by light from the sun or parts of the electromagnetic spectrum that man uses in his environment. All of these would have massive effects on circaidan mechanisms. When deuterium is placed in unique places in ribose it can

cause small changes to drive evolution. It appears nature took advantage of this quirk of proton spin and mass to drive epigenetics and change using light's effect on deuterium. Control of deuterium is one of the most mission critical things a mitochondria does for a cell. Szent Gyrogi was the first person to realize it.

Mass	Element	Magnetic dipole moment[7][8] (nuclear magneton units)	Nuclear spin number[7]	g-factor[9]	Larmor frequency (MHz/tesla)	Gyromagnetic ratio[10] (rad s^{-1} μT^{-1}) (free atom)	Isotopic abundance	NMR Sensitivity (relative t ^1H)
Formula		μ_Z/μ_N (measured)[9]	I	$g = \mu/I$[8]	$\nu/B = g\mu_N/h$	$\omega/B = \gamma = g\mu_N/\hbar$		
1	H	2.79284734(3)	1/2	5.58569468	42.6	267.522208	99.98%	1
2	H	0.857438228(9)	1	0.857438228	6.5	41.0662919	0.02%	
7	Li	3.256427(2)	3/2	2.1709750	16.5	103.97704	92.6%	
13	C	0.7024118(14)	1/2	1.404824	10.7	67.28286	1.11%	0.016
14	N	0.40376100(6)	1	0.40376100	3.1	19.337798	99.63%	0.001
19	F	2.628868(8)		5.253736	40.4	251.6233	100.00%	0.83
23	Na	2.217522(2)	3/2	1.4784371	11.3	70.808516	100.00%	0.093
31	P	1.13160(3)	1/2		17.2	108.394	100.00%	0.066
39	K	0.39147(3)	3/2	0.2610049	2.0	12.500612	93.1%	

Look at the differences in H1 and H2 in the table above in terms of the nuclear magnetic moment numbers. They are radically different. Why does this matter?

These differences are why all results in the literature show a marked intensification of the immune defenses and increased proliferation of the peripheral blood cells, probably accounting for the radioprotective effects of deuterium depleted water. It appears mitochondria wants to make water that is deuterium free because it is thermodynamically more favorable for adaptation. This means that evolutionary chage is likely driven by the amount of deuterium in the water and foods we consume. The more we consume the faster evolution moves because it absorbs more light around us to activate size changes in molecules and mitochondria.

For years, I have said loudly, I don't believe in a normal environment we need carbohydrates out of season. Is this true in a world that is blue lit and loaded with nnEMF? My last paragraph

above should get you thinking deeply about ho wlife really operates using the 3 legged stool. It is not what most people think. This proton deal is probable one of the most important things for a mitochondriac to understand. Proton movements can only be understood when you understaand where protons come from in your food webs. What you eat eats is very important. What you eat drinks is also important. Water and food determines your deuterium isotopic fraction. The less you have the lower your heteroplasmy rates are and the healthier you are.

Photosynthesis is a quantized process that links solar exposure to the level of glucose and fructose in foods. This metabolic signals in those catabolic and anabolic pathways has to have a way to correlate within the mitochondria because mitochondria reverse the photosynthetic process. It turns out the connection is made in carbons in glucose, fructose,, glycerol, and ribose to make sense of deuterium fractions. I have found tha the literature shows that photosynthesis has a specific hydrogen kinetic isotope effect that varies based upon the type of photosynthesis used in bio-mass creation. Plants also use the ATPase ubiquitously but how the move carbon and hydrogen differ based upon the photosynthesis they use. It is deeply related to proton recycling in certain metabolic intermediates in these distinct reactions. It appears chloroplasts and mitochondria share their affinity for light hydrogen too. Plants do not like deuterium because their ATPase proton channels are also built for light hydrogen to make ATP. Plants have a much higher amount of deuterium in them than animals.

DEUTERIUM AND VEGANS:

Photosynthetic organisms show a discrimination against deuterium during autotrophic metabolism. The hydrogen in metabolic products of photosynthesis is depleted in deuterium. This has been shown extensively in the literature. (Bokhoven and Theefiwcn 1956; Schiegl and Vogel 1970). There are 3 versions of plant metabolisms on Earth. CAM, C3, and C4. CAM and C4 use the ATPase as an intermediate rotating motor. About 85% of the plant species on the planet are C3 plants, including rice, wheat, soybeans and all trees. Not all of these pathways handle hydrogen the same way. Many papers indicate that deuterium enrichment

is highest in C3 plants. The next highest levels of deuterium are in CAM plants (cacti/pineapples). C4 plants have the least amount of deuterium. Grasses are C4 plants. The marine photosynthetic web also seems to favor C4 photosynthesis. This means animals who feed off of C4 webs flesh and fat is deuterium depleted compared to plants. So what you eat eats is critical to get right. This is why I favor the marine webs. They have deuterium depleted flesh and a massive source of DHA.

The reason C4 plants have the lowest levels of deuterium because of their isotopic fractionations occurring during biochemical reactions and not during evapo-transpiration. I believe the reason is 100% tied to the specific use of the ancient ATPase in C4 chloroplasts. This bio-molecule was created before life was in any domain. C4 plants tend to grow best in strong light environments. This means strong light environments create food webs that are naturally deuterium depleted. This also means living within the tropic will keep heteroplasmy rates lower because of the photosynthetic mechanisms at work in the tropics. This is why I believe disease like MS occur away from the tropics. The low Vitamin D 3 is not the issue, the higher tdeuterium content in their immune cells and AQA 4 gates is. This is why eating vegetables with a disease like MS makes no sense from my perspective and why I totally disagree with the Wahl's protocol. Her protocol does nothing but raise deuterium levels because she pushed people to eat C3 plants.

All an ATPase needs to work is a membrane to keep a proton gradients separated anda source of protons. The H+ is created by the charge separation of water by sunlight. Water on land also has a way to become deuterium depleted by climate. Pollack's experiments have proven beyond a shadow of a doubt that light hydrogen is excluded bio-physically from the hydrogen bonding networks in water when sunlight hits water. Nick Lane and Bill Martin's work have shown us there is a chimeric paradox in all 3 domains of life when you look at chloroplasts and mitochondrial history. The reason is all domains of life favor H+ over deuterium for thermodynamic reasons.

The ATPase is a quantum nano-rotary motor which uses protons as its turning mechanism to spin its Fo head to make ATP so it acts like a funnel for light hydrogen protons. Heavy

hydrogen won't fit in the ATPase proton channel because of its doubled atomic mass. This means light hydrogen was naturally selected for prior to the evolution of life otherwise the channel would accomadate deuterium. It does not. Since deuterium is substantially larger, it would dam up the ATPase and this would lower quantum efficiency and drop photosynthetic rates in the first in cyanobacteria in the oceans that made DHA and oxygen. Using light hydrogen fueled DHA and oxygen on Earth and then first led to changes in photosynthetic pathways as the sun began to change its spectrum in mid life. This is why plant cells have CAM, C3, and C4 pathways all which seem to evolve around 1 billion to 650 million years ago before eukaryotes.

If a plant chloroplast had to rely on deuterium it would have been enegy starved because photosynthesis consumes water in all three forms of this solar reaction. This could have stimulated change and extinctions as deuterium fractions and the sun changed quickly in those 50 million years. My bet is that the spectrum change with UV light amplified viruses and they were the things that really changed the bacteria and archea that formed the early eukaryotes. UV light, DHA, and oxygen feuled the cmplexity because ti allowed cells to gain more energy from the light they absorbed. I believe evolution evolved from the changing quanta messages in the solar spectrum's electromagnetic waves at the Cambrian explosion. These simulataneous facts are known in geology but remain lost on most people in biology. To understand why life is built as it is you must go across disciplines to understand it. Most people do not realize the red spectrum of sunlight is the largest part of the spectrum and it is made exclusively in the photosphere by ionized H+ gas.

As I mentioned before, deuterium is made in the photosphere but destroyed as soon as it is made so it has no photon fingerprint to come to life to select for bio-molecules that could cause a resonance with. The GTP system of genes has a major electromagnetic resonance is via photo-resonance phenomena and this is why circadian cycles all use GTP genes in the rhodopsin system (type A). These molecular systems are as ancient as the first two domains of life. No one realizes that every opsin in the body is tied to the GTP genes and to Vitamin A to work with light. This will become important in the series as we go on.

We believe early earth water was loaded with deuterium, because deuterium is now known to be the dominant form of water on comets. It appears evolution built the ATPase at least 3.8 billion years ago, because of the creation of red light in our sun thermodynamically favored the use of H+. .

Take a look at the chart above.

It is thermodynamically favorable to use light hydrogen too for many reasons even though it would not have been the most common isotope on early Earth. Sunlight charge separates seawater into H30 and H+. The D20 water present on early earth would have keep evolution of bacteria and archea on a slow control because deuterons dominated early oceans. For life to adapt to a changing environment it needed to control where deuterium could be added to DNA and RNA bases and more H+ to be used in the ATPase to make evolutionary change more likely. A deuterium ocean explains life's slow ascent for the first 3.8 billion years. I believe proton choice was a quantum one from the solar spectrum, not a biologic one, initially. It became to look like a biologic one, when more light hydrogen was created in the sea by the hydrology cycle.

It also points out why vegetarians might have more poor health today in a blue lit nnEMF world. They collect deuterium and it is more reactive with all parts of the spectrum of light compared to H+.. Most vegan diets are based upon C3 plants today. This proton recyling problem also explains why grass fed cows are better than grain fed cows. Grass fed cows protein and fats are LESS deuterated and they are also loaded with DHA from the C4 grass.

This means that vegans are collectors of deuterium because of their dietary choices. People who eat animal protein and fat are designed by nature to have less deuterium and be less reactive to the EM spectrum. In fact, saturated animal fat is almost completely filled with light hydrogen.

The first place in humans where protons are created from water happens in blood plasma. I believe here is where your kidney plays its largest role. I think the glomerular membrane is

built to remove all the bad heavy protons from our body because this membrane has a massive charge in it. Since deuterium is heavier it can be separated by a charge membrane. In this way our kidney acts to keep as many H+ as possible over deuterium. This is also why the liver's portal circulation sits adjacent to the gut. It is looking for all the good protons from food. In fact, the liver is hydrogen furnace.

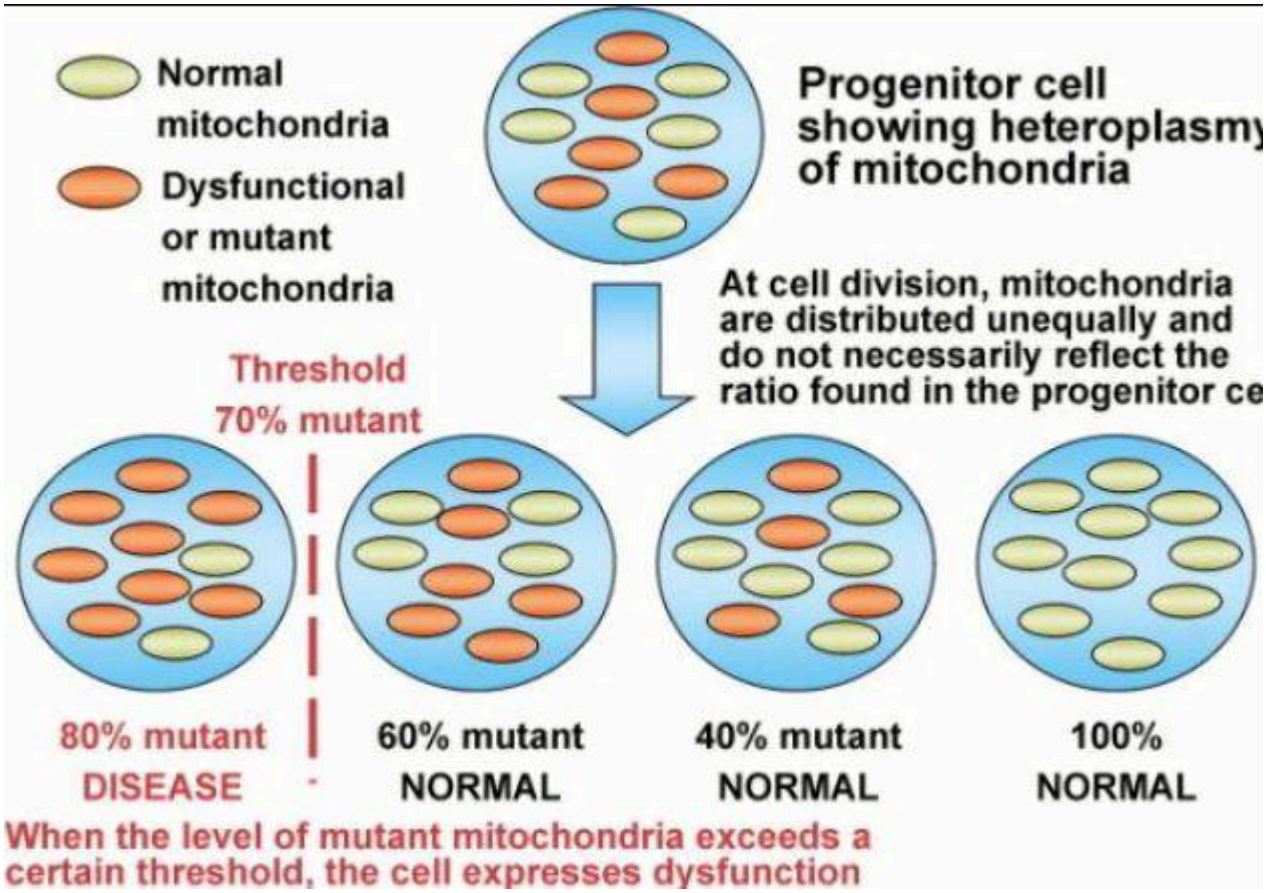
When foods are metabolized we now have tracer data that shows certain carbons tend to atttract deuterium in the ribose of the bases of DNA/RNA. The location of that incorporated hydrogen into DNA and RNA seems to make the nucleic acids much more sensitive to light radiations from all sources. This is what drives change in evolution. In this way, the hydrogen at the specific sites in metabolic pathways can incoprorate deuterium in controlled fashion into the bases of DNA/RNA.

Deuterium is like a light switch that seems to be an optical controller that cause the flickering of the hydrogen bonding networks around our nucleic acids. These are all hydrated with light hydrogen. These carbons tend to be more fragile when deuterium is present. I believe this is due the mass and spin effect of the neutron and how it effects bonding energies between DNA and the water shells around it. I believe this is how DNA breaks and mutations occur. The more deuterium we consume the higher the risk for mitochondrial damage and nuclear damage. Mitochondria have no repair kits for it circular DNA so deuteiation causes massive increases in heteroplasmy. This is the key insight I have gotten from Dr. Wallace's work on mitochondria. Nuclear DNA has a very slick and robust repair kit and this is why we do not see a ton of nuclear genome changes with deuterium. When deuterium is oversupplied it gets caught in the matrix and causes swelling and water inclusions. Wallace has shown this in several of his papers. This makes deuterium concentration an ideal mechanism (optical switch) that could drive natural selection as light conditions vary. This natural sleection would be driven by the environments' conditions of existence to produce differnt fractions of deuterium and light hydrogen for cells to use as energy.

This idea is a radical departure from neo-Darwinism and the Modern Synthesis because it is a quantized mechanism and it is driven by mitochondrial DNA damage. Wallace's research has

lead me to this innovative idea. I believe evolution is wholly a quantized process where epigenetics is controlled by the level of deuteration and the amount of sunlight that acts as the stimulus for change. As cell becomes stressed it releases more light in the form of ELF-UV bio-photons and this light increases mitochondrial heteroplasmy by destroying the circular DNA. This is a DNA that has no good evolutionary repair kit because it is of bacterial origin.

This I believe is the key way epigenetic programming is handled in humans. It is based upon proton recycling between the 3′ and 5′ carbons covered by hydrogen of the deoxy ribose sugars of DNA/RNA. Moreover, when tissues are damaged, exRNA is placed in the immune systems cells to make exosome and they are floated in blood plasma. The exosome creation occurs when cells are damaged or when mitochondrial heteroplasmy occurs in a tissue gets too high and leads to organ failure. The exosome is how other parts of the tissue know to respond to changes in energy demand. In this way energy is at the center of function and not anatomy.



Inside the exosome, the damaged tissue places exRNA, DHA, and elovanoids. The severity of the message is built upon the fraction of hydrogen protons isotopes it contains. The kinetic isotope effect is some thing the mitochondrial matrix pays deep attention too (April 2016 webinar).

Seawater normally has 155 parts per million (ppm) of deuterium in our oceans today. I believe that number was a lot greater 4 billion years ago because of the link to comets.

TYING UP LOOSE ENDS:

We know from the work of many researchers that the ATPase of all life forms is ancient and likely goes back close to 3.8 billion years. What these researchers have failed to realize is that the proton channel in the ATPase is optimized only for light hydrogen (also called

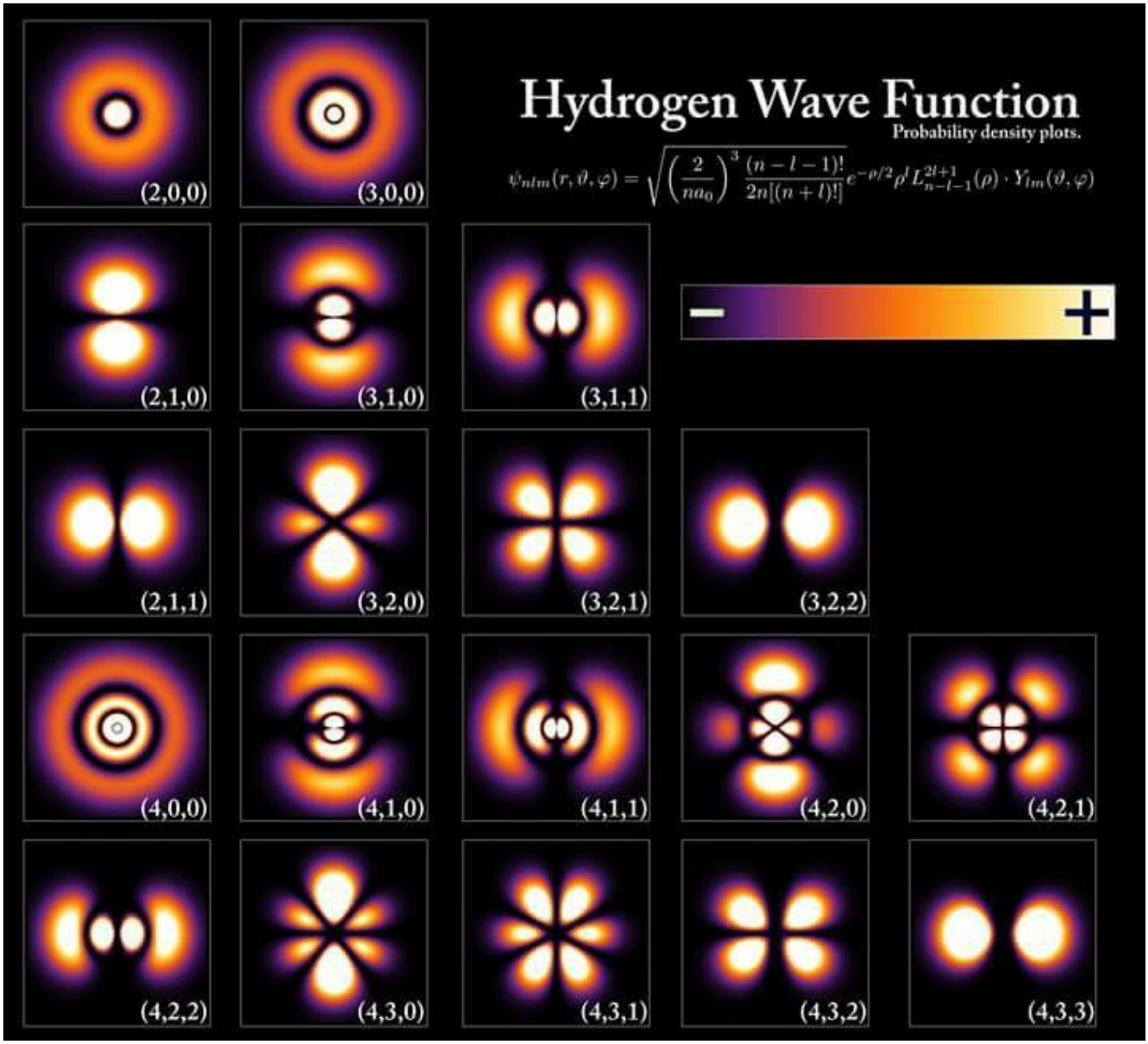
protium) and not deuterium. Why is this a big deal you ask?

To answer this we will have to look at the mass of H+ and deuterium side by side.

Since a neutron weighs just a bit more than a proton, deuterium is slightly more than twice as heavy as protium. This means that it could NEVER fit into the ATPase to make energy at ANY TIME IN EVOLUTIONARY HISTORY OF LIFE.

So what does this imply? It implies that a mitochondria has to have a way, built into it, to deplete deuterium and make protium in massive quantities. Well, does it?

The answer is, yes it does. It also appears chloroplast have the same issue and this has major implications for food quality from photosynthetic webs. Before you go on in this blog please stop and watch the entire video above before proceeding on. You must watch it to completion to get the full effect of the science to follow in this write up.



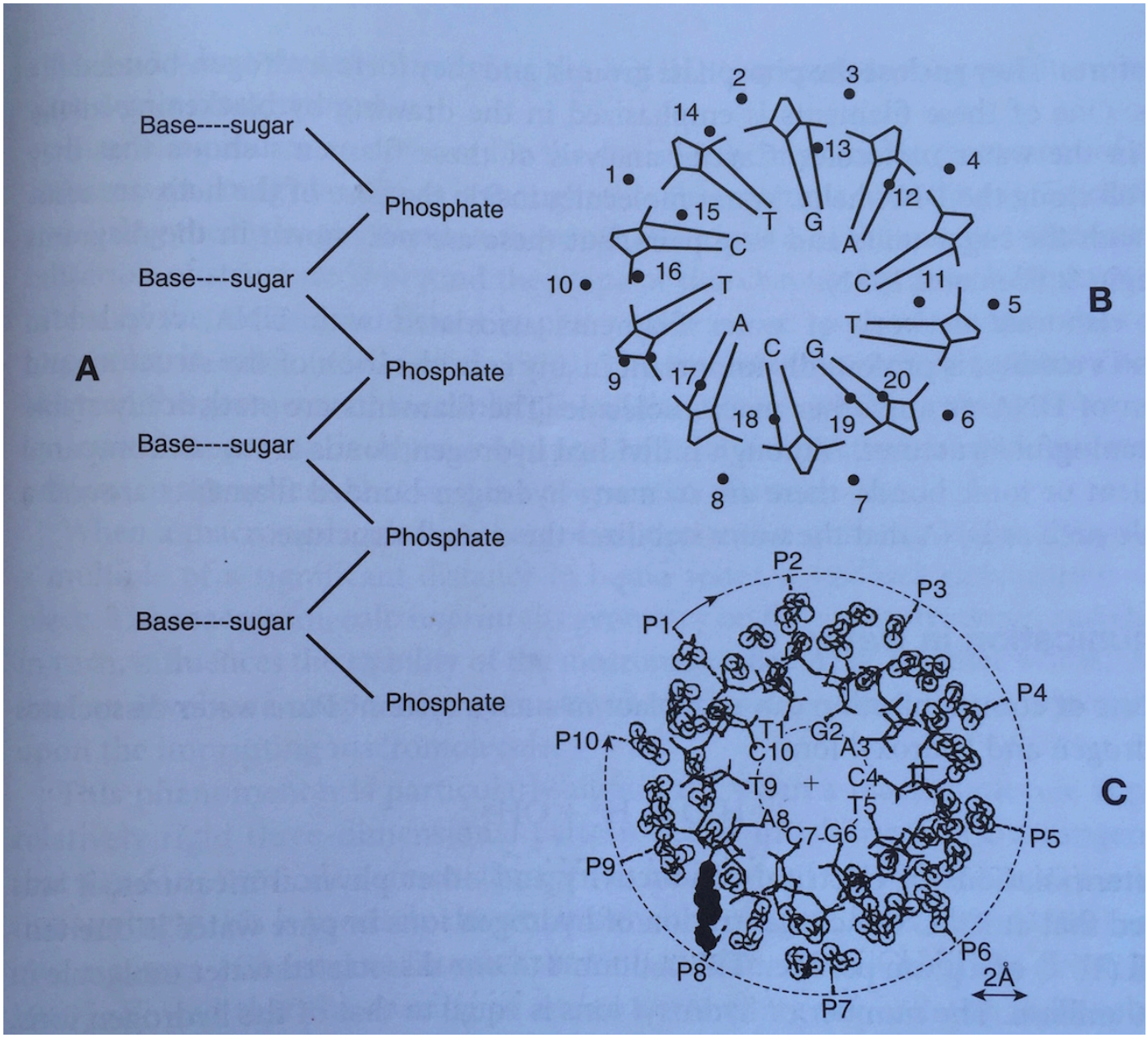
PHYSICS OF DEUTERIUM: The mass of the deuterium nucleus (2.01355 u) is less than the sum of the masses of the proton (1.00728 u) and the neutron (1.00866 u), which is 2.01594 u. Where has the missing mass (0.00239 u) gone you ask? The answer is that the attractive nuclear force between the nucleons has created a negative nuclear potential energy–the binding energy – that is related to the missing mass, (the difference between the two masses). The light photon released in forming deuterium has an energy of 2.225 MeV,

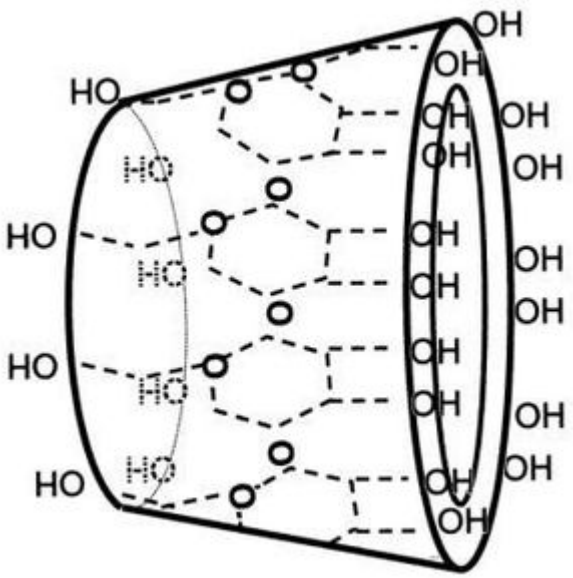
equivalent to the 0.00239 u required to separate the proton and neutron back into unbound particles. The nuclear decay photons are, in general, higher in energy than photons created in atomic processes. The last statement is critical. Cells are quantum liquid crystals that pay attention to photon frequency because of its link to viscosity.

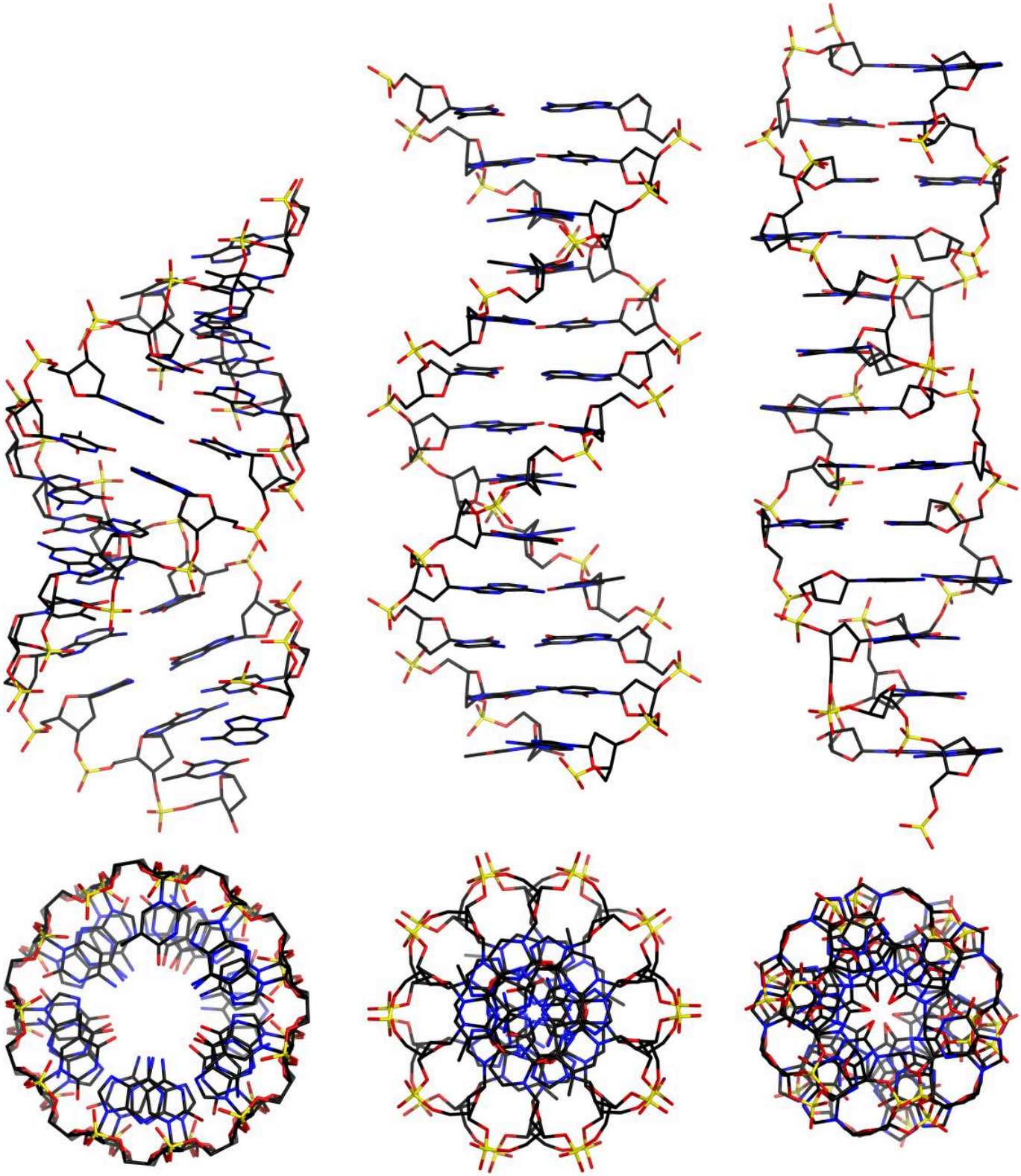
Everything in a cell is quantized. Nature make sure frequency and charges are quantized too as is the quantum spin of subatomic particles. So as deuterium is depleted in a cell, how would the cell know what to do, just by sensing the bio-photon signature released from the 3′ and 5′ carbons of ribose on RNA and DNA into water adjacent to our nucleic acids????

The cell uses gluconeogenesis/glycolysis, the pentose pathway, and beta oxidation in metabolic pathways to decipher what it should do. Moreover, the response is found in the light signature it releases from deuterium to know how sensitive our DNA and RNA will be to water networks that run via proton tunneling and for DNA and RNA that work with the very same networks and sunlight. Deuterium and light hydrogen have a different spectrum in the visible range as mentioned in the Patreon blogs in the past.

Sunlight frequencies are what directs the destruction of aberrent placement of deuterium in RNA and DNA. Sunlight is a vaccine for too much deuterim!!!!! Putting sunblock on removes that stimulus and makes cancer more likely because deuterium will be allowed to populate DNA. This is why OZ cancer rates are what they are. Their water situation and processed foods only add fuel to that fire. Look at the pictures below to get an idea of the scope of the issue.







Deuteriated nucleic acids are not as stable in sunlight because they allow more cell swelling, and cell get larger. Deuterium absorbs all frequencies of light int he entire electromagnetic spectrum and it does so unequally depending upon the frequencies of light invovled. This means the more deuterium one has the MORE ELECTROSENSITIvE ONE BECOMES!!!! As cell volumes rise, cells are more commonly marked for replacement by ubiquitin. This activates the cellular response and consumes massive energy. This small change in proton recycling in the TCA intermediates and PPP are the key stimulus for the epigentic tool box to be turned on. Mitochondrial swelling is the genesis. It is not the nuclear genome that sets the tone.

Electromagnetic Radiation: is the key factor in evolution because the amount of deuterium in the ribose sugars and the 3′ position of glucose and the TCA intermediates is what makes us MORE SENSITIVE TO LIGHT. They key is our cells are optimized to our solar spectrum for this mechanism to work. Light is what induces swelling and the swelling subtley changes cell volumes.

With this perspective you can see why solar EM radiation is the primary cause of DNA mutation in all life forms. The theory of evolution, without this consideration, is missing a key factor, namely, how light controls mitochondrial DNA before it affects nuclear DNA/RNA. Different frequencies of light have different effects on mitochondrial size. We now know blue light increases size. We also know that red and purple light shrink it. What we have today is no one realizes how light frequency controls cell volumes. Not all frequencies operate the same way, with respect to deuterium.

This aspect of biology remains underrepresented in all genetic research. When mitochondria swell, it increase ubiquitin marking of proteins without every turning on the nuclear genome. This implies growth can be induced by light with a silent nuclear genome. It also means explosive growth can do the same. We see this in space with bacteria and archea. We also know that astronauts get diseases of aging in this environment because theu mitochondria constantly are swollen. Light frequencies are capable of doing this without any other stimulus needed to mitochonria.

Ubiquitin marking is a POST TRANSLATIONAL pathway. This means no gene machinery are needed to turn it on. Changes in cell volume can do it alone and light frequencies all have variable effects on cell volumes. Since the dawn of time, life has been changing in form and function. While other factors contribute to these changes, electromagnetic radiation from natural and (man's influence) unnatural sources has a much greater impact on DNA/RNA. We do not realize yet that the physics of Earth constrains explosive growth. When the environment changes cells swell. Pro-growth pathways begin with changes to mtDNA.

What happens when the person lives 98% of their life outside of the sun? Too much deuterium sticks around in our DNA and RNA surface and this is more likely to create weakness in the helical structure that leads to strand breakage and aneuploidy. This makes the cell more susceptible to mitochondrial heteroplasmy and nuclear genomic instability AFTER the mtDNA change. This stimulus allows the immune system to get rid of it if it working properly. If not, you get cancer. This simple effect is at the basis of most human diseases as laid out by Dr. Wallace. It alo explains why we have a Warbug shift in cancer cells.

Evolution decided 3.8 billion years ago to strain out deuterium by using the 3 metabolic pathways named above to lower the deuterium rates in mitochondrial matrix for water production at the fourth cytochrome, cytochrome c oxidase. The last step in the quality assessment water treatment program inside the matrix was to make the channel for proton translation in a cell could only spin when the protium version of H+ was used and not the deuterated version of a proton. The original seawater found on Earth has more deuterium than water recycled via TCA intermediates or the hydrogens on fats used for beta oxidation. Life always chooses the lowest energy state to operate as I laid out in OSF 3 blog. Life uses a quantum evolution and this began in the seas by choosing to deal with protium over deuterium when it built the nano-quantum rotating motor of the ATPase under the 42% of the red light in the sun.

At this point you might want to go back and carefully read the books of Dr. Nick Lane. There was a reason I pumped up his work to my members and to Peter from Hyperlipid years ago,

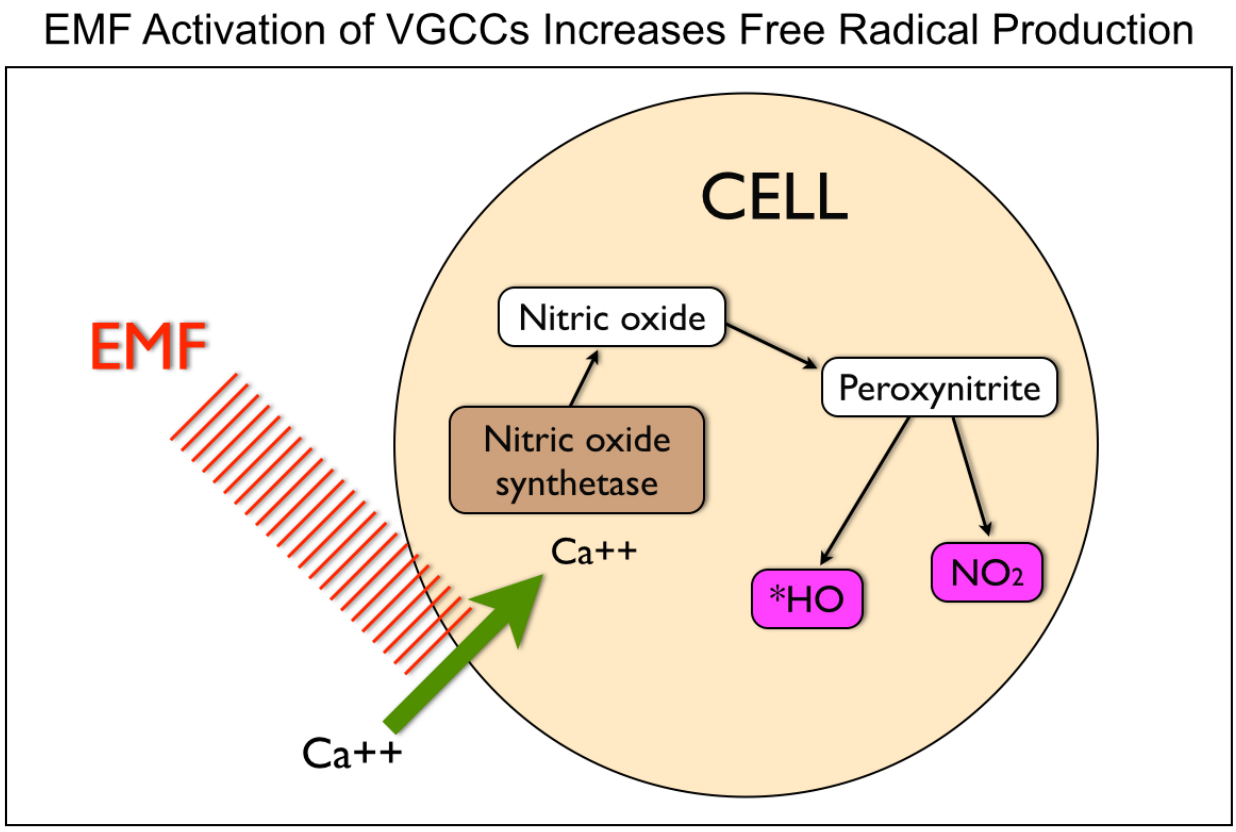
was TIED TO THE PROTON STORY. In 1998 I had read a paper that DNA strand breakage by the hydroxyl free radical was governed by what type of hydrogen was in the 3′ and 5′ sugars of DNA. I immediately realized that blue light and nnEMF create the hydroxyl free radical in our modern environment much more so than any other frequency of light.

Nature requires us to have our skin in the game in ways most can’t fathom to clear our systems of deuterium, in a very specific and sensitive way. That light controlled mechanism is the key to understanding epigenetic tool of all living things.

I wondered to myself if this was how the genome worked epigenetically using light and

proton signals to understand their environments condition of existence? I also realized this was why ketosis and water were linked by circadian biology and I realized why cells increase AMPk pathways and glucose metabolism intially in a poor light radiation filled environment. It was because the mitochodria had to deplete all metabolic intermediates of deuterium.

Deuterium is unstable in DNA and RNA when sunlight is present. It really became a toxic soup when the incident light was dominated by blue light and by RF/microwaves in nnEMF used in today's world.

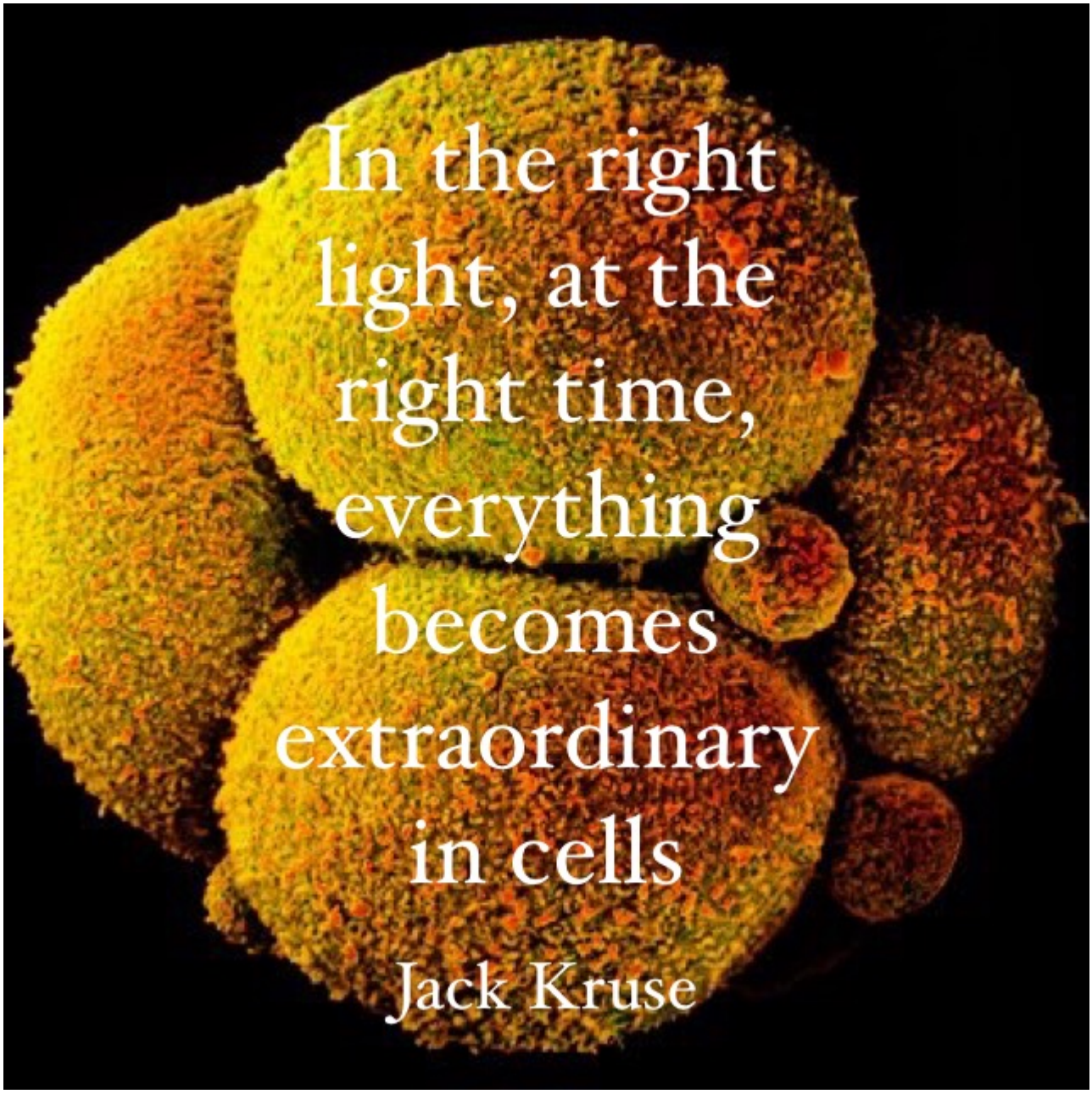


Over the last 12 years I have begun to understand why their belief exists now. When you suffer from a disrupted circadian clock in the SCN or a peripheral clock gene, you perceive you do need carbohydrates because you mitochondria has to deplete all metabolic intermediates of deuterium to remain stable in an environment with aberrent light signals.

I believe this instinct is linked to hydrogen proton depletion steps inside of mitochondria that make certain ribose sugars in RNA and DNA more sensitive to attack to the hydroxyl free radical.

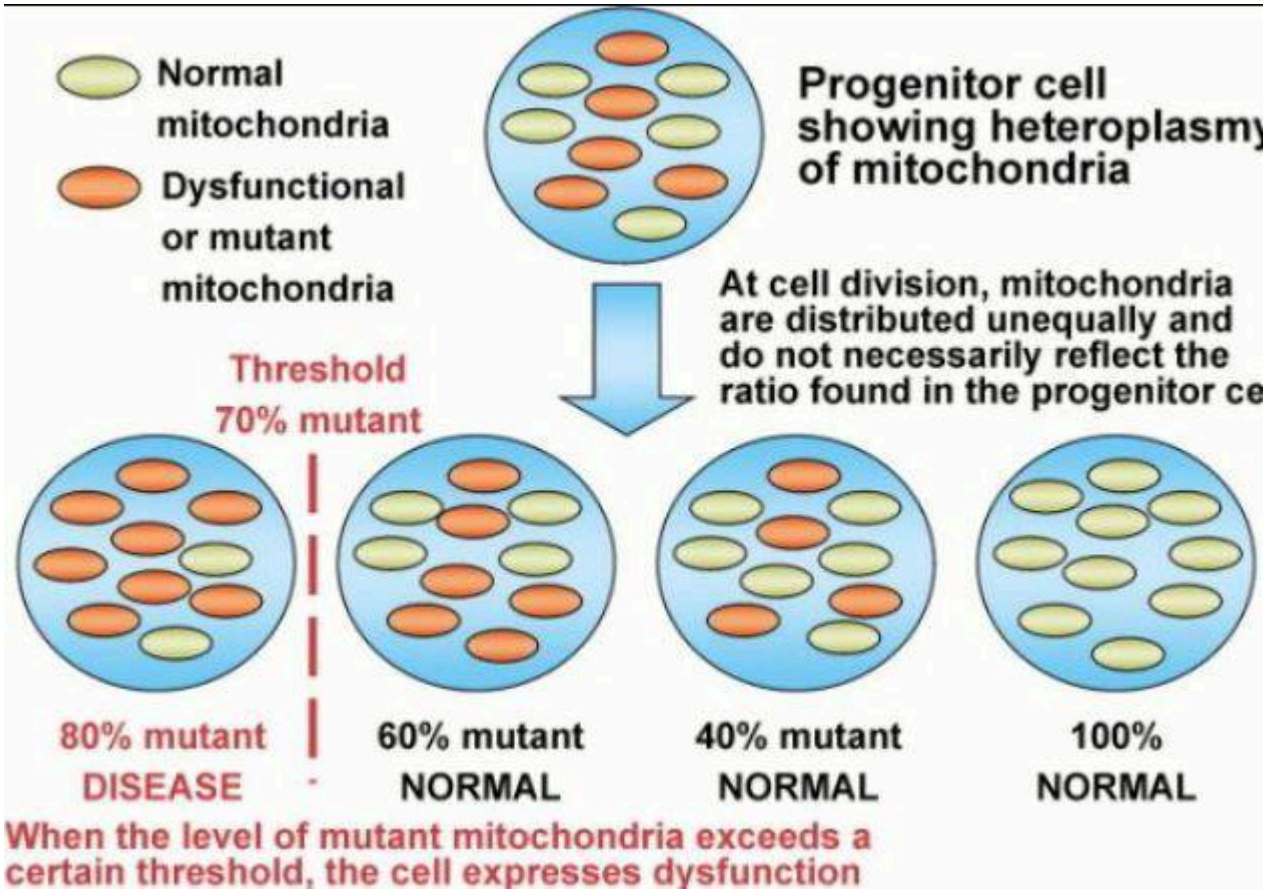
It has been shown recently that artificial EMF's make our blood brain barrier and gut more permeable to carbohydrates. The micropulsations of nnEMF controls bio-cycles, including the timing of mitotic rhythm and the entire cell cycle. Any major change in their frequency would be catastrophic for cells. In fact, today most of the 'paleo-sphere' continue to remain unaware that experiments already have been done in the late 1990's that have shown that vibrational rates near normal and slightly above the Schumann resonance, from 30-100 Hz, cause dramatic changes in the cell cycle timing. It is also associated with changes in mitochondrial oscillations, a decrease in beta oxidation and a lowered rate of deuterium depletion of the 3rd and 5th carbon on ribose sugars in DNA and RNA. This idea was the basis of the EMF 4 blog post on the PPP.

It turns out, the most powerful sculpter of life of our development may turn out to be the subtlest force, the coulomb force, that is completely invisible to us, by design, (Zeno effect) and perturbs the manner in which we handle the subatomic parts of macronutrients (H+) and recycle ATP via the action of proton movement in metabolism.



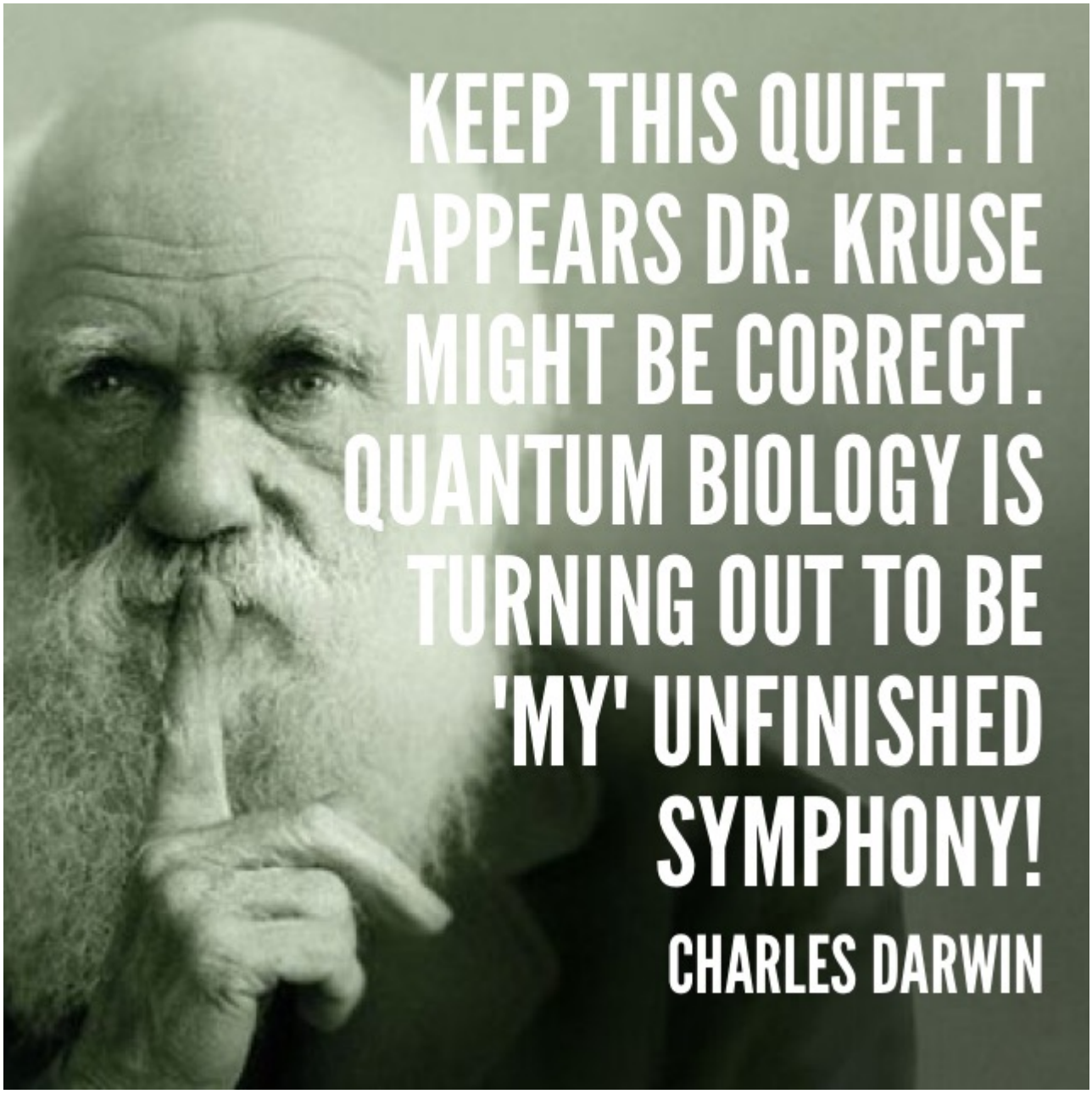
There are many performance athletes who are using the ketogenic diets now to fuel superior performance today. I believe most of them have no real idea why it is truly wise in an altered lit environment if it is photosynthetically based. If its made from manmade fats it is TOXIC. Deuterium depletion is the key reason why performance and longevity are linked in my opinion. The real issue most of them do not understand is that deuterium depletion efficiency

is 100% tied to the heteroplasmy rates in mtDNA.



Many more endurance and performance athletes and trainers do not believe this is possible, because their own observations have failed to show it to them. We recently have heard several people say there is no alternative ketogenic fuel sources to get it done.

Some of us chuckled at this notion, because we never saw even a brief mention of the major biochemically reducing pathway in humans mentioned in their work. This pathway fuels the recycling of energy substrates (H+) in major beta oxidative pathways. It has become clear to me, it is just in everyone's blind spot for a very counterintuitive reason most are unaware of. We even have conflicting evidence from Volek and Phinney book on ketosis.



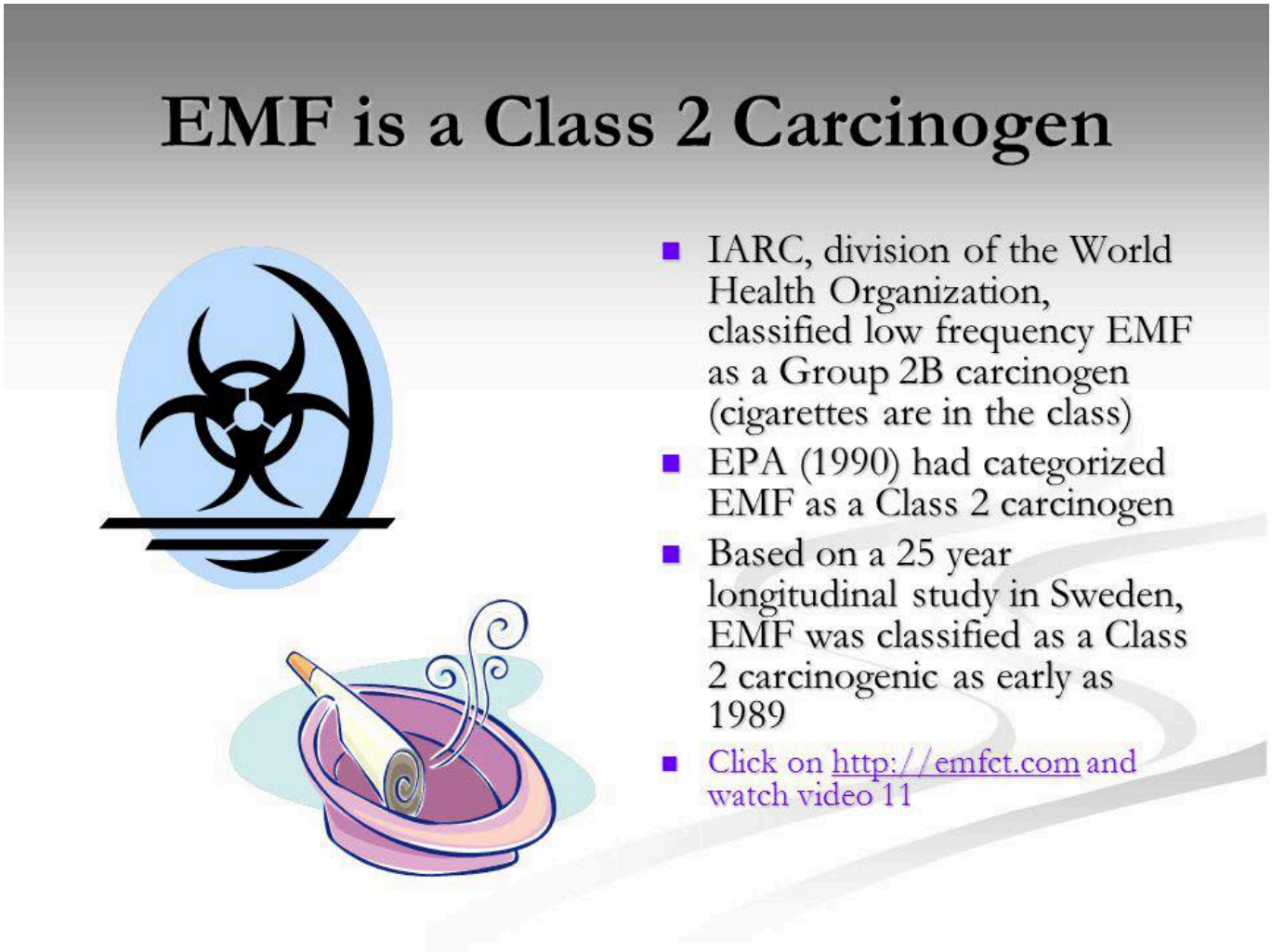
The most painful thing for a clinician researcher to do these days is to open their eyes and observe that the world you know might not be the world you were taught.

How do we reconcile it? You need to observe what others have done before you and realize what it means for mitochondria. That is why I wanted you to CAREFULLY watch the video

above before proceeding further.

It is easy to explain this entire process of the Warburg shift, once you realize that you can't access the fat burning pathway when your molecular sense of timing is off. This also explains why glutamate and gluconeogenesis are up-regulated in environments where aberrent light radiations are present. The mitochondria is working over time to deplete all intermediates of deuterium to become thermodynamically " a cleaner green nanomachine" to react to the sun PROPERLY. This really is life's key "green pathway" to keep us alive a long time. It is also why modern science remain oblivious to why the Warburg shift occurs in cells. The mitochondriac perspective is wholly different because of these quantized effects in protons.

Upon ingestion of heavy water (deuterium oxide), 2H is incorporated into the deoxyribose moiety of DNA of newly divided cells. This makes them more prone to light radiation. In fact, in rapidly dividing cells, as in the case of B-cell chronic lymphocytic leukemia (B-CLL), can be labeled with deuterium oxide and measured using gas chromatography and/or mass spectrometry.



This also has major implication of how hydrogen protons are handled inside of our mitochondria and maybe the key change that occurs before a Warburg shift occurs in metabolism. This means we have an opportunity to alter the situation. This is why I have advocated for clean water, spring water and RO water. Even Malbec wine. Why is that? All versions of this extracelluar water in all those recommendation are deuterium depleted because they come from glacial sources at high altitude.

Water with deuterium freezes at 3.81° C (38.86° F) as compared to 0° C (32°F) for regular water.

Putting the water in your freezer until it begins to freeze is a great way to remove the deuterium from your water, because the freezing point of deuterium is higher than the freezing point of water, which means it will freeze first at close to 40 degrees. You then throw out the ice left behind. The water left melted is depleted of deuterium to a degree. Conversely, the first water melted from ice off a moutain, is also deuterium depleted as soon as we hit 40 degrees in nature. This is why nature uses this type of water for living things in nature. Most ice is located on moutain tops and in the polar regions. There is cyclic freezing and thawing from climate changes in seasons and this concentrates deuterium in ice and release light hydrogen into the lakes, rivers, and oceans. In the oceans, light hydrogen water evaporates faster than D20 because of the increased mass it has. This makes it the key to the water cycle in a continent. This is why Australia has a huge problem. Its water supply is not made like this everywhere. The center of Australia is a desert and arid.

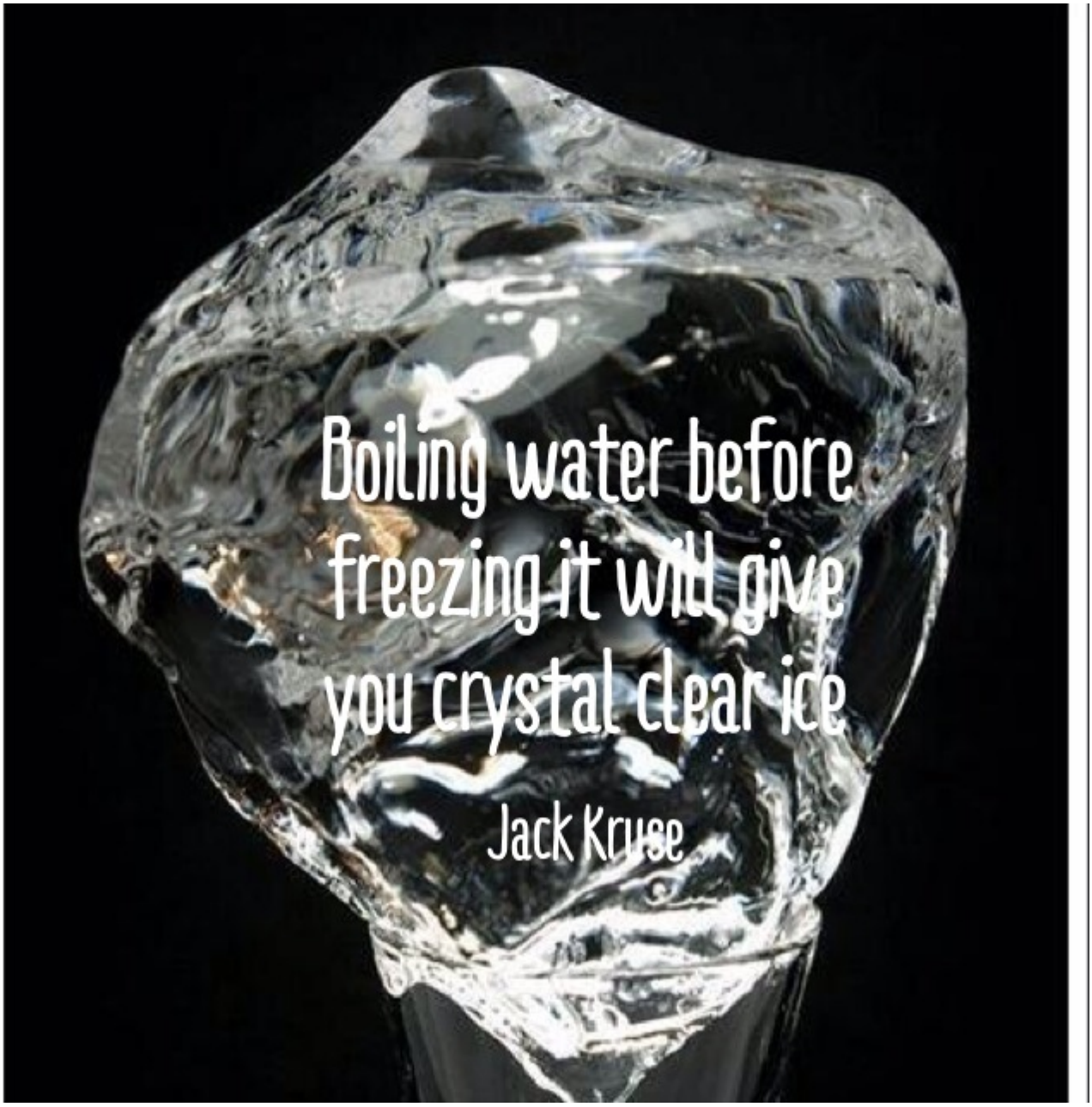
We know that polyphenols like Vitamin C, increase proton recycling in cells. It turns out this is why Malbec is more healthy from Argentina and Chile. Both Malbecs are grown at high altitudes using deuterium deplted water. This increases the grape yield because chloroplasts also favor light hydrogen too!!! In botany reseach when they use DDW, agricultural yields increase 40% because of the energy benefits to increase photosynthetic yield. Malbecs have heavy tannins which are polyphenols. This species of grape has the highest levels of resveratrol which is a fluorphore polyphenol. This means it absorbs UV light at 312nm. This gives the water in the grape a higher electric potential when it is irradiated with sunlight as the plant and fruit grow at high elevations to further deplete the plant of deuterium. Now ou know why I a specific in what I drink. The effect of reservatrol on proton recycling is very similar to that of Vitamin C. This was documented in 1936 by Szent Gyorgi. The irradiated polyphenol is capable of increasing the charge carried in the water of the grape and anything that increases the charge also facilitates removal of the heavier isotope from the plant.

Boiling water concentrates deuterium and increases isotopes of oxygen as well (0xy-18). This is likely why inflammation and fever, favors increases the fraction of deuterium into damaged cells to cause them to slightly swell and get marked by ubiquitin to be made more susceptible to light radiation for the immune system to remove them by phagocytosis. No

one in medicine understands why fever really works. It is an effect of deuterium.

This is another reason I don't favor coffee. Remember that boiling also increases F- and Br – in water and reduces 0xygen 16 levels. All of this cause dielectric collapse which lowers the charge in water and cause the water to be a net collector of deuterium. This is not good for our tissues.

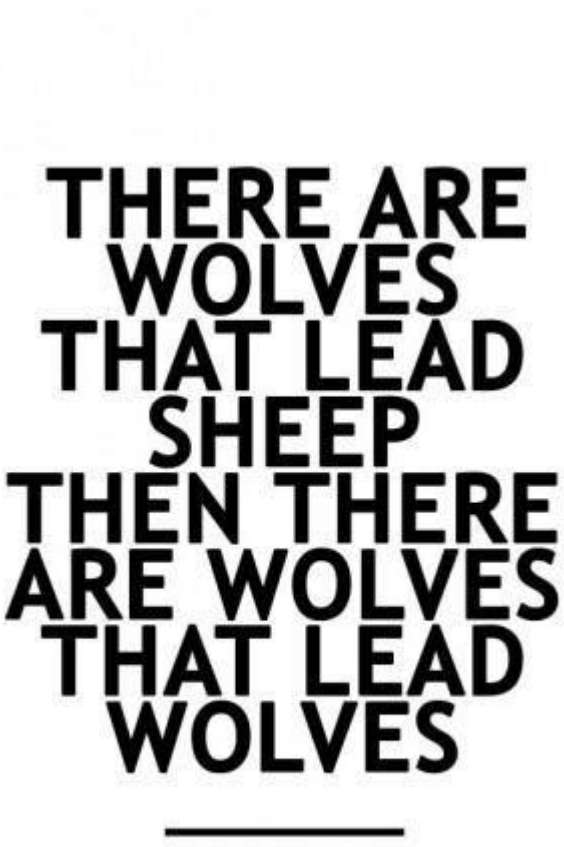
Is there another way to remove deuterium from the body? When water is electrolyzed, or decomposed by an electric current, the hydrogen gas (H+) produced contains a smaller fraction of deuterium than the remaining liquid water. It should be no surprise that mitochondrial membranes have massive electric charges (30 million volts) when we consider this mechanism published in the literature. It is also why the glomerular membranes also are highly charged in the kidney. It appears the kidneys also get rid of the non favored isotope for the body and this may explain why kidney diseases are associated with so many other mitchondrial maladies. This electric current can be used to create protium ions, and the remaining deuterium is concentrated in the extracellular water for excretion. This is why cold water immersion and drinking seem to improve metabolic rates. Cold increases the electric charge on membranes. It is also why cold water immersion induces urination. The body is acting to remove and deplete deuterium because of the change in charge to get rid of the bigger deuterium atoms. The increased charge in cell membranes is acting a filter to removing deuterium by increasing electric current in the outer and inner mitochondrial membranes. It appears the inter-membrane space and the matrix wants to concentrate light hydrogen.



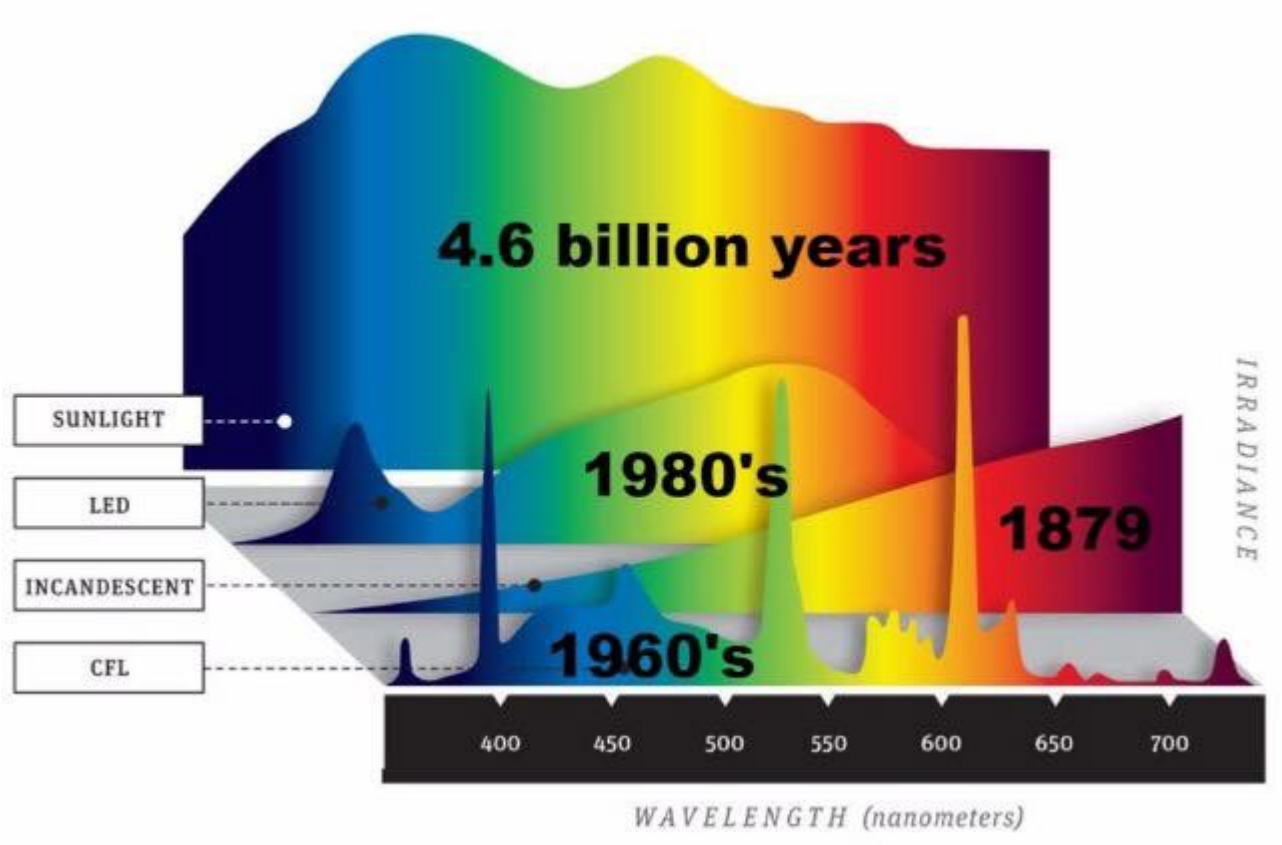
It turns out when water freezes and melts in the mountains the first released water is deuterium depleted. Why? Depleted deuterated water has a different freezing temperature because of that extra neutron. The polar ice caps are a collecting mechanism for deuterium

and a natural creator of deuterium depleted water for plants and animals in this area. This collection of deuterium is also why the major neutrino detectors are built in polar regions to take advantage of the deuterium in research. This is how the hydrology cycle on the surface of Earth gave life the reason to use protium over deuterium in the beginning.

Cooling cell water by cooling our body also help us eliminate deuterium because it stimulate urine production and up-regulation of glucose metabolism. This is another reason why Cold thermogenesis is optimized for mitochondrial function. Cold increases the electric current in cell membranes, especially the kidney, to help us rid our body of deuterium once the cold stimulus can generate the current to select out our bad protons in our body.

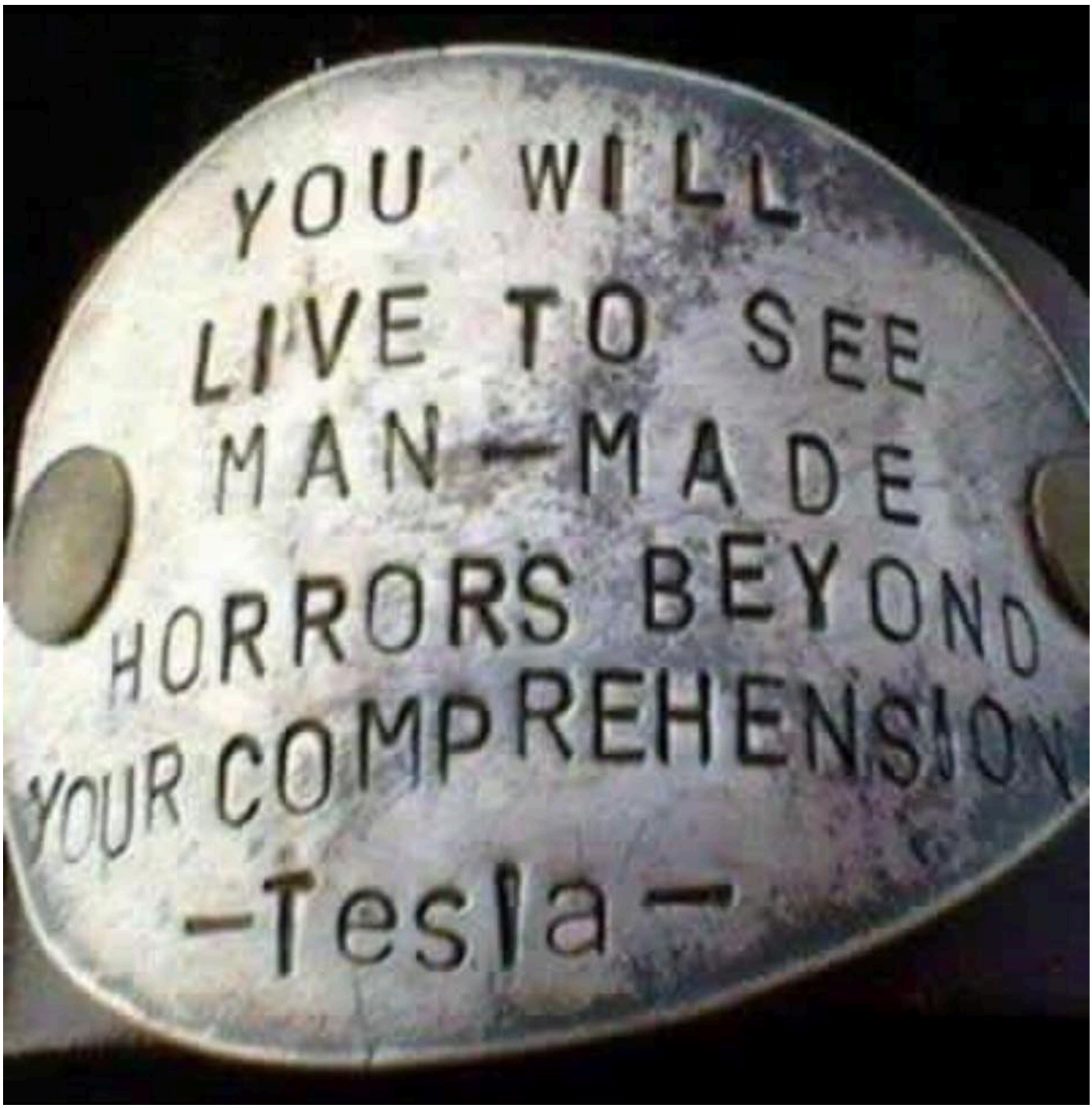


Why did I spend so much time 4 years ago teaching you about the pentose phosphate pathway and try to keep you away from paleo-wolves in the food world? When your molecular clocks are off you can never benefit from true fat burning, but you also increase the metabolism in the PPP. I was hoping somebody would realize why this was case bck then, but no one did. It occurs because we had to recycle protons to become more energy efficient in our mitochondria in a light radiation filled environment. The sun can deplete us of deuterium if we get our solar panels in it. Using the cold and the sun at once has an additive benefit of depleting us of even more deuterium. This is why I became a huge fan of the Cenote system in Mexico. The rain water in the cenotes is deuterium depleted and it is cold. Moreover, the Mexican government uses this water for RO filtration further depleting it of deuterium. Processing water under blue light has the effect of deuterium concentration because it absorbs this light tremendously. I believe that Pollack needs to repeat his experiments in water with blue light to see how it effects the size and characteristics of the EZ. My bet is it has a huge effect.



When our modern environments were re-built with fake blue lit sources, heteroplasmy rates have risen dramatically in patients. No one is putting two and two together here yet. This small change in lowering the EZ, cause mitochondrial swelling, which activates the epigenome to become more active to replace proteins by ubiquitin marking. This activates the PPP pathway. It appears that heteroplasmy rate and defective proton movements in mitochondria are the earliest steps in disease generation because of the energy decline in energy generation in mitochondria It also is the key step for a mitochondriac to act to change ASAP. Removing yourself from this environment and improving yourwater production in your mitochondria is the KEY FIRST step in an reversal. Most of the things I tell people to do are all deuterium depletion steps. I just never told you why I was doing it because the explanation requires a lot of explaining to the lay person. Changing the environment is massively important. The water your mitochondria makes must be made without deuterium. If deuterium is involved water gets trapped inside the matrix because it cannot tunnel out to

the inter membrane space and it can fit through the ATPase = why they swell



When our modern environments were re-built with fake blue lit sources, heteroplasmy rates have risen dramatically in patients. No one is putting two and two together here yet. This

small change in lowering the EZ, cause mitochondrial swelling, which activates the epigenome to become more active to replace proteins by ubiquitin marking. This activates the PPP pathway. It appears that heteroplasmy rate and defective proton movements in mitochondria are the earliest steps in disease generation because of the energy decline in energy generation in mitochondria It also is the key step for a mitochondriac to act to change ASAP. Removing yourself from this environment and improving yourwater production in your mitochondria is the KEY FIRST step in an reversal. Most of the things I tell people to do are all deuterium depletion steps. I just never told you why I was doing it because the explanation requires a lot of explaining to the lay person. Changing the environment is massively important. The water your mitochondria makes must be made without deuterium. If deuterium is involved water gets trapped inside the matrix because it cannot tunnel out to the inter membrane space and it can fit through the ATPase = why they swell

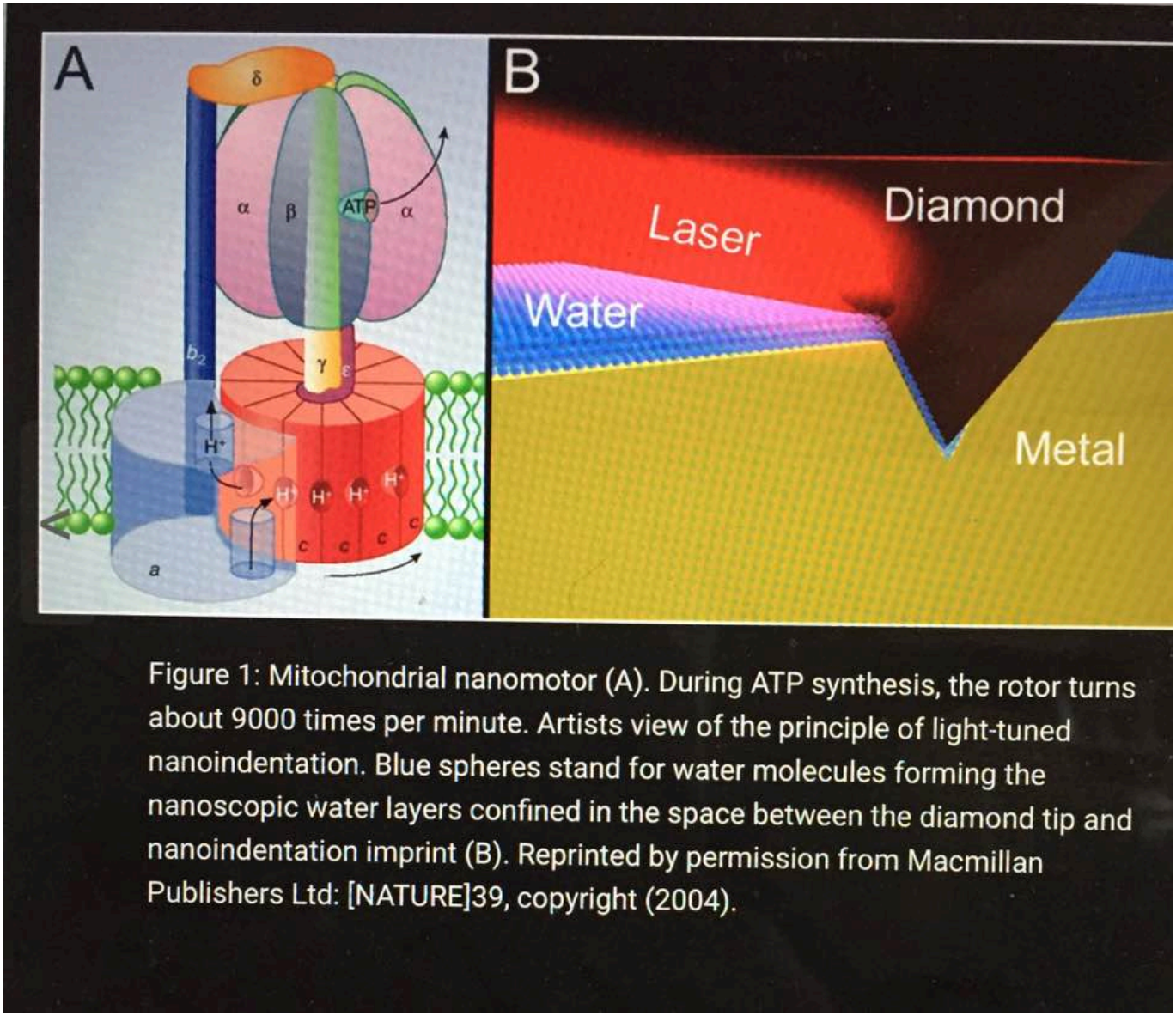


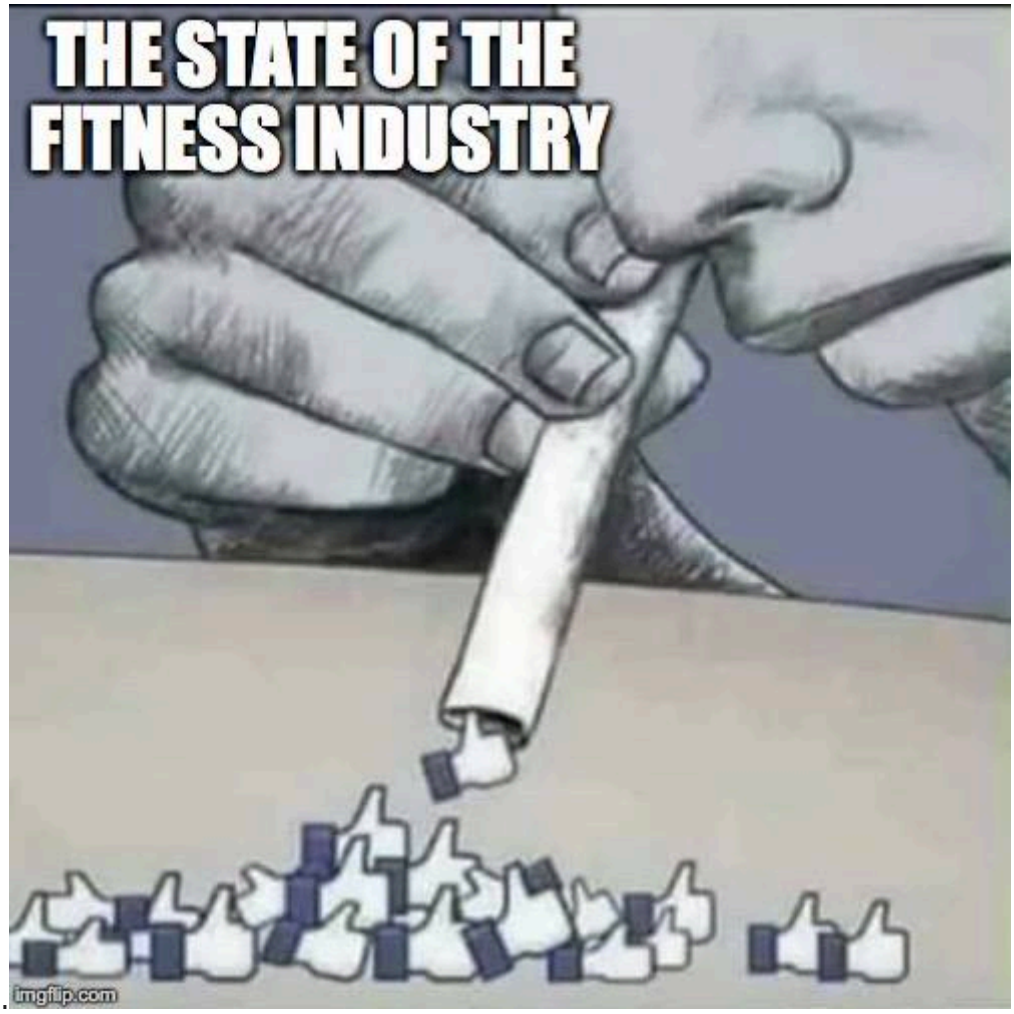
Figure 1: Mitochondrial nanomotor (A). During ATP synthesis, the rotor turns about 9000 times per minute. Artists view of the principle of light-tuned nanoindentation. Blue spheres stand for water molecules forming the nanoscopic water layers confined in the space between the diamond tip and nanoindentation imprint (B). Reprinted by permission from Macmillan Publishers Ltd: [NATURE]39, copyright (2004).

When I realized this is how life began on the planet, I cut to the chase, and I went to my biochemistry book to look for a pathway in humans that mimics these effects, to optimize them inside of me. Here is where I found the story of the PPP and how it is critical for longevity, life, and ultimate performance. It is the mechanistic pathway used to supoort the Ancient Pathway found in our brain that we covered in Cold Thermogenesis – 6.

One major catch to this pathway: To enter it routinely, it requires the human to be able to

accurately tell time in your SCN and by your liver peripheral clocks because gluconeogenesis and the PPP are critical for proton recycling and water creation inside of the matrix and cytosol of the mitochondria. It turns out the type of protons are critical to that timing mechanism because of the ATPase channels in both locations. If your liver is collecting the deuterium isotope of hydrogen, your peripheral molecular clock there will be off. This is what FATTY LIVER REALLY is. It is a sign of a liver filled with deuterium. This is leptin resistance at the liver level I mentioned way back in the leptin series.

As Wallace has pointed out in his papers and video's, the liver basically mimics the sun and this is why it is the seat of gluconeogenesis. If your endogenous molecular clock is off, this pathway will stay in your blind spot and you will continue to believe you need carbohydrates to replenish glycogen via gluconeogenesis when you are post exercise because your body needs to rid itself of the excess deuterium. This belief remains the dominant belief in the training world even today. This is why these athletes advocate for carbohydrates over fats. They are only correct if the fats are man made fats. Animals fats are deuterium depletion tools. This means not all versions of ketosis are CORRECT by evolution. The fats must be made under photosynthetic power to make sure they are deuterium depleted. Why???? Because chloroplast also deplete it when they make bio-mass in plants that support the entire FOOD web on Earth. No food source on Earth is more deuterium depleted than animal

fats. 

When you exercise too much under blue light and eat processed carbohydrates and fats and not natural animals fats, you lose the ability to recycle protons optimally inside the of the mitochondrial matrix. This causes deuterium to get stuck there and it cause heteroplasmy to rise. This is how a fit athlete dies suddenly doing something they have always done the first 50 years of their life and it shocks people. It does not shock a mitochondriac. This is why so many have missed it. They never pay attention to molecular timing in biochemistry class or about how Szetn Gyorgi taught is how protons recycle in the TCA and PPP.

Today, you're finding out why, definitively, this is a critical error in observation and thinking. Just knowing the food macro's is not critical. Knowing where the hydrogen came from and

their fractionation level is!!!! This is why I am a stickler about details and ketosis. If it is not studied properly people on a ketogenic diet in blue light will die and the benefit will be buried from the literature for ever!!!! The recent Nobel Prize in October of 2017 re-affirms my perspective and my concerns.

Most were taught very specific biochemical facts at a superficial level, and therefore believe glucose is used to replenish muscle glycogen, while fructose replenishes liver glycogen. This happens in sunlight , but it is altered in fake light. What else? What none of them realize is that in each one of these steps in cells, strong electric currents are recycling light hydrogen to make water. Different frequencies in light make different electric currents!!!!!! This is why we different fractionation levels in the tissues of animals who eat things man made. You are what you eat eats!!!!!

The cycles are designed to purify hydrogen in each step in the mitochondria to eliminate deuterium at the 2′ carbon in glucose and glycerol (SN-2), and 3′ and 5′ carbons of fructose and ribose. The optimal way to replenish glycogen for performance is to replete liver glycogen by using the PPP, not glycogenesis under the power of sunlight, and certainly not under man made light.

If you do, you'll increase the amount of deuterium in your DNA and RNA and you'll die unexpectedly even when you have the facade of fitness body. This is why many endurance athletes get cancers at a young age. Grete Weitz comes to mind. This pathway is poorly studied, by even the brightest in biochemistry, because most do not realize how tightly coupled it is to optimal fat burning and proton recycling of the TCA and gluconeogenesis intermediates under the power of SOLAR LIGHT!!!!

That reason is decidely quantum and not bio-chemical, because of the link back to photosynthesis. Proton tunneling is how enzymes work with hydrogen bonding netwroks and this process is critical in DNA and RNA function. The reason why these processes link directly to longevity and survivival however is very much a story of how proton recycling is critcal to energy production in a cell. As heteroplasmy rises, protons recycling reduces in the

mitochondrial matrix and cytosol, and mitochondrial water production drops dramatically. This is the key step in neolithic disease generation before the human gets ill. How do you fix this?

SUMMARY:

Learn all you can about the kinetic isotope effect of hydrogen. It is the key to understanding how to hack hydrogen in your life. My members have been getting this advice for years without knowing what I was up too. Deuterium concentration in the body of a human being adult is about 12 to 14 mmol/L. Although it does not seem much, if we compared this amount with other vital elements, it is observed that deuterium is present in the body in an amount six times higher than calcium and ten times higher than magnesium. We have many supplement sellers pushing Ca2+ and Mg2+ pills so you'd be quite wise to learn how to use mountain melt water to get deuterium depletion. Why? Water researchers have found that glacier water, which is thousands years old, is pure, and has outstanding biological qualities because of the low deuterium content. For example, agricultural crops irrigated with water from the glacier, productivity increased by 60 % under the sun. I have found the same is true for humans with mitochondrial heteroplasmy.

Albert Szent-Györgyi, the Nobel Prize-winning biochemist, said that hydrogen, rather than oxygen, was the fuel of life. Everyone knows we need oxygen to live, but oxygen's counterpart (hydrogen) is the real fuel. Oxygen burns hydrogen releasing the energy (in the form of ATP) that runs our bodies. Water supplies both the fuel (hydrogen) and the fire (oxygen); it is hydrogen that is often the limiting factor. The word hydrogen comes from the Greek, meaning "water-former." Water is formed when hydrogen is burned by oxygen. It is created every day in our bodies as we burn hydrogen to create ATP. Hydrogen and oxygen participate in a continuous cycle that generates both water and energy. Cells also generate a DC electric current as this happens. This is why Becker found regeneration was optimized in animals with a strong DC electric current. He had no idea why, but now you do.

It is also why Becker was a huge fan of Szent Gyorgi.

Dr. Szent-Györgyi was the first to show that the human body stores hydrogen in many of its organs. He referred to this as hydrogen pooling and he identified the organs that pool the greatest amounts of hydrogen. The liver pools the most hydrogen; it requires hydrogen to neutralize free radicals produced during detoxification. In 2001, a group of researchers reported that animals maintained in a hydrogen-rich environment were significantly protected from chronic liver injury. Later research demonstrated that inhaled hydrogen gas (~4%) had antioxidant properties that could protect the brain against stroke. U.S. Military documents indicate that hydrogen is an effective means of protection and repair against radiation injury.

Many other studies have established the significance of a hydrogen enriched environment. Stress, poor diet, and pollution, deplete the pools of hydrogen in our bodies. In our modern society, most people are hydrogen depleted.

Food is a primary source of hydrogen. Food made under the sun is depleted of deuterium. Carbs have the most deuterium compared to animal fats. This is the only reason why eating carbs is linked to obesity. Carbohydrates contain equal parts of hydrogen, carbon, and oxygen. However, the hydrogen in food is tied up in complex molecules. Food must be metabolized (broken down) to release the hydrogen. This is why mitochondria have de-hydrogenases in them. Dr. Szent-Györgyi identified the series of reactions that liberate hydrogen from carbohydrates. He said, “the foodstuff, carbohydrate is essentially a packet of hydrogen, a hydrogen supplier and hydrogen donor, and the main event during its combustion is the splitting off of hydrogen. So, although food is a primary source of hydrogen, it requires physiologic work for the body to release it.” Carbs also grow in strong solar cycles so they won’t fatten you if your DC electric current from the sun is present because their excess deuterium will be cleared via the urine and bilary systems. That is not how humans live, so they believe carbs fatten them. It’s not because of the food macro. It is because of the fraction of deuterium in it!!!!

That work is always tied to ATP, the ATPase and sunlight in nature. So the next time somebody tells you grass or algae feed animals are not worht the extra money I want you to

remember why you are eating them. You are trying to harvest the cleanest form of hydrogen earth has to offer.

Perennial grasses can be classified as either C3 or C4 plants. These terms refer to the different pathways that plants use to capture carbon dioxide during photosynthesis. All species have the more primitive C3 pathway, but the additional C4 pathway evolved in species in the wet and dry tropics. The first product of carbon fixation in C3 plants involves a 3-carbon molecule, whilst C4 plants initially produce a 4-carbon molecule that then enters the C3 cycle. Why are these differences important?

These differences are important because the two pathways are also associated with different growth requirements. C3 plants are adapted to cool season establishment and growth in either wet or dry environments. On the other hand, C4 plants are more adapted to warm or hot seasonal conditions under moist or dry environments. A feature of C3 grasses is their greater tolerance of frost compared to C4 grasses. C3 species also tend to generate less bulk than C4 species; however, feed quality is often higher than C4 grasses because they are deuterium depleted. This makes for better cows and fish.

The air we breathe also contains hydrogen—but in tiny amounts. The amount found in the atmosphere is significantly less than 1%. Yet, the hydrogen from the air is immediately available for use by the body. It is absorbed into cells and tissues the moment it enters the respiratory tract

No wonder people feel so good when they breathe ionized air. Ionized air is also plentiful in the presence of moving water—especially waterfalls, and at the ocean where saltwater continually releases ions into the air.

The other way to enrich water with hydrogen is to draw hydrogen into the water. Hydrogen is attracted to higher vibrations, so anything that raises the vibration of your water will attract hydrogen. The use of quartz crystals is one of my favorites after I freeze it and place it in wate rin a copper pot and put it in the sun to create charge separation of water molecules

using sunlight's UV light. This acts to separate the heavy and light hydrogen. This water can then be cooled to try to freeze it. The deuterium laced water will freeze first because its mass changes its freezing temperature. It freezes before light hydrogen. The cold liquid water can be harvested and saved in a separate vat for drinking. The frozen water can be used for hacks for other things like (neutrino hacks)

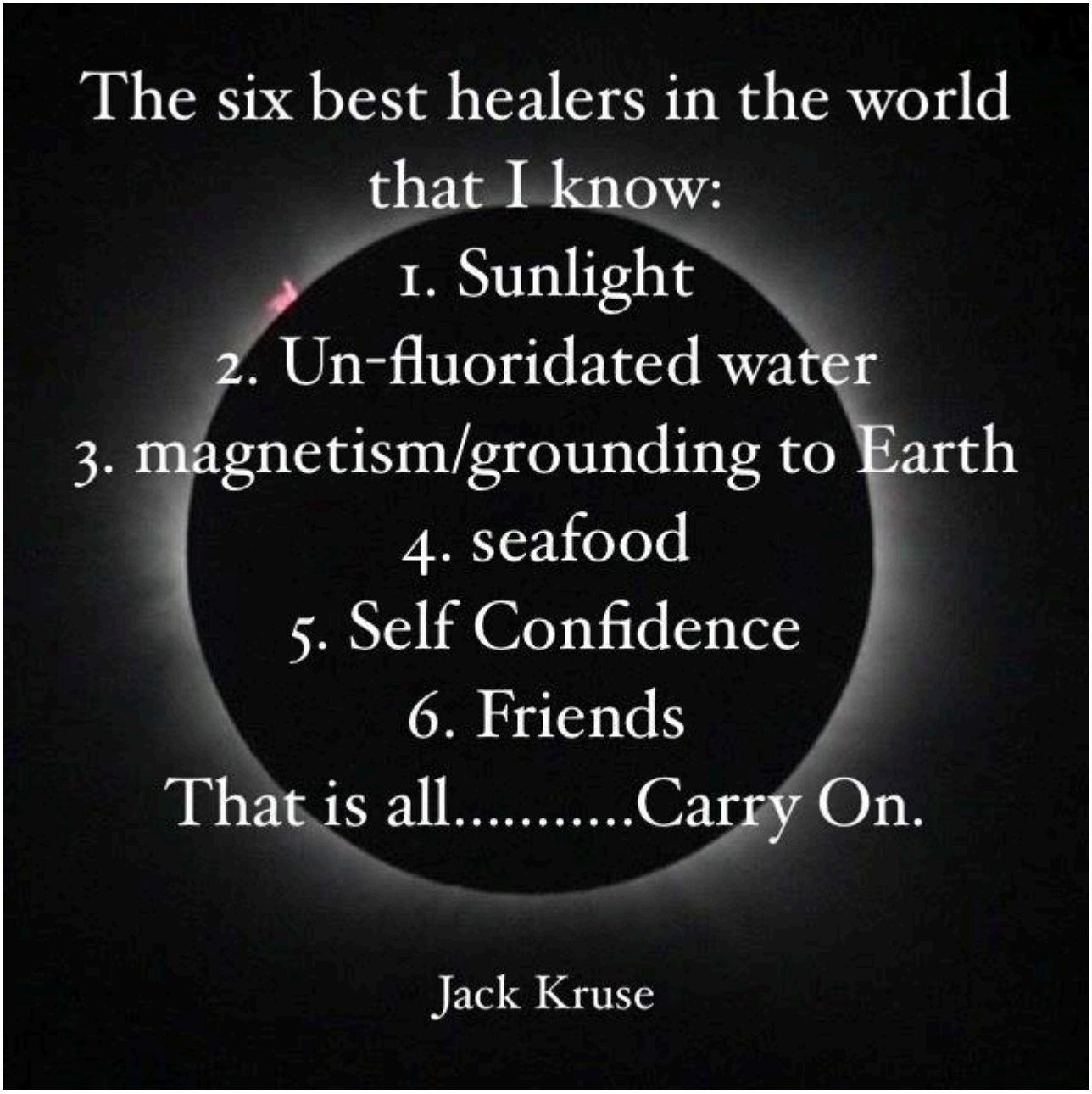
This is why glacial water is deuterium depleted and should be sought. Spring water and RO water also have this effects. This is why wine grown at high altitude is part of my Rx for mitochondriacs. The melt water these wines are made from are all deuterium depleted. Even the alcohol in these wines is able to dispace heavy deuterium for light hydrogen. This is why I think certain wines showed longevity effects. People have wrongly said it was resveratrol. I think it was because the water was more pure. Resveratrol is a polyphenol with a 312 nm absorption spectra so it is really a light fingerprint that this glacial water has even more deuterium depletion because this water would have absorbed more UV light to create more light hydrogen in the water of the grapes filled with glacial water.

Japanese research going back into the 1980's has augmented the understanding of the central role of water in supporting increased regeneration. Becker always remarked in his papers on salamanders and frogs that the blood was critcal in the healing callus. The two keys in his observation was the present of the RBC's, water and small DC electric current were key features to the healing matirx of these animals. Dr. Hidemitsu Hayashi began pioneering the use of electrolyzed water as a complementary treatment with health protocols with Dr. Sanetaka Shirahata. 30 years after Becker's work on salamander limb regeneration these researchers did something interesting.

In 1997 they published a paper on the role of "reduced water" as an anti-oxidant. Reduced water is H+ that re-obtains its electron. The mitochondrial matrix is loaded with H+ which is light hydrogen sans its sole electron. This hydrogen is recycled in the mitochondrial matrix and cytosol. It appears when the H+ picks up that single electron it becomes a massive sponge for ROS. I have a belief that the electron is donated by melatonin at night which is delocalized by bio-photon release in mitochondria (ELF-UV) light. I believe this is why

melatonin has to have aromatic amino acids in its structure.

As Szent Gyorgi predicted, H+ that is concentrated in the mitochondrial matrix, is the key fuel for life. How it occurs and works is fascinating. When I realized the Japanese researchers found that H+ was a supreme absorber of ROS, I realized what was at the core of the Warburg shift. It was from a lack of H+ in the mitochondrial matirx and a build up of deuterium. This would cause trapping of water inside the mitochondria because deuterium could not exit the ATPase due to its size and it could not tunnel through the cell membrane because of its mass. It would be trapped and cause heteroplasmy because the matirx would get larger as light energy was lost by the mitochondria. This would lower inflammatory cascades in all cell lines that were tested. This is why regeneration is associated with a higher concentration of H+ in mitochondria. The interesting thing they found is that H+ formation was favored when their was a weak electric current adjacent to the water. This parallels what Becker found in his salamanders and frog experiments. He found the DC electric current was always coming from below the myelin sheath in neurons. Those with a regeneration also had a wound that had a very strong DC electric current. That current created deuterium depleted hydrogen using a small DC electric current to stimulate healing. Adding sunlight increases the power to make more light hydrogen.



The answers are simple.....but how I came to understand the Rx was not.

CITES:

B. Balasubramanian, W. K. Pogozelski, T. D. Tullius. DNA strand breaking by the hydroxyl free radical is governed by the accessible surface areas of the hydrogen atoms of the DNA

backbone. Proc. Natl. Acad. Sri. USA. Vol 85. pp. 9738-9743. August 1998.
J. Schleicher, P. Vanderveer, J.L. Markley, J.D. Sharkey. Intramolecular deuterium distribution reveal disequilibrium of chloroplastphosphoglucose isomerase. Plant, Cell & Environment. Volume 22, Issue 5, pages 525-535. May 1999.
https://www.khanacademy.org/science/biology/photosynthesis-in-plants/photorespiration–c3-c4-cam-plants/a/c3-c4-and-cam-plants-agriculture
https://link.springer.com/article/10.1007/BF00396084
https://link.springer.com/article/10.1007/BF00397183
http://www.asianjournalofchemistry.co.in/User/ViewFreeArticle.aspx?ArticleID=25_15_73
F.W. Leaneyt, C.B. Osmond, G.B. Allison1and H. Ziegler. Hydrogen-isotope composition of leaf water in C3 and C4 plants: its relationship to the hydrogen-isotope composition of dry matter. Planta (1985) 164:215-220
Shirahata S, Kabayama S, Nakano M, Miura T, Kusumoto K, Gotoh M, Hayashi H, Otsubo K, Morisawa S, and Katakura Y. “Electrolyzed-Reduced Water Scavenges Active Oxygen Species and Protects DNA from Oxidative Damage”, Biochemical and Biophysical Research Comm., Vol. 234, No.1, May 8, 1997
Dr.Sanetaka Shirahata, Graduate school of Genetic Resources Technology, Kyushu University, 6-10-1 Hakozaki, Higashi-ku, Fukuoka 812-8581, Japan.
“Hydrogen acts as a therapeutic antioxidant by selectively reducing cytotoxic oxygen radicals” Ohsawa I, Ishikawa M, Takahashi K, Watanabe M, Nishimaki K, Yamagata K, Katsura K, Katayama Y, Asoh S and Ohta S. Published in: Nature Medicine: Advance Online Publication, published on line May 7, 2007 Nature Publishing Group, http://www.nature.com/naturemedicine