

Energy and Epigenetics 5: The Quantum Brain

Readers Summary

1. How is the science of the sea's thermohaline cycle reproduced in our brain?
2. We know about the topography of the brain, but do we know how it works in reality?
3. Why did life evolve the need for a brain to begin with?
4. What makes the human brain anatomy "peculiar"?
5. How might a quantum electrodynamic computer work use three fundamental laws of nature?

In the end, science is just a progress report of where we are now in our understanding. It is not our final destination, but it is a data point on the road to understanding.

Where we are today in science, in understanding how the brain really works, is close to where a man was 2,000 years ago in trying to understand how the planets moved in relation to the sun. We are nowhere close to where we should be.

So if we are that far away in our understanding, how can we begin to make sense of it all? We can learn a lot from the macrocosm of space if we scale it to biology on this planet. Today's blog post does that for you, like you have never heard before. I showed you earlier in the series how molecular oxygen is delivered from the phytoplankton in the photic zone of the ocean to the ocean depths using the density of cold water to deliver it there. The more dense the water, the more oxygen is dissolved in it. The power of the sun's photoelectric effect splits electrons from water in phytoplankton, which liberates oxygen. The liberated O₂ becomes more dissolved in colder water by the laws of nature

and chemistry, and then it is distributed all over the oceans by the thermohaline currents.

Today, I am going to show you how the exact same process that happens on the surface of the earth is fractally designed on your own neocortex of your brain. The very same process that works in the thermohaline current works in CSF that surrounds your brain to bring higher oxygen levels to the surface of your brain using QED principles of the photoelectric effect, water chemistry and magnetism. Moreover, when inflammation is present and is rising for any reason at all in the brain, the result in this surface of the brain's CSF is to alter the density of water that sits above this cortex.

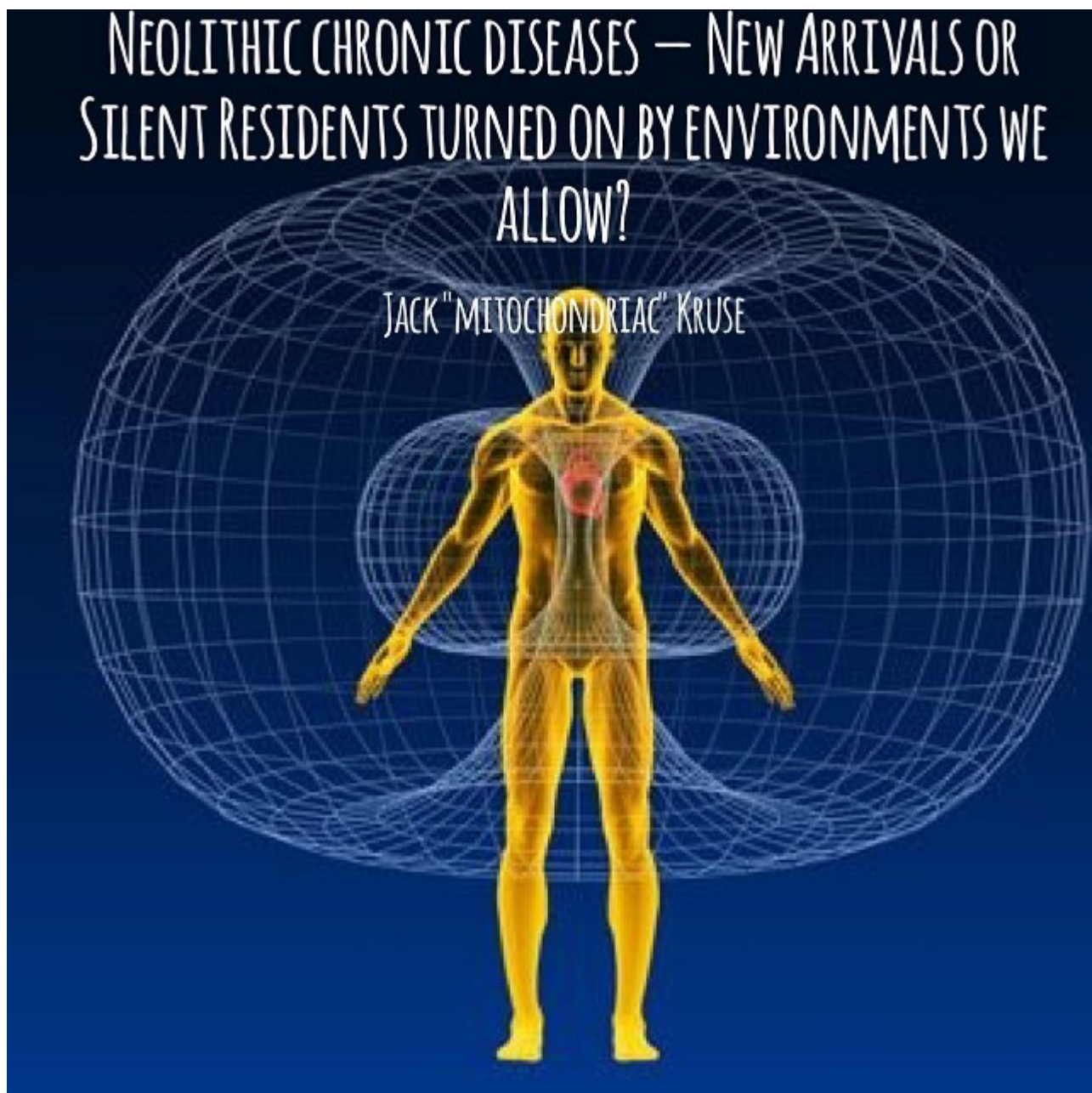
Inflammation makes CSF less dense, and when CSF is less dense, the laws of physics control the action of biochemistry that is possible on our surfaces or deep in our tissues.

The Brief Overview

When inflammation is present in the brain, the three fundamental laws of nature are altered. This causes them to decrease their ability to deliver higher levels of oxygen to the neocortex below to maintain proper cognitive function. This decreased oxygen density over specific portions of the neocortex acts to limit its function, relative to other areas of the neocortex by changing proton conduction. This single event uncouple's mitochondrion in the neocortex and it raises that neuron's basal metabolic rate. A chronic raised basal metabolic rates lead to cerebrovascular diseases because it increases mitochondrial respiration and the amount of physiologic work a cell has to do. This is precisely how leptin resistance causes a neuro-cognitive decline in humans. The CSF around the hypothalamus becomes less dense and has a higher temperature with higher levels of cytokines in it, causing us to lose energy/info to the environment. We've known for a long time that only two things lower metabolic rate in

living things, strong solar stimulus, and cooling. The problem for medicine is that these scaling laws of energy flux have not made it into clinical medicine as yet. This loss of energy means less oxygen is delivered to the neurons in the hypothalamus, which is designed to work optimally when there are harmony and energy balance in humans. This is why in EMF 2, I told you the leptin receptor was an 'account' of protons and electrons. All bits of matter that make things up roughly have equal numbers of electrons and protons. The basics of what most people forget are that if this were not so, there would be an excess of positive or negative charge, and this would create a massive force pushing all the excess charge out, leaving behind a core group of neutral charges. When sunlight moves electron/protons in us with the energy in light waves is alters the arrangement of our bio-molecules and changes their thermodynamics. A change in arrangement is a change in information in the system. Different molecular arrangements have different energies/information associated with them. This difference in energy/info is how bio-molecules are quantized to light frequencies. It also explains how metabolic networks became coupled to sunlight frequencies. The brain evolved, I believe to order this process using solar frequencies between 250-780 nm. The circadian signals are how that energy harmony is translated from the outside world to the inner workings of biochemistry. When these signals are off for any reason at all, we begin to lose energy to our environment by emitting black box radiation from our body. Essentially, we are losing captured sunlight, and this decreases the amount of physiologic work a cell can do. It also puts undue stress on our cell's mitochondrion and they begin to act less like a part of our cellular design and more like a captured slave bacteria that they really are. Since a mitochondrion has bacterial origins, most of man's chronic diseases look like infectious diseases at the core. This is deceptive because this viewpoint does not go down to the most critical level to understand how subatomic charged particles behave at small scales with the electromagnetic

forces that light waves can impart to them. This is how we lose energy to our environment in a quantized fashion. **This is the key perspective of a "mitochondriac in training".**



As a result of this law of nature, the result is we get fatter or bigger. People do not realize that bigger animals are able to conserve energy far better. This is why we see the results of basal metabolic rates between elephants and mice. It also belies why studying anything in a mouse is an epic waste of time when it comes to obesity. Obesity researchers are completely blind to this because they do not understand nature's basic physical laws and how life's biochemistry must

dance upon that stage. Obesity is nature's reaction to a loss of black box radiation in order to become more energy efficient. This is precisely how I learned to lose weight eight years ago. In nature, the bigger an animal becomes, the more energy efficient it becomes, because of the quarter-power scaling law found in nature.

Now, I am going to break this overview down for you in a massive blog with digestible sections so you can begin to understand how this all works using the anatomy of the human brain as our model for a new understanding.

If all of that sounds hard to fathom, strap yourself in. Because all of it is 100 percent true, based on the three laws of nature.

Where We Are Now

Horace Barlow, a famous brain physiologist, pointed out in the mid-1990s that we have spent 100 years studying the human cerebral cortex of the human in excruciating detail, and yet we still have not a clue about how it works or what its real function is. We have a great view of its topographical functional ability, but we have no idea how it is integrated into the whole of man. The reason for this lack of insight is because modern science believes if you can uncover enough data points about something in a controlled fashion you can figure out how it works. This points out what we get when we use reductionism without the benefit of observations. This is why no one understands even the basics of how the brain works, and why its anatomy is so different than any other organ. Today, we are going to look at the human brain in a new light, as the most complex electromagnetic quantum computer ever created in the known universe. The paradox is that our brain is not adapted for any other non-native electromagnetic field in our universe. NASA and the cosmonauts have been running into this problem for years now without realizing it. I actually think

the answer to this problem is also found in Robert Becker's work.

If you look at comparative neuroanatomy in all evolutionary clades you begin to see differences but a similar design plan in the central nervous system. These differences of the central nervous system in the animal kingdom are a result of the gradual process of evolution via "big time." The most important thing separating humans from other animals is the architecture and sheer power of our brain's neocortex. The human cerebral cortex alone contains on the order of 10 to 10th neurons linked by 10 to the 14th synaptic connections. This expansion of neuronal power required a massive increase in harnessing energy from the environment in its energy system design. So how did humans manage to do this in a relatively short amount of evolutionary time? We know that humans separated from chimps in the last four-six million years. Evolutionary findings, however, have proven it to be selectively advantageous to have a large amount of brainpower. It also becomes apparent that as the central nervous system develops the speed of environmental adaptation also becomes greater. The architecture and composition of the brain have been the most potent force in the evolution of human beings.

Forming the Central Nervous System in Evolution

For evolution to work, a neuron first must adapt to its environment. So the first thing a cell would see in an earth day is a period of day and night. The neuron would also have to create a process to make energy, and it also has to control its own cellular division. So, in essence, the circadian cycle has to "yoke" to the metabolic cycle and its growth cycle. Evolution apparently agreed with that assessment because we now know it to be true.

The first organisms were single-celled; it is not until around

600 million years ago that we have evidence of multicellular life on earth. Cells began living in colonies because it was evolutionarily advantageous to do so – possibly because they were less likely to be consumed by predators as a larger group, or perhaps to share energy resources. At some point, these cells began to take on different functions within their colonies.

We know from Becker's work that the "analog circadian system" of regulation is found in archaea, bacteria, the plant's kingdom which all seem to pre-date the evolution of complex terrestrial animals. This system is a DC electric control system. Anytime you have a current of flow of electrons from the environment, the laws of nature say that a magnetic field must also exist at 90-degree angles to the current of flow. As life became more complex in system design, more controls had to be added to the brain to codify the environmental signals. As an analogy, think of a Model T Ford's engine compared to a ZR1 Corvette engine today. Both are cars, but one is capable of far more performance and action and as such, has a lot more electromagnetic controls built into it. Your brain has followed the same path in its evolution from our nearest ancestors. Humans have this DC analog system, like the rest of life forms below them on the tree of life, but we also use a digital system, as you recently found out in this series. Moreover, both systems are yoked together and tied directly to the three laws of nature found on planet earth. This is how cells made sense of the environmental signs that were present as all life developed.

For evolution to work, a cell would have to wake up from sleep and begin to sense its environment signals. I made this prediction in Cold Thermogenesis 2. It would need to evolve wakefulness in order to sense its environment. I told you in Cold Thermogenesis 1 that I believe that sleep is biology's primordial condition. It also means that sleep and neurologic and metabolic function would always need to be tightly linked.

In humans, we know this is clearly the case. Across the entire spectrum of the animal kingdom, when it is night time, the cell becomes more reduced chemically and electrically.

The most primitive organisms with nervous systems – that is, a system of interconnected nerve cells – are the cnidarians, which have a nerve net consisting of nerve cells scattered throughout the epidermis. Another type of primitive nervous system includes those of echinoderms, such as starfish, which consist of a central nerve ring and five radiating nerves. The most primitive nervous system that includes a brain is that of the annelid. Leeches, for example, have only a brain, two nerve cords and segmental ganglia running throughout their bodies. Insects have a similar system. Mammals are much more neurologically complex.

Mammalian brains are fundamentally different from these types of organisms in one particular way: the three main functions of the non-mammalian brain work in three separate sections of the brain in most of the animal kingdom, but in mammals, they are centralized and are all located in the forebrain.

As life forms became more complex, it would imply that cells would need complex neurologic mechanisms to account for the redox signals from the environment. This implies systems in a cell would have to be able to monitor the lower redox state inside the cell. We find a general trend in nervous systems that during darkness we observe a lower redox state. In this state, cells are usually recycling their components using autophagy. In nocturnal animals, the same machinery is used, but they reverse the environmental signaling using epigenetic modifications of the DNA/RNA via natural selection to live a nighttime version of life.

During daylight, while energy is being made to explore the environment, the cell is more oxidized. This oxidation would become a major signal inside the cell, where they generated energy. In mammals, this is felt in the mitochondria because

of how mitochondrial biogenesis is signaled for using leakiness and ROS generation in cytochrome 1. Biogenesis is increased by "leakiness" of the mitochondrial cytochromes, and this is how the environment is perceived. This alters NAD⁺ and NADPH levels. When these are altered it tells you energy balance is altered. This signal is perceived in the central and peripheral circadian clocks of all animals. Before each gene in the DNA of mammals, there is a molecular clock gene that is turned off by epigenetic methylation and de-acetylation processes of these genes. When things are working all molecular signaling works like an orchestra. When the timing is off, disease ensues.

Circadian Geeks: Another interesting coupling occurs between the environmental circadian cycle with the cell cycle. This linkage is perceived by the circadian clock genes in all life forms in one fashion or another. These environmental signals are linked to the nervous system via the CLOCK, PER 1 and PER 2 genes. Recent studies have discovered that the CLOCK circadian gene, a central component of the circadian transcription program, is a DNA-binding histone acetyltransferase (HAT). This histone is part of the epigenetic mechanisms built into DNA and altered by electric charges found around the histone. About 10 percent of all mammalian transcripts undergo circadian oscillations, and it is clear that these transcripts are subjected to tight regulation by environmental signals. These are most likely mediated through changes in histone modification and chromatin remodeling on DNA/RNA interactions. This binding dramatically alters the ability of DNA transcription.

Since the CLOCK gene is ubiquitously expressed in mammalian cells, its function as a HAT must be regulated. A specific subset of the blue-light receptors, known as the cryptochromes (CRY), have long been known to regulate circadian rhythms in mammalian systems. Recent work indicates that the association of CLOCK and BMAL1 with cryptochrome causes transcriptional

repression, and it is, therefore, possible that changes in associated subunits of ncRNA, rather than the regulation of CLOCK itself controls the activity. This implies that circadian rhythms are all tightly controlled by the epigenetic mechanism of histone protein modifications.

PER 2 directly affects the cell cycle in mitosis in the cell cycle. Mitosis is the phase in the cell that occurs just before cell division to generate an offspring. The mammalian period 2 gene plays a key role in tumor growth in mice; mice with a mPER2 knockout show a significant increase in tumor development because of a significant decrease in apoptosis. Here we can see the altered circadian signaling is tied directly to oncogenesis and epigenetic modifications made in response to environmental triggers. We also now know that expression of DNA is directly tied to methylation patterns and histone acetylation patterns in DNA/RNA also directly tied to abnormal circadian signaling in both systems in mammals. This implies the analog and digital systems you just learned about in circadian control are massively important in brain function. This is why most of my protocols make a big deal about timing in many fashions.

This is all caused by mPER2 circadian de-regulation of common tumor suppression and cell cycle regulation genes, such as Cyclin D1, Cyclin A, Mdm-2, and Gadd45, as well as the transcription factor c-myc, which is directly controlled by circadian cycle regulators through E box-mediated reactions.

In cases like this, we see large changes in the cortisol, melatonin and Vitamin D cycles in humans epithelial cancers. This complex quantum dance implies that sleep is tied directly into cell cycle functioning, neurologic function and directly into cell-mediated immunity at a very fundamental level in neurogenesis at a very early stage of development for all life forms. You learned about how the neuro-immune system is linked to brain myelination in Energy and Epigenetics 3. There is another deeper physiologic and anatomic tie of

neurogenesis and the development of immunity in humans you will learn about as the series goes on. It appears from recent research that sleep directly affects the chronic diseases of aging and likely plays a role in cancer, autoimmune and neurodegeneration of development at a very fundamental level.

The “Peculiar” Human Brain

The gross anatomy of the human brain is very unusual when it is compared to other organs in the human body. First, it is suspended in an ultra-filtrate of plasma called Cerebrospinal Fluid (CSF). This is also true of the spinal cord. In the brain, the key cells are located on its surface called the neocortex. This is a surface filled with “grooves and wrinkles” to increase the surface area for more neurons to come to the surface to be bathed in CSF. Another unusual finding is, unlike other organs, the blood supply of the brain enters from the surface of the brain and dives deep into the substance of the brain. This is exactly back to how it is in other major organs, where the main blood supply enters the substance of the organ and then fans out throughout the organ in a fine capillary network. If you open any textbook on anatomy or on neural physiology, no one has been able to explain why the human brain is constructed in such a fashion. On the surface, this paradox of architecture makes no sense from the conventional understanding of the vascular physiology. Another unusual finding is that the brain is in complete control of its own blood supply by having the ability to auto-regulate where the blood flow should go over the neocortex based on neuron recruitment or activation. Based upon PET scans and functional MRIs, blood distributes based on the behaviors and their topographical areas which are organized on the brain’s surface. The surface topography of the brain has specialized areas of specialized function in both hemispheres. This unusual arrangement puts the brain’s most sensitive cells on its surface closer to damage from a surface trauma. The brain’s venous return has a deep and

surface system. Moreover, it contains no valves within it or within the neck veins in which it drains, also distinguishing it from the rest of the vascular system in humans. So let us discover why our might be built as it is.

The Surface of the Brain

The neocortex is a part of the brain of mammals. It is the outer layer of the cerebral hemispheres and made up of six layers, labeled I to VI. Layer VI being the innermost and layer I, being the outermost towards the surface of the brain. The neocortex is part of the cerebral cortex, along with the archicortex and paleocortex, which are cortical parts of the limbic system. In all mammals, it is involved in higher functions such as sensory perception, generation of motor commands and spatial reasoning. In humans, it also has specialized to allow for conscious thought and language. The neocortex consists of the grey matter, or neuronal cell bodies and unmyelinated fibers, surrounding the deeper white matter, which contains myelinated axons in the cerebrum. The neocortex is smooth in rodents and other small mammals, whereas in primates and other larger mammals it has deep grooves called sulci and wrinkles called gyri.

The Blood-Brain Barrier

The brain is also completely protected from outside toxins by a blood-brain barrier (BBB) that is made up of glial cells. These astrocytic footplates play a massive role in neuronal function and neurotransmitter function as well. Recent science has shown them to be much more important than most neuroscientists have ever expected based upon the published literature. They also are the cells in the human brain where most tumors seem to form from that kill humans from primary brain tumors. Dr. Allen Frey showed this in the 1960's in studies done for the US military that the BBB is made

permeable to methylene blue when the brain is subjected to an external nonnative electromagnetic field. Normally, methylene blue is excluded from entering the brain by the BBB. When the field was altered, the surface of the brain was turned bluish/purple within seconds.

The Arterial Venous Supply

Since the brain is very vulnerable to compromises in its blood supply due to massive requirements of oxygen to function, the cerebral circulatory system has many safeguards built in by evolution. The major end arteries all overlap in areas to provide collateral flow through a system known as the circle of Willis. Failure of these safeguards results in cerebrovascular accidents, commonly known as strokes. The arterial and venous systems run on top of the neocortex in the subarachnoid space. The subarachnoid space is the interval between the arachnoid membrane and pia mater. The veins of the cortex, however, leave the pia mater and subarachnoid space and traverse the subdural space to empty into the great cerebral sinuses. This arrangement allows the brain to control its surface temperature quickly by lowering it. Why is this important?

When the surface temperature is lower on the neocortex, it has major beneficial physiologic effects. With a lowered temperature, it increases the current of flow of electrons from CSF to the neocortical cells for optimal physiologic and neurologic power. CSF is made from the water in our blood plasma.

Water as CSF

Water is a "queer liquid," chemically speaking. It breaks all the rules. When water freezes at 0° C, its volume increases by about 9 percent under atmospheric pressure. If the melting point is lowered by increased pressure, the increase in volume

on freezing is even greater. Increasing pressure normally promotes a liquid to freeze, shifting the melting point to higher temperatures. With water, the opposite happens. Increasing pressure decreases the freezing point. This is why brain surgeons use cold therapy in cases with high intracranial pressure. It helps improve neurologic function. Liquid water has a high density that increases with heating. But when it is cooled from the body or room temperature liquid water becomes increasingly dense, as with other substances, but at approximately 4° C (39° F), pure water reaches its maximum density. As it is cooled further to become ice, it expands to become less dense. This is why ice floats on liquid water. In biology, this temperature is never reached in a human life.

The amount of oxygen that can be held by the water depends on the water temperature, salinity, and pressure. Colder water holds more oxygen, freshwater holds more oxygen than does saltwater, the amount of oxygen absorbed in water decreases as altitude increases because of the decrease in relative pressure. Flowing water is more likely to have high dissolved oxygen. Did you know that CSF has a pulsation from cilia on its ependymal cells that keep it moving within the subdural and subarachnoid spaces? CSF follows all of water's principles if you just look for water chemistry's special attributes. Few do. I look at our brain and see something rather different than everyone else does. Thousands of others have seen what is printed in neuroanatomy books. Sometimes, to understand the purpose of a thing, you have to look at a set of circumstances that confound us, to see the real purpose of the process. The difference is you begin to see a new picture form to explain the set of circumstances. This is how innovation really happens.

This water chemistry is very important when you consider how much specialization happens in the human neocortex. The other major effect is the massive heat release that occurs in the

process of splitting electrons from water which generates massive amounts of thermal energy. The higher the temperature is present on the surface of an object, the more it can diminish a magnetic field.

Anyone who has seen a human in the winter time in cold weather can attest to how well the human skull and scalp dissipates heat when you see steam coming off of our head. Here is another example of why Cold Thermogenesis is part of evolutionary fractal patterning. Remember that cooling of water allows for higher oxygen content in the surrounding fluid. This not only happens macroscopically on a planet's oceans, but it happens in your subdural space too.

When mom's make this observation of steam coming off a child's head, they carry the cultural belief that wearing a hat is beneficial. This is why many moms tell their children to wear their hat in cold weather. When you begin to understand why evolution designed our brain this way, mom would be smarter to let her kids go hatless, because it might improve their grades in school because it increases the amount of current on the surface of their child's brain. It also improves the amount of oxygen release on the surface of their brain. It also explains why patients really get a headache when they have a spinal fluid leak. In neurosurgery, we are taught to believe this is due to traction or a 'drag effect' on the dura. When you understand what water does in the brain you begin to see it differently. Humans get headaches because they are not able to make energy at their neocortical surfaces when water chemistry is off for any reason at all.

The Arachnoid and its Spaces

The subarachnoid space is occupied by spongy tissue consisting of fine wisps of trabeculae which look very similar to a glistening spider web when it is wet with dew. These fibers are delicate but are extremely tough connective tissue

filaments. When neurosurgeons operate on the brain, these wisps of tissue often have to be sharply cut to gain access to the cisterns of the brain. They are made of collagen fibrils that extend from the arachnoid mater and blend into the pia mater that is firmly adherent to the neocortex. This spider-webbed matrix contains intercommunicating channels within the space, and it is the space where the cerebrospinal fluid (CSF) is contained over the surface of the brain. This collagen fibrils have recently been shown to be hollow, allowing for the water from CSF to fill up space. The most interesting aspect of these trabeculae is they decrease from mm size all the way down to nanoscopic diameters. This anatomical arrangement allows for some amazing water chemistry to occur when water is confined to tube less than 1.4 nanometers in diameter. These interfascial hallowes allow for coherent energy transfers on water molecules at interfaces. The entire subarachnoid cavity is filled with billions of these collagen spider webs.

This subarachnoid cavity is small on the surface of the hemispheres of the brain. On the summit of each gyrus the pia mater and the arachnoid are in close contact, but in the sulci between the gyri, triangular spaces are left, in which the subarachnoid trabecular tissue is found. Whilst the pia mater closely follows the surface of the brain and dips into the sulci, the arachnoid bridges across them from gyrus to gyrus. At certain parts of the base of the brain, the arachnoid is separated from the pia mater by wide intervals, which communicate freely with each other and are named subarachnoid cisterna; in these, the subarachnoid tissue is less abundant. The subarachnoid space is the location of the interface between the vascular tissue and the cerebrospinal fluid and is active in the blood-brain barrier.

The arachnoid mater continues down the spinal cord too, and the subarachnoid layer with it. It serves a similar function in the spinal cord as it does in the brain.

Myelin Basics

Myelin is a biologic dielectric material that forms a layer, the myelin sheath, usually around only the axon of a neuron. Myelin is about 40 percent water; the dry mass is about 70 – 85 percent lipids and about 15 – 30 percent proteins. Between it and the nerve, the axon is an interfacial space filled with CSF. Remember dielectrics are electrically insulating materials found in nature. It is essential for the proper functioning of the nervous system, specifically the formation of the nerve action potential. Myelin decreases capacitance across the cell membrane and increases electrical resistance. Thus, myelination helps prevent the electrical current from leaving the axon. It also protects the neuron from electromagnetic fields because of this ability. Myelin forms as an outgrowth of fat from a type of glial cell. The production of the myelin sheath is called myelination. In humans, the production of myelin begins in the 14th week of fetal development, although little myelin exists in the brain at the time of birth. In Energy and Epigenetics 1, I showed you how an infant myelinates its brain as it matures. During infancy, myelination occurs quickly and continues through the adolescent stages of life until the age of 25-27 years old.

Schwann cells supply the myelin for peripheral neurons, whereas oligodendrocytes, specifically of the interfascicular type, myelinate the axons of the central nervous system. Myelin is considered a defining characteristic of the (gnathostome) vertebrates, but myelin-like sheaths have also arisen by parallel evolution in some invertebrates, although they are quite different from vertebrate myelin at the molecular level. Myelin was discovered relatively recently in 1854, by Rudolf Virchow. Myelin function is not well understood by modern medicine today.

The funny thing is no neural biologists really has any idea why the brain is built this way based on its observed capabilities and physiology.

The Quantum Electromagnetic Brain: How it all Works in You

If you have been paying attention to the recent series, you would have noticed I gave you some major hints already as to why the human brain is constructed as it is. Now, I will show you why I might have an idea why evolution would use such a complex system. I showed you in quantum biology 9 that photosynthesis in plants uses 30 highly complex steps to take sunlight in, to split water into hydrogen and oxygen and electrons. In Energy and Epigenetics 4, I showed you that the ocean, located on the surface of earth's tectonic plates, acts to form some unusual currents that take full advantage of water's chemistry with regards to oxygen transfers. In the ocean, we have the world's largest vertical circulation current, from shallow to deep in the sea in all oceans of the world. It becomes important in the sea because that is how oxygen is sent down to the ocean depths via the higher density water in the water column.

The same fractal pattern occurs in the human subdural and subarachnoid space where the cerebral vascular supply lies. Just as oxygen delivery is important to the marine food chain in the ocean using this thermohaline current, it is even more critical for the optimally functioning brain. On the surface of the brain, are where the cells that have the highest metabolic rates reside. They are all called neocortical grey matter.

In fact, any place in the human brain where one finds grey matter, you will also find adjacent CSF. You won't find that in the white matter tracts. The water there is located below the myelin sheaths instead. This is where the DC current has been experimentally found. Therefore, you can begin to see why the brain is wired backward by nature. The neocortex needs the highest amount of oxygen it can get to satisfy its metabolic demand. The brain receives 20 percent of the total cardiac

output in the human body. It defines what an energy hog really is.

CSF is a clear colorless bodily fluid produced in the choroid plexus of the brain. It is an ultrafiltrate of blood plasma. So if one is dehydrated, you will also make less CSF. The quality of the fresh water you consume will also impart larger or smaller gradient density in your blood or CSF as a result. This affects your ability to deliver more or less oxygen to the surface of the brain. CSF also can act as a cushion or buffer for the neocortex, providing a basic mechanical and immunological protection to the brain inside the skull and serves a vital function in cerebral autoregulation of cerebral blood flow.

CSF flows throughout the inner ventricular system in the brain and is absorbed back into the bloodstream, at the arachnoid granulations in the dura adjacent to the sagittal sinus. CSF acts to "rinse" the metabolic waste from the neocortex of the central nervous system through the blood-brain barrier. This allows for homeostatic regulation of the distribution of neuroendocrine factors, to which slight changes can cause problems or damage to the nervous system. For example, high glycine concentration disrupts temperature and blood pressure control, and high CSF pH causes dizziness and syncope. The temperature, pH and density changes to CSF are critical in optimal neurologic function. CSF has a "sink action" by which the various substances formed in the nervous tissue during its metabolic activity diffuse rapidly into the CSF and are thus removed from the venous bloodstream as CSF is absorbed.

The majority of CSF volume is in the subdural space, above the subarachnoid space creating two different densities around the blood vessels. Oxyhemoglobin contains iron in the ferrous (Fe^{+2}) state but is not paramagnetic. Deoxyhemoglobin contains iron in the ferrous (Fe^{+2}) state with four unpaired electrons and is paramagnetic. These unpaired electrons, however, are shielded from direct dipole-dipole interaction with water

protons.

As mentioned earlier, the human brain requires massive amounts of oxygen on its surface because the cells with the highest metabolic rates requiring oxygen are found on the surface of the brain adjacent to the CSF. This is why the brain of all animals is covered in CSF water on this planet. Water, in CSF form, acts as one of the main semiconductors for energy generation in any CNS designed by evolution, by increasing the partial pressure of oxygen in the neurons on the surface of the brain. It simulates what a hyperbaric oxygen machine does for a tissue when you visit a wound care center. These treatments increase the partial pressure of oxygen in tissues that are considered hypoxic. That is the main reason hyperbaric oxygen therapy works, as it does in humans.

This should also explain to you why people with neurodegeneration all seem to improve their cognitive function with exercise. It seems the scientific literature knows this effect occurs, but is not able to explain it. As we exercise, it increases our ability to deliver more blood flow to our brain. As more blood flow enters the subarachnoid vessels, it expands our V_{O_2} max marginally, but more importantly, it increases the magnetic currents adjacent to the neocortex to improve functioning by increasing the current of flow. This effect is maintained in an elite athlete's brain or in a brain ravaged by the neurodegenerative disease because it is part of the general design relationships of the neocortex and its vessels.

In neurodegenerative diseases, we are constantly losing neurons and this radically alters CSF dynamics and the DC current, but it never alters the increase of the magnetic field from the blood. The only thing that alters this is frank ischemia. In severe cases like Alzheimer's, we can see a lack of flow but it is very late. In AD we always see a loss of neurons and an enlarged subarachnoid or subdural space that diminishes O_2 production to cause cognitive changes.

Sunlight and Magnetism

When sunlight is present, it stimulates a huge oxygen burst on the neocortex because of increasing flow of electrons and photons from the sun's light on the back of CSF water. This is the reason why sunlight and vitamin D are linked to animals. We can see this burst on an EEG or MEG test clinically. What also augments this flow of electrons and photons? A magnetic field can. Especially one that happens to be oriented at 90 degrees to the electric current on the surface. Guess what? This is how your neocortex is organized. What you may not realize, that as part of nature's laws, an electric current, no matter how small or large, has to have an associated magnetic field that acts at 90-degree angles to the current of flow of the electrons. This magnetic field is formed by a combination of di-magnetic and paramagnetic properties found in the CSF and the subdural and subarachnoid spaces of the brain by the flow of blood in these cavities. These magnetic effects act to combine to increase the current of electrons liberated from water into the neocortical surface neurons because it is augmented by the magnetic field of the surface arterial flow of hemoglobin in these vessels. Nikoli Tesla showed that a magnetic field could generate a massive boost to electric flow 100 years ago.

So how does matter (the brain) interact with photons from the photoelectric effect?

Matter interacts with light in four different ways:

1. **Absorption** – the energy in the photon is absorbed by the matter and turned into thermal energy. E.g., Your hand feels warm in front of a fire.
2. **Reflection** – no energy is transferred and the photon “bounces” off in a new (and predictable) direction. E.

g. Your bathroom mirror.

3. **Transmission** – no energy is transferred and the photon passes through the matter unchanged.
4. **Emission** – matter gives off light. It can be done in only two different ways, as we will see.

These processes depend on both the material composition and the wavelength of the photon. The material in the human brain is the construction of the cell membranes of the neuron and the content of the CSF. These are the critical parts of a neuron. If you go back and reread Brain gut 5, these last two lines in this paragraph may have much greater meaning for you.

The funny part of this story is no one realizes the same thing goes on in the nanospaces on the surface of the human brain. As blood flow increases due to O₂ demand, the magnetic field in the subdural and subarachnoid space also increases to increase the current of flow. We spoke about the importance of the current of flow in Quantum biology 8. You might not have understood why this was an important blog back then until you realize your brain is using this effect right now to read this sentence. All materials in nature are diamagnetic. Orbiting electrons and photons of the matter of all things within the subarachnoid space are affected by this external magnetic field. Their orbits change as more electrons are liberated to energize the orbital electrons, and as a result, they generate their own magnetic field which opposes the external magnetic field within the space. This effect is known as Lenz's Law. Everything I just told you, is not my opinion, it is factually based on the laws of nature. The innovative point? No one is putting together the laws of QED physics and how the brain was built by evolution. That answer may be in this blog.

Did you know the eyes you are reading this blog with uses the process of EMF absorption to allow you to see it? This is why leaves appear green because they only reflect frequencies of light corresponding to the green spectrum of light.

Physics Geeks: Currents bound inside the atoms of strong magnets can create counter-rotating currents in a copper or aluminum pipe. This is done by dropping the magnet through the pipe. When done, the descent of the magnet is observably slower than when dropped outside the pipe.

When an EMF is generated by a change in magnetic flux according to Faraday's Law, the polarity of the induced EMF is such that it produces a current whose magnetic field opposes the change which produces it. The induced magnetic field inside any loop of wire always acts to keep the magnetic flux in the loop constant. If the field is increasing, the induced field acts in opposition to it. If it is decreasing, the induced field acts in the direction of the applied field to try to keep it constant.

Non-Geeks: The take home from all this? A magnetic field increases all currents in your brain to keep you well. If it fails, you get sick. The sun's light can never be replaced by any fake light or artificial therapy for wellness. None of this is my opinion. It is based on the laws of nature.

How Do Objects Make of Matter Make 'Light' in the First Place?

There are two principal mechanisms for producing electromagnetic radiation:

1. Blackbody radiation
2. Spectral line emission of atoms and molecules

Both of these mechanisms result from accelerating/decelerating electrons in the matter! I.e., you accelerate or decelerate an electric charge to create electromagnetic radiation from within your own body. This is the mechanism of how we lose energy when we get ill or sick. When inflammation is present, humans emit blackbody radiation to their environment. In fact,

every living thing emits some sort of black box radiation. The proof in you is simple. You create thermal heat just by being alive. This is why you are warm to touch when you're alive, and ice cold when you're dead. It is simple physics, and it is not an arguable point, even to the biggest critic.

We, humans, perceive this "acceleration or deceleration" of electrons as "light from objects."

Imagine you heat up a piece of metal in a furnace:

- It will first turn red (temperature raising, think a fever in us, if you like that visual better),
- then orange,
- then yellow,
- then whitish-blue (the highest temperature).

The higher the temperature, the bluer the object will appear. Now you might be beginning to see how the electromagnetic computer, called your brain, links temperature to color! Color is coded directly to inflammatory levels in your body. The more inflamed you are the black box radiation you are losing to your environment.

Does it make sense to those of you following the blogs closely why blue light and melatonin are linked to diseases in every study ever published, huh?

Why is Temperature a Big Player in the Brain and our Environment?

1. The higher the temperature, the faster the atoms/ molecules in the object are ($T \sim v^2$), thus more energetic collisions occur.
2. More energetic collisions cause more sudden accelerations/decelerations of the electrons in the matter, thus light with shorter wavelength carries a higher energy. This is why blue light from any source at

any time frame turns off the energy currents at the darkness that control the brain circadian cycles for sleep. It is physics 101.

What are these implications?

1. Higher Temperature = faster atoms
2. Faster atoms = more frequent and energetic collisions
3. more frequent and energetic collisions = more sudden electron accelerations/decel
4. more sudden electron accelerations/decel = higher photon energy
5. Higher photon energy = bluer light ($E=hc/\lambda$)

Making sense to anyone yet?

Do not confuse “heat” and “temperature” as most biologists and chemists do! Temperature refers to the degree of motion of the particles in a material [i.e. the speed with which the particles move ($T \sim \text{kinetic energy} \sim v^2$)]. Heat refers to the amount of energy stored in a body as motion among its particles and depends on density as well as temperature.

Non-Geeks: Just another reason calories are worthless according to physics.

Physics Geeks: Wien's Law

1. Hotter objects emit photons with a higher average energy = shorter wavelength.
2. The peak of the blackbody emission spectrum is given by the equation: (max wavelength) = 2.9×10^6 to 6th/ Temperature (Kelvin) measured in nanometers

Non-Geeks: Meaning of Wein's Law

The more inflammation in your body, the more energy you are losing to your environment.

Physics Geeks: Stefan-Boltzmann Law

This was the law that made me realize that the obese were losing energy to their environment.

1. Hotter objects emit total radiation per unit surface area. In fever or inflammation, you're losing energy to your environment.
2. The luminosity of a hot body rises rapidly with Temperature: $L=A \sigma T^4$. This is why a thermogram is so powerful to diagnose a disease state. It tells us about thermal luminosity.

Non-Geeks: Meaning of Stefan Boltzmann Law

The more inflammation in your body the more energy you are losing to your environment, in all disease states. This statement is based on nature's laws of physics.

How do These Natural Laws of Physics Apply to Your Brain's Physiology?

Neurosurgeons and Neurology Geeks: In nature, diamagnetism is a very, very weak magnetic force, but in semiconduction, even a small force makes a huge impact in the ability to liberate electrons to increase a currents strength. Diamagnetism is often easily hidden and masked by paramagnetism in molecules with a permanent magnetic dipole moment. Water and blood happen to be paramagnetic, and they are both happen to be located in the human subarachnoid space in a living person. I realized this might be how the cortex worked in 2006 when I was operating on a person with a subarachnoid hemorrhage from a ruptured cerebral aneurysm when I was thinking about how to solve my own obesity. I thought about the differences in this type of stroke compared to the location of other cerebral strokes and it dawned on me why this type of stroke was so

deadly to a human. Strokes that involved parts of the brains' grey matter with a water/CSF interface were far more deadly for a very good reason based in physics. If you open any neurosurgery book even today, they have no idea why aneurysmal bleeds are among the most deadly lesions a human can get. I think I know exactly why this observation in neurosurgery actually exists now based on what I have shared with you in this blog. It blocks the ability to make oxygen well at the surface of the brain where the neocortical cells live.

Moreover, it also explained to me why triple HHH therapy works so well in subarachnoid bleeds from aneurysms. The three H's stand for hypervolemia, hypertension, and hemodilution. Triple HHH therapy is a relatively new, gold standard therapy neurosurgical adjunctive treatment for aneurysmal bleeds. It was found to be successful in helping people overcome these specific types of stroke. All three of these things massive affect water chemistry in the brain and the flow of paramagnetic blood in the subarachnoid space. They affect proton chemistry in the water compartment of the brain. I'd love to tell you that we neurosurgeons, actually knew how triple HHH really works, but we don't. I have never found a paper or a book in neurosurgery that discusses how the addition of "new water" can improve brain metabolism. I have a sense I know how it works. We just found that is worked by accident, so we studied it and now we use it.

When I discussed my idea with a classically trained physicist, he thought I might be forgetting a key point from a classical physics point of view. He felt that the physics of this magnetic field may not realistic in a biologic sense because any magnetic effect can be entirely overwhelmed by the thermal motion of blood and CSF in the space it is found; not to mention hemodynamic forces in flowing blood there as well. This is when I had to remind him of some anatomic and biologic principles in our brain, he may not have completely grasped.

I told him that the arterial blood supply in this space was

not 'totally free anatomically' in the subarachnoid space, it was surrounded by small tubes of collagen, called arachnoid, which also happened to be filled with another magnetic dipole called water. This water was in the form of CSF, located in the cisterna of the subarachnoid space. Moreover, this "walling off" of the cerebral arteries, has a deep quantized purpose. This walling off shrinks the space available to water which causes a special quantum effect with water called an exclusion zone interfaces. This maximally at a nanoscopic level were quantized action occurs when dimensions are decreased to form exclusion zones on the water to maximize energy/information transfers.

When I was resident, I never learned about how water acts at interfaces to form exclusion zones in water, but I have since then. Here I showed him the work on the biologic coherence of Herbert Frolich, bioenergetics of Gilbert Ling and the quantized biology of Mae Ho Wan, and he was amazed at what I connected together. The bizarre anatomy at the CSF/neocortical interface now made sense to me as a surgeon who thought like a biophysicist. It also made complete quantum sense using the three laws of nature. It was then, I realized our brain was built by evolution to be a quantum electro-magnetic biologic computer in 2007.

I also told the physicist about the effects of transcranial magnetic stimulation on the human cortex, and how it worked in biology. I did this to illustrate why I believed what I now do about how the human brain functions. At this point in the blog, it would be wise for me to distinguishing regular "magnet therapy" from the effects of transcranial magnetic stimulation. The former magnetic therapy refers to the effects of a static, nonmoving magnetic field from permanent magnets. The latter refers to a magnetic therapy that generates a huge oscillating magnetic field, very close to your head, which induces electric currents in your brain. I explained to him you can not get a paramagnetic substance any closer to the

neocortex then the location of blood vessels and CSF to the surface of the most active cells in the brain.

When I was a neurosurgical resident, I visited a physics department where this quantum effect on the human brain was demonstrated to me, to my own amusement. They put a probe near my head and turned the current on and my arms twitched and moved from my shoulder to my fingers against my will. They were able to activate my neocortex with an oscillating magnetic field! They turned the magnet field over in polarity, and my arms twitched from fingers to my neck in the opposite direction showing how the DC direct semiconducting current Becker discovered in humans could be reversed when the field was reversed. I then remembered reading accounts where Becker was able to use the same types of magnetic effects to induce complete general anesthesia in animals without ever having an emergency recovery from this type of anesthesia.

I have wondered many times since then, why we are not using magnetism to induce anesthesia for surgical uses and to help things like narcolepsy and sleep apnea?

Now, you might be seeing why evolution wired the brain as it is anatomically for its four-vessel arterial supply. It maximizes the ability to generate oxygen at the neocortex, using QED effects, as plants do with sunlight when they are planted into the ground close to the magnetic field of the earth. These complex quantum effects in mammals mimic the complexity found in plant photosynthesis. The steps are different, but the results are identical. When the photosynthetic process was completely elucidated recently, no one could believe how complex the biology was in these 30 steps.

Today, I am showing you a side of brain physiology, that to my knowledge has never been postulated, or written about in the history of neurobiology. This model is based on my observations as a clinical neurosurgeon and understanding the

effects of anesthesia on humans. I also think I understand it well because of how I understand Becker's work using EMF and magnetic fields in his experiments. It also requires a working knowledge of QED.

One does not need to fully understand QED to get its importance to living things. Look at my own profession, as an example of why this is so. Neurosurgeons and neurobiologists have freely admitted we really have no clue how the brain works, yet neurosurgery has helped millions of people overcome many diseases. Just because we do not understand how the brain really works 100 percent of the time has no bearing on whether we should just give up surgery on this organ to help people. We do what we do to help what we can. With this information, I think we can do a whole lot more going forward. The total wisdom of a subject matter is not necessary in the forward progress of understanding in our knowledge base.

Too many critics fall prey to this type of bad thinking. Some critics will say humans have no magnetic organ to sense electromagnetic waves or particles. I guess these critics were too busy trying to tear my ideas apart instead of holding this idea in their own mind to examine it for merit. If one researches the work of Dr. Robin Baker at the University of Manchester, England or in human cryptochrome 2, the magneto-sensitive protein in the eye, you will find evidence for magneto-reception in the human brain adjacent to the analog and digital circadian targets I mentioned in the Energy and Epigenetics 4.

Baker found the human magnetic organ in the posterior wall of our ethmoid sinus at the back of our nasal passage, ironically, based right in front of our pituitary gland and median eminence in the hypothalamus. This region also happens to have the arterial circle of Willis right above it, constantly creating a strong constant magnetic field in this area, This arterial circle, circumnavigates the entire pituitary and hypothalamic complex with paramagnetic blood.

This anatomic architecture functions to signal the increase or decrease the current of electron flow from CSF to the underlying neuro-humoral system for proper circadian signaling. Here again, we see how circadian signals are codified in the density of water surrounding this area. The anatomic location of the magneto-reception organs, is no coincidence from an evolutionary perspective, in my view, and it also shows you how QED principles of electromagnetism can be used to help augment and properly regulate hormonal release. It also should point out to you, that if the electromagnetic field is altered for any reason at all, it can throw the system awry very easily because the system relies on this input primordially.

Neurosurgeons should now be aware, that we routinely remove this magnetic organ every time they do a trans-sphenoidal pituitary resection for a tumor or a bleed. I have also noticed the relationship of a calcified pineal gland on a CT scan, to labs of people who are subject to an altered EM field in their life. The more altered the field is by their history, the more calcium efflux is present in their neurons, and the more calcium is deposited in their pineal gland, and the less melatonin can be made to stimulate and facilitate sleep. This is precisely how the digital system of the circadian system fatigues due to fake light in the blue spectrum. Blue light is toxic to the human brain. These two magnetic organs, I believe, will be found to be the source of most migraines and post-concussive effects found in humans when people understand how quantum biology occurs on the surface of the brain. Again, its anatomic location is right next to the digital circadian system in the SCN. This was not surprising to me at all. Moreover, I think macular degeneration and early cataract formation are due to alterations in these electromagnetic organ in humans as well. They should be thought of beacons or symptoms that someone field is very disturbed instead of diseases.

Biology Geeks: Electromagnetic waves are one of the basic forms of matter contained by space. Moreover, from MEG, EEG and evoked potentials, we know they are being generated in the brain by the acceleration of charged particles in several mediums found in the brain. We know they are being generated by brain activity at the surface of the brain where it interfaces with the water in CSF. A neuron carries signals from one place to another by an "action potential" which propagates along its axon as an ionic current of one kind happens at each successive node of Ranvier to point rush sodium into the neuron axon via the cell membrane. In turn, then ions of another kind flow back out of the nerve axon. The acceleration of such ions makes the synchronized firing of thalamic neurons act like an electromagnetic antenna, generating a complex electromagnetic wave in the brain that flows back to front. You might be shocked to know, that Becker always hypothesized that DC current came from the thalamus or the reticular activating system in the upper brainstem, but he had no experimental data where it really came from. In the last 40 years, functional neurosurgery has found that thalamic neurons oscillate at 0-75 Hz, which is exactly where the Schumann oscillates harmonically, further connecting the brain directly to the earth's micro-electromagnetic pulsations. Here we see form meeting function, yet again.

Since electromagnetic waves, being composed of elemental photons for the eye to see and electrons from food to be transferred via water into our CSF for our median eminence to sense; they are a form of matter whose spread-out nature could give their intrinsic nature a spatial structure in space-time. There is an elemental bit of matter generated by active brains whose intrinsic nature could have enough spatial structure to account for complex phenomenal properties found in humans. It is the electromagnetic energy being given off as a series of complex electrons and photons by a human brain that is not asleep that allows us to do the things we can when awake.

This is all the more plausible when we consider that the brain, despite making up only a few percents of body weight, accounts for nearly 20% of the body's total energy consumption.

This model explains why environmental light from the sun, wakes us up in the morning and stimulates cortisol levels in the brainstem to increase activation and wakefulness. We see this in a slowly rising AM cortisol level in the brain and an abrupt change in brain melatonin levels. The CSF becomes oxidized relative to its night time redox potential in daylight just as the ocean becomes oxidized in daylight. In the presence of sunlight or artificial blue light, more electrons become more easily liberated from the CSF/water interface surrounding our brain. This acts to create more oxygen liberation from water to power the neocortical cells that allow us to regain consciousness from sleep. It also forms the basis of the adrenal stress index and melatonin cycles we can test for in people. When they are off, we know the brain is getting a mixed circadian signal to light or from food via the analog or digital circadian signals I spoke about in Energy and Epigenetics 4.

Any surface light on our skin is enough to set this process in action. In fact, one second of light will turn off endogenous melatonin secretion. When we are in the dark of night, the process reverses and we stimulate melatonin increases in our CSF, and this acts to drop in temperature to reverse the process of stopping the liberation of electrons at the brain's cortical edge to allow us to sleep by slowing the metabolic rate of the surface neocortex. This allows for the autonomic nervous system in the reticular activating system of the brainstem to take over in sleep. This also happens in anesthesia and in coma situations.

When electrons liberation slows for any reason, it lowers the DC electric current that Dr. Becker found in the interfascial water below the myelin layer which is in continuity with the

CSF. A net negative charge in a conductor, such as water, can be thought of as an “excessive flow of electrons” and a net positive flow can be thought of when electrons move away from the area. Since it is a DC current that is created, the flow is only in one direction. The direction is from the brain and to the peripheral extremities. Becker’s work also showed that the human brain also had a magnetic polarity from back to front and head to toe. In fact, this polarity extended all the way to studies he did on embryo’s and seems to be important in the mammalian body plan and in the ability to heal and regenerate. This is where Becker’s work became famous and Nobel worthy.

Barometric Pressure and Temperature in You

What is this relationship between pressure, temperature, and CSF?

When the temperature increases in our environment or due to fever, the higher molecular motion in the water molecules of CSF results in an expansion of the volume of CSF and thus decreasing the density. Although you cannot feel it, earth’s atmosphere presses down with the force of one kilogram per square centimeter, or 14.7 pounds per square inch. That pressure works out to about a ton per square foot. Our terrestrial biology evolved to operate in this pressure, which, while startling-sounding, pales when compared to underwater creatures’ bodies in the deep sea that can withstand dozens of tons per square foot. Atmospheric pressure has a major impact on water’s boiling point and freezing point when it transitions from a liquid to a gas or vice versa.

What does this water chemistry imply? Since the brain is in a fixed volume space due to the confines of the skull, when the temperature rises, intracranial pressure rises as well. This is why in leptin resistance states we can see signs of

intracranial pressure without a mass occupying lesion. This is precisely why obesity is always associated with pseudotumor cases. It is also why alterations of Vitamin A are associated with it as well. Alterations in Vitamin A is associated with an altered photoperiod to fake light which creates inflammation in the brain as well. This occurs because every opsin in the body is linked to Vitamin A. Blue light at night is the bigger offender of altered Vitamin A coupling in the retina and opsin systems. This raises CSF temperatures to change the density relationship in CSF water. This is precisely what we saw in the pseudotumor cerebri blog. When I made these connections as a neurosurgeon, I was able to fully understand why pseudotumor cerebri occurred, as it does from a quantized perspective. It also pointed out why the mass of the brain increases when we lose energy in the brain for any reason at all. When the brain swells it decreases the amount of CSF in the brain to liberate oxygen. This relationship has massive implications in how we might consider altering treating intracranial pressure in humans. This model explains why people get obese when they are losing energy to their environments as well. It is all about the loss of energy balance.

CSF/Water and the Magnetic Field

Another fact about the temperature/density relationship of CSF water is that when inflammation increases, so do a person temperature. With every degree of temperature rise, the basal metabolic rate in humans increases 13 percent. When basal metabolic rates rise, we lose quantum timing, because time is relative to the electromagnetic field one inhabits. This is why flies lives are short for us, but to them, it is not, because of flies experience time more slowly. It is also why human children have the same sensation. When they are young their basal metabolic rate is much faster than an adult. They experience time differently because time is, in fact, relative to mass. When children become adults their perceptions of

this issue also change because their metabolic rates slow and their perception of time speeds up greatly. Now you know why time really does speed up as we age. It is not an illusion. It is an expected fact that nature uses because of quantized effects of mass equivalence. Our time perception is directly tied to the amount of energy delivered per unit squared to the neocortex.

This steep cost in energy/information loss is due to the pressure-temperature relationship in CSF. Any time we lose neocortical energy the brain swells its mass and we lose CSF. This mechanism is behind brain tumor headaches, migraines, dural venous thrombosis, and pseudotumor cerebri. Migraines frustrate patients who have them and docs who treat them because they do not understand mass-energy equivalence. Migraines are the classic disease where this relationship is on display. Migraines are made far worse when the barometric pressure drops from climate change. When the climate changes and barometric pressures drop, we lose the ability to sense the normal electromagnetic pulsations from the earth and this affects proton flow in water. When this occurs, the brain also loses its ability to deliver maximum oxygen levels to all areas of their neocortex. When oxygen levels change the fuel source to mitochondria also must change like a carburetor does in a car. This is why weather changes are linked to behavioral changes, depression, and most mental disorders. Becker did experiments on this here in the USA and in the UK in the 1970's. No one seems to know it. Now you do. When this occurs in a person with migraine's, inflammation rises adjacent to the cortex and inflames the dura by stealing electrons from the dura in that area. This causes pain. Any time the dura loses energy it swells and causes its pain fibers to fire off. The dura mater is where the pain fibers are located that cause migraine. The neocortex has no pain fibers because it is all grey matter.

You might not know when this happens the human brain also

loses its natural connection with the Schumann resonance as well. This implies that the earth's magnetic field has a direct effect biophysical and chemical effect on water molecules, and ironically, it does. This shows you how ELF-EMF, can directly act upon CSF density, to signal neurons in our brain. Storms are associated with lower barometric pressures; this alters the density of CSF/water everywhere in this field of action, including in our body, neocortex, and in our cells. In the recent Reconnected Human podcast, I speak about it. Have a listen to it.

I told you in this podcast, because of the small atomic size of water, 98 percent of molecules in our body by sheer number are water molecules, and because proteins and fats carry much larger atomic sizes in our cells in relation to the small size of water molecules. Water becomes the most important chemical that dominates the cellular terroir because it is a magnetic dipole. Here is where the earth's magnetic field plays its huge role. It orders these water molecules into micelles around proteins and fats. The higher ratio of water to protein molecules means the responsiveness of the cell, organism, and its DNA is directly proportional to the electromagnetic field it is in. This is how DNA/RNA are electrified and magnetized. This relationship is how epigenetics works via methylation and acetylation.

CSF/Water Vortices

CSF is created from the choroid plexus in the lateral ventricles in the brain. The anatomy of these internal ventricles of the brain does something else to structure the water in CSF. It creates vortexes in the CSF from the lateral ventricles into the third ventricle of the brain. The cilia on ependymal cells act to move water within the surfaces of the brain to create vortices to improve energy transfers in water to the brain surface. Inside the third ventricle, the fornix, choroidal fissure, the thalamus and the thalamo-striate vein

all form bumps internally in this cavity that acts to form liquid vortices in the posterior 2/3 of the third ventricle to flow towards the mammillary bodies in the anterior third ventricle. This focuses huge oxygen burst on the mammillary bodies. This is where recollective memory is in humans. Memory requires massive energy boosts to recall things. When we have a neuronal loss in the brain we lose these neural grooves in the third ventricle and memory declines quickly.

Guess what other structure sits around the anterior base of the 3rd ventricle of the human brain?

The hypothalamus, home of the circadian rhythms, hormones, and the leptin receptor. Yet again, physiologic form meets QED function.

Astrophysics Geeks: The surface of Jupiter uses vortices, in the clouds that we see in pictures. Black holes can be thought of as vortices, considered by some to be gateways linking different parts of the universe or different universes. They also emit massive amounts of EMF when they do it. Here again, we see the macrocosm meeting the microcosm.

Brain Vortex Structure

In nature, an outwardly expanding vortex is used by nature to encourage breakdown, decomposition, and changes in energy states of CSF. This is precisely why a hurricane has an outward spiral band of storms. It is releasing energy pent up in the atmosphere with wind and water. An inwardly spiraling vortex of water is used to build up, to create, and to energize water. This process happens in the mouth of the third ventricle of the human brain. We neurosurgeons can see these vortices develop when we do endoscopic surgery in the brain. The same thing is seen when a tornado in our atmosphere. These storms create huge funnels of energy in a small area to accelerate currents to a surface from the atmosphere below.

Vortices are the result of a self-organizing flow of energy, where a substance rotates around its own axis with a decreasing radius. The speed of rotation increases toward the center where sub-pressure forms. Theoretically, the speed at the center of a vortex is infinite—capable of breaking through dimensional boundaries. The vortex is a gateway between levels of energy. From a tornado to the spiraling growth of plants in your garden, the vortex is Nature's mechanism for increasing the quality of energy from a lower level to a higher level. Your brain uses this QED principle in its water chemistry, and the ventricle design, to increase the current of flow from CSF to the grey matter below, its CSF filled cavities. During experiments at the Institute of Technology in Stuttgart, Germany in 1952, Victor Schauberger and Professor Franz Pöpel investigated the nature of spiraling water. Conical, straight, and spiraling pipes were studied; also pipes of different materials. Their results were very revealing. The more conical and spiraling the pipes became, the more the frictional resistance decreased.

The third ventricle of the human brain is a coned conduit from the lateral ventricles to the cavity of the 3rd ventricle next to the basal ganglia and thalamus. The aqueduct of Sylvius connecting the third to the fourth ventricle is the thinnest of pipes traversing the most intricate part of our brain stem controlling sleep. Here massive vortices are created creating large exclusion zones of water allowing massive energy transfers to take place when we sleep. When a human gets a bleed that extends into the ventricular system of the brain any neurosurgeon will tell you it is a very bad prognostic sign. In this blog, you now know why. They lose the power of the CSF vortex to create oxygen at the surface of the brain. That mechanism is not in any neurosurgical book that I know of. This augments the TCA and urea cycle.

Schauberger found pipes made from copper demonstrated lower resistance than those made of glass. Under certain

circumstances, negative friction was reported. The ependymal surface of neurons lining the CSF cavities performs the same function in our brain. In other words, when the frictional resistance is low, the water appeared to leave the walls of the pipe to form this exclusion zone that biophysicists and researchers like Pollack have spoken about. It is in this formed exclusion zone where water is quantized to have its electrons split from water using the power of the sun's photons within the brain.

The self-organizing nature of vortices is a significant factor during the creation of structured/liquid crystalline water. Vortices are thought to bring about the same type of coherent domain that exists in superfluids— with zero resistance to the transmission of energy and information. The CSF of the brain helps power nature's vortex implosion engine. The only thing needed to power this vortex of CSF is a small DC current. This is the same DC current Becker found in the interfascial water below the myelin layer in neurons. These domains exist in superconductor-based devices where vortices play a major role. Read all the hyperlinks you just passed.

The temperature at the center of a vortex is cooler than at the periphery. This is known as the Ranque-Hilsch effect. Victor Schauburger demonstrated this by showing that water flowing past a rock is cooler than the water in front of the rock—due to the vortex created as water spins past the rock. I mentioned his work in the EMF series in case you missed it. Here is why it was important in your brain. This is one reason moving water stays cool, despite warmer ambient temperatures. The brain must create vortices, to remain cooler at CSF/grey matter interfaces to increase oxygen delivery to the neurons below. Those neurons must have a slick surface of cell membranes filled with DHA and sphingolipids. Sphingolipid synthesis needs a lot of vitamin K2 to be made in neuron cell membranes. DHA has a special pi electron cloud that allows more quantum magic to occur on a neuron cell membrane. We

covered that in Brain gut 5.

Extraordinary Toroidal Vortices Video

Tying Loose Ends Together

Remember water is a magnetic dipole. This is what electrifies DNA, proteins, and water itself. This is where energy is created in a cell. When a cell is dehydrated it is less electrified or magnified by the field because of water's dipole effect. It means that the expression of that protein or DNA/RNA is altered in direct proportion to the field water is found in, and the amount and quality of water that is present in that cell system. Water around DNA and RNA is in a reverse micelle that is electrified and magnetized by the ELF-EMF of the earth. This is what controls epigenetics. Epigenetics is directly linked to circadian biology via the clock genes in neurons by histone acetylation of the circadian clock genes to cause diseases.

The effect of water chemistry is so powerful in fact, when migraines headaches are associated with a prodromal aura, a recent meta-analysis shows they are associated with 4 times higher risk for stroke, than does an altered lipid profile with hypertension. The reason for this steep increase in risk of death to brain tissue is due to the altered density of water in the CSF. These relationships should be very instructive for those patients and clinicians who are paying attention to how nature's 3 basic laws affect water chemistry in our cells. Migraines without aura have only double the risk of stroke, but when the aura is present, the risk jumps to 4 times higher.

Does the Earth's Magnetic Field

Generate the DC Current in CSF?

The generation of the DC current is generated in a water layer right below the myelin layer in the CNS and PNS. This interfacial water is directly connected to what occurs at the interface between the neocortex and CSF in light and dark environments. Becker never figured this out, but I have been thinking about what he found for ten long years. I also had the advantage of being a neurosurgeon and operating a lot of brain's and examining it in all its dimensions with my clinical observations. Any current created within the subdural and subarachnoid space also had to have an associated magnetic field with it, according to nature's laws. This is why they are called electromagnetic field effects. Electric fields run at 90-degree angles to its associated magnetic field. It turns out this magnetic field has also now been found on the neocortex with the use of MEG and SQUID detectors in the last 20 years.

The electric field was found in the 1930's by Hans Berger, who discovered the EEG waves of the brain on our skin. Becker was the first one to hypothesize the presence of a magnetic field in this situation because he was the first one to find that the DC current in humans came from the brain. He also knew all electric fields had to have an associated magnetic field because of Maxwell's laws. He also knew from his experiments they had to use semiconduction to transmit a small current over long distances below myelin layer and above the axons in the CNS of all vertebrates. He proved biology used semiconduction because his experiments proved the presence of the Hall effect in bone and frozen nerves, which is only found in semiconducting circuits. Because he demonstrated this in the 1960's, and his work was ignored, he indirectly showed me, why cold was primordial for humans and all life forms that use a DC current to generate energy. This effect has also been found in all plants and trees.

The 3 Currents in Nature

Why do I say that with supreme confidence, you ask? There are only three types of current in nature, the electric current in a wire, ionic currents in a cell, and semiconducting currents in electronic or a quantum biologic system. In the electric and ionic currents, cold/freezing stops the current of flow dead in its tracks. In a semiconducting system, of any kind, it increases the flow of electrons tremendously. This is why I innovated the Cold Thermogenesis protocol to help reverse my obesity with the Leptin Rx. I have found it works on many other diseases, as you will soon find out. If you have read my book, the Epi-Paleo Rx, I get into how I use these quantum principles in ten common neolithic diseases in our species today.

Moreover, you may begin to understand why physicians and scientists have made the consistent clinical observations that when the brain or the heart are injured for any reason at all, that they recover and begin to work better physiologically when placed in a hypothermic situation. The reason is simple, it is all based on the QED physics in this blog. Cold improves the DC current in every system of the body that uses it. Becker showed that every vertebrate uses this DC current to regenerate all parts of their body and tissues. This is why I taught you about CT long ago before we got into the nitty-gritty details of how your brain is the ultimate electromagnetic quantum machine. Here is another example of why cold thermogenesis and electron energy transfers are linked in nature's laws. Cold temperatures on our planet work the same way they do in your brain. Evolution uses fractal quantum design principles in your subdural and subarachnoid space surrounding your neocortex to massively increase oxygen delivery to the most metabolically active cells in your body on the surface of your brain to alter its biochemistry to make a Ferrari in your head. The last few blogs are a combination of a lot of what you have learned in the last years here.

Remember from the CT series, I showed you that cold climate change has followed every single extinction event this planet has faced. It may explain to you why cold thermogenesis maybe your best way to mitigate fake light and excessive EMF in today's modern world. So far, this has occurred five times in earth's history, yet, you are told by a group of people who supposedly "believe" in evolutionary theory that cold is only hormetic and used in recovery only! Bullocks, I say. Moreover, this blog shows you why I believe it is bullocks. These statements reveal their arrogance of how nature's laws really act in us and show you large parts of their evolutionary framework are missing from their "new science" and their books.

Summary

Humans possess the most complex brains of any mammal, with a number and density of neurons that allow for highly complex thought. This density allows for infinite numbers of thought and for infinite numbers of individual brains. This type of variability is part of what gives humans their unique consciousness. It is difficult to define the sense of "me" that humans have, the sense that we are capable of change, of moral decisions. The complexity that allows for this has evolved over millions of years. It is thought that the first ape-like humans split off from apes at around five-seven million years ago. The reasons that larger brains were continually selected for over the next several million years is clear.

The epigenetics surrounding the East African rift altered, electrified and magnified primate DNA in the presence of a huge sudden spike of seafood to their environment in a relatively short evolutionary time to form a hominid brain using massive environmental DHA sources and tectonic plate separation. Considering the great amounts of energy needed to support such a brain during fetal development and during life

itself, the benefits had to be enormous to those primates over their predators. These benefits probably included the ability to continually make more complex tools that allowed humans to take more efficient advantage of the resources around them, the ability to understand and control fire, and the ability to think creatively to escape predators and threats involving the elements.

In Brain gut 3 and 4 I showed you geologically what happened in the human cradle to support these beliefs. Since our nearest ancestors became walled off from the forest and surrounded by the sea five-seven million years ago, brain size continued to increase, from the first ape-like humans to the slightly more human-like Australopithecines to the early homo sapiens, later humans and their cousins the Neanderthals. Neanderthals had 125 more grams of brain tissue than we did. Then they died out and homo sapiens radiated all over the planet in the last 100,000 years from the East African rift zone using waterways as they freeways.

Look at what we have accomplished as a species in 100,000 years. We have been to the Moon, we have gotten to every planet in the solar system, we even have been to the sun using a SOHO satellite, and we sent two Voyager space crafts 6 billion miles outside of our sun to the heliopause, where the solar wind stops. In retrospect, I guess I can now see, and understand fully, why we have evolved a sense of arrogance in biology. We think we have become so smart that we can ignore the laws of nature and in many cases undercut them, and still prosper. The funny thing is that our modern observations in neolithic disease generation are a big clue that we better dig deeper and set aside many of our current beliefs to solve what we are currently facing.

Our consciousness of being is what makes us human, and it also comes from these three fundamental forces of nature. We value consciousness before we even know what it is; small children respond to faces more than to any other stimuli and newborn

infants know their mother's voice. The connections we have with others and the sense of individuals as entities to be learned about and explored in order to learn about and explore ourselves is ingrained. I believe that this tendency to consider individual identity important has itself been naturally selected and epigenetically bred for over time since it is with this sense that people strike out on their own to invent and create. Creativity and the ability to think of new ways of doing things – from new, more ingenious stone tools to the wheel to the Internet to quantum physics – has allowed the human race to continually improve its lifestyle and to remain the preeminent species in the world. Or has it opened Pandora's box? Will the ignorance of the effect of fake nighttime light and the low end of the electromagnetic spectrum cause the next extinction level event? Our consciousness of being human is what allows us to continue being human. I think, when it comes to fake light, non-native magnetism, poor water chemistry and excessive EMF, we might have reached our evolutionary potential, as many "lemmings" are already falling from the human pedestal on the evolutionary tree of life.

What do I say to those who believe they have the story of human brain evolution and function down pat, based upon their solutions or blueprint?

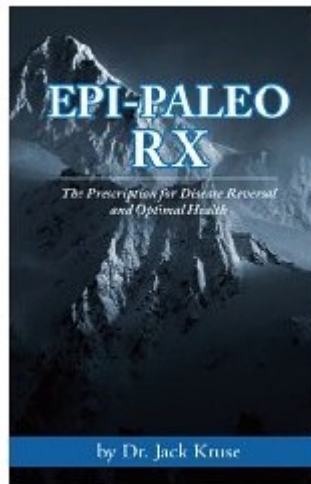
- When you don't know who you really are, you become prone to being who "somebody else" wants you to be.
- You are not your brain. Most of your thoughts and beliefs were given to you.
- People tend to buy these beliefs, not the benefits, and most in the paleosphere have bought a bunch of beliefs that just do not match the observations and experiments of the scientists in my cites in this current series.

Leave a comment.

More Support: Webinars by Dr. Kruse

- Reconnected Human podcast (August 2013)

Your Shopping List for this Post



The Epi-Paleo Prescription by Dr. Jack Kruse

- [View The Energy and Epigenetics Store](#)

Additional Resources

- [Leptin Rx](#)
- [The Cold Thermogenesis Protocol](#)
- [Cold Thermogenesis 1: Theory to Practice Begins](#)
- [Cold Thermogenesis 2](#)
- [Cold Thermogenesis 6: The Ancient Pathway](#)
- [Cold Thermogenesis 4: The Holy Trinity](#)
- [EMF 2: Einstein, Meet Leptin](#)
- [EMF 6: Quantum Time](#)
- [Energy and Epigenetics 3: Autoimmunity, Cancer, Autism](#)
- [Energy and Epigenetics 4: Light, Water, Magnetism](#)
- [Quantum Biology 3: Queer Water](#)
- [Quantum Biology 7: Vitamin D](#)
- [Quantum Biology 8: Quantum Scaling](#)

- Quantum Biology 9: Photosynthesis
- Brain Gut 3: Look in the Past to see Your Prologue
- Brain Gut 4: What was Homo's Solution
- Brain Gut 5: Paradigm Drifts Paradigm Shifts – Epi-Paleo
- Brain Gut 11: Is Technology Your Achilles Heel?
- Osteoporosis 2: The Vitamin K2 Story
- CPC #6: Pseudotumor Cerebri

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