UBIQUITINATION #24: ARE MYOPIA, LIGHT, AND AGING LINKED?

READERS SUMMARY:

1. WHAT WAS THE METABOLIC TRAP DOOR I MENTIONED IN THE HOLY TRINITY BLOG
2. HAVE A RE-READ OF CT-4 AFTER THIS BLOG.
3. WHAT ARE THE IMPLICATIONS OF THIS?

THE BLOG TAKE AWAY: AM UV full spectrum sunlight rarely changes in population areas on this planet. The frequency quality is always 290-400 during every morning where humans live. When it is not present at high northern latitudes foods from the marine food change capture those AM frequencies in the deep winter to barely make life possible above the 59th latitude. This has huge implications for modern man. He lives an indoor existence under light bulbs that subtract these frequencies constantly. His eye cannot sense it so his brain cannot perceive it and it causes his brain and body to degenerate faster than one could imagine in all systems. Why? The SCN receives these UV frequencies and this drives the Retinal pigmented epithelium that brings blood flow to this part of the retina. How this happens is discussed on this blog.

HUMAN EYE AND THE NEUROSURGERY CONNECTION I MADE

The amount of light entering our eye wholly depends upon the excellent operation of our iris. The iris controls the pupil. Under bright light conditions, the pupil is normally quite small. This how neurosurgeons, like myself, assess midbrain functioning in patients with the pupillary afferent light reflex in traumatic brain injuries. This only is usually done

with flashlights in the hospital or emergency room. When I was a young resident we used incandescent flashlight bulbs to do this test. The hospitals back then have incandescent Edison style bulbs in many places and a few fluorescent bulbs back in 1986-93. Today we use LED bulbs and fluorescents lights to save energy and save money. Why did I bring that up? Over the years as I have gotten older as a neurosurgeon, I have noticed the flashlights I used changed to check cranial nerve two, so did the lights in the hospital. The subtle observation I made was that there was also a massive change in how the pupillary light reflex manifest in my own patients. People today have larger pupils when we check their second cranial nerve in the hospital. They are surrounded by LED and fluorescent lights and surgeons are now using LED or xenon lights to check the response.

I noted this effect way back in my residency and mentioned it to my older staff physicians. One of them, Dr. Robert Tiel, was a very diligent surgeon. He suggested I research it at LSU. I did. It leads me to an obscure paper reference about a contact lens manufacturer in Florida. Ten years ago, when I got ill and read a fable, a new idea emerged from the obscure reference I read. In fact, I felt that I might have discovered something important to medicine that was right beside my nose all along. I had never put two and two together in residency, because I was trained to stop thinking like I did as a child, and I was schooled to begin to start thinking like those who trained me. Thankfully, Dr. Tiel was a different kind of staff physician. He loved questions and paradox. And he always told us to go learn something new. With his encouragement, I did. Boy did I ever. Sometimes we need to be constantly reminded of the basics of life so we remain directed at our life's purpose. When we live by assumptions, too often we forget its most fundamental concepts. I realized I had to stop living by the life's assumptions I acquired from medical training, and begin to let nature guide me. **When you assume things about the basics of**

life and forget what they really are made of, errors in judgment often follow. For the last ten years, I began to find time every morning at sunrise to reconnect with those fundamentals in my life.

THE PUPILLARY PROBLEM:

Every day I have gone to work and I exam people and I always observe their pupils in the rooms I see them in. For ten years not one room had full spectrum light. They had fluorescent or LED bulbs. All the rooms have windows. Regular pane glass windows. In that decade I found people's pupils were larger than they were from when I first learned about the pupil.

With keen observations, I found it is far more noticeable in people who wear glasses. I happen to and I monitored this in myself too. I always asked people when they got glasses and found that very often disease got diagnosed soon thereafter. Alterations in the pupillary reflex are also quite noticeable in those who frequently wear sunglasses, or pink, blue, brown, and/or green lenses, and it is universal in those who have had cataract surgery who have lenses implanted with artificial ones to replace theirs. Most people with artificial lenses or who have had lassie surgery will tell you bright light, especially at night bother them and gives them haloing and headaches. Why might this the case?

Most glass and a lot of modern plastics block UV frequencies. **When UV wavelengths 290-415nm are subtracted, absent, or blocked from the human eye chronically for any reason, the pupil remains larger than it otherwise would be.** How did I learn about this? From the historical use of atropine in the eye. I am an older neurosurgeon and when I began training atropine was more commonly used then it is today. We used to post signs on people's beds in our intensive care unit if any of the doctors on my team came around and checked someone's eyes for papilledema so that our team would not think the

patient “blew a pupil” and take the patient to urgent surgery to decompress that side of their brain. You might laugh now, but that has happened in the past. A large pupil allows the doctor to examine the inside of the eye in order to diagnose and treat eye, retinal, and brain diseases. Today we use MRI’s more frequently. Atropine use has dropped. Back in my day, every young resident knew about atropine. Pupil dilation tends to last longer in people with lighter colored eyes (irides), and occasionally a child’s eyes may stay dilated for longer than 24 hours. The reason is that lighter colored eyes are more sensitive to the effects of “*lowered levels of UV light” from their locations* and this color change of their iris strengthens their ciliary muscles of the iris by smaller amounts of UV light in the AM. This is why blue eyes are more common in higher latitudes where UV light is present but not as intense. The blue iris sensitizes the ciliary muscles to work better. Children also require stronger and longer lasting drops than do adults to accurately measure refractive error. The reason is their eye muscles are not as strong or developed. Children also have been noted to have higher pupil sizes in my clinic since 2006. I do not see many but I see a lot of my daughter’s friends and I have noted how they all have poor pupillary responses to my LED penlight.

What was the experience I learned from Dr. Tiel’s supportive advice about my question in 1995 when I was at LSU? I read a paper about pterygium and the high rate of visual destruction it caused in bright light. The article seemed to blame sunlight as a cause but another paper I reviewed with Dr. Tiel, was in opposition to this idea. It was done on the Cree Indians from Mantibo, Canada. It turns out they got unreal amounts of pterygium and they lived outside the tropics were sunlight was not strong at all. They also had unusual skin hypersensitivities. They received a wraparound pair of sunglasses (because they lived in tundra where there was highly reflective ice and snow to block light) and wore them as a prescription to avoid pterygium, yet they all got it, and

in many cases, it was worse wearing the glasses. Dr. Tiel pointed out that glass blocks all UV light. He mentioned in passing, reading that Richard Feynman refused to wear sunglasses in the desert atomic weapons tests in New Mexico (Los Alamos), and just watched them through the windshield of a pickup truck to avoid any UV exposure to his eyes or skin. I never forgot that when he mentioned it.

That one comment then leads to a paper on cows by a Jan C. Bonsma. It was about how fertility in cattle in the tropics. I learned that hide pigmentation in cattle was tied to fertility. Cows lacking skin pigmentation got hyperkeratosis and eye diseases. This led to an interesting paper and experiment done by a contact lens manufacturer in Florida in 1969. Philip Salvatori was a CEO of Obrig Laboratories. In the early days of contact lens manufacturing, there was a lot of concern about the risk of UV light entering the eye because the meme of the day, was that any UV light to the retina was dangerous and harmful. I thought to myself, I guess that is why the military handed out sunglasses to the viewers of the atomic blasts. Then I thought about Feymann and what he did, and why he did it. I realize immediately, this long-standing meme exists publicly and in medicine too. I realized this meme was false physically, yet it is still present today. Full spectrum sunlight, natural sunlight contains 290-400 nm light. All life evolved with this light on earth. How could it be bad? I then found out almost all manufactured lenses of any kind back from 1930 until today are made so they block all UV frequencies of light. The reason for this fear is the result of a general lack of understanding in the differences of the relative intensities of the near or long wavelengths UV light and how our atmosphere allows 290 and above in regular sunlight every morning. The confusion exists because there is far and short wavelength UV that appears in natural sunlight at the surface of Earth. Daylight has shorter wavelength UV in 290-380 range, where twilight has the 381-500 range blue light. I found out that these frequencies of light interact

with different proteins in our eye to do different things. The atmosphere filters and stops virtually all of the far shortwave (UVA), except for trace amounts. Natural sunlight, however, allows quite a bit of near long wavelength UV light. This is the light that allows our skin to make sulfated cholesterol and Vitamin D3 in our skin. We also need it to drive our daytime circadian cycles. This is the light that gives a current of flow to the SCN. The RPE that supports the SCN is loaded with DHA to carry the higher energies in this short wavelength of UV light. I found out that the longer wavelength UV and blue light 400-500 nm light lowered DHA levels and worked with melanopsin in the central retina at sunset.

GAME CHANGER: THIS WAS THE TRAP DOOR

I realized physics of light exposure controlled our biology at all levels.

Much of what we believe about diet and exercise is based upon many false assumptions because we ignore the effects of light. If nutrition studies are done from season to season why don't we put animals in environments in labs that mimic those lighting environments to study the effects? Any person who observes mammals knows that mammalian appearances changes and reflects biochemistry changes in these animals that are entrained by light only. Many changes are also altered by temperature variations too. So it raises the point how can anyone infer anything about growth and metabolism if your experiments never controlling for variable changes that occur in seasons with respect to light and temperature? What if the light in the lab was not full spectrum sunlight, could that alone make a difference? Most researchers appear to be unaware that mammals normally do this seasonally as their environments change.

The reason this science is tough to get is that no one really understands the leptin-melanocortin pathways with respect to a

varying light and temperature gradient. Neither are controlled for in biology or the nutrition studies so they are missing in all experiments. We see variations in all studies of plants and animals. Everyone knows you cannot naturally grow roses in Alaska. It hard to understand something when you do not realize its true quantized function. As the overall picture began to unfold for me and various parts of the puzzle became clear. I gained a far deeper understanding and the Quilt document began to develop in my mind. With physics at the foundation, apparently unrelated phenomena are seen to be different aspects of the same thing. The back side of a quarter and the front side look different but they are still part of the quarter. It began to emerge that many laws biology followed, were derived from a very small number of basic fundamental principles in physics. This is how a neolithic thought can subjugate your paleolithic genes. This is why ancestral health and medicine can give out half-truths and not know it. It is critical perspective to own to gain an optimal life and reversing diseases. Traditional allopathic training did not give me these answers but it prepared me to receive the wisdom found in nature. I realized that biology ultimately came down biochemistry. But then I realized that all biochemistry is the bridesmaid to physics and its electron. The outermost electron in an atom controls 100% of its biochemical ability. That idea then leads to this one: I then realized that physics of light is how the business of cells gets completed in everyday life. I realized I needed to know a lot more about how sunlight and man-made light interacted photoelectrically in our eye, skin, gut, and respiratory systems.

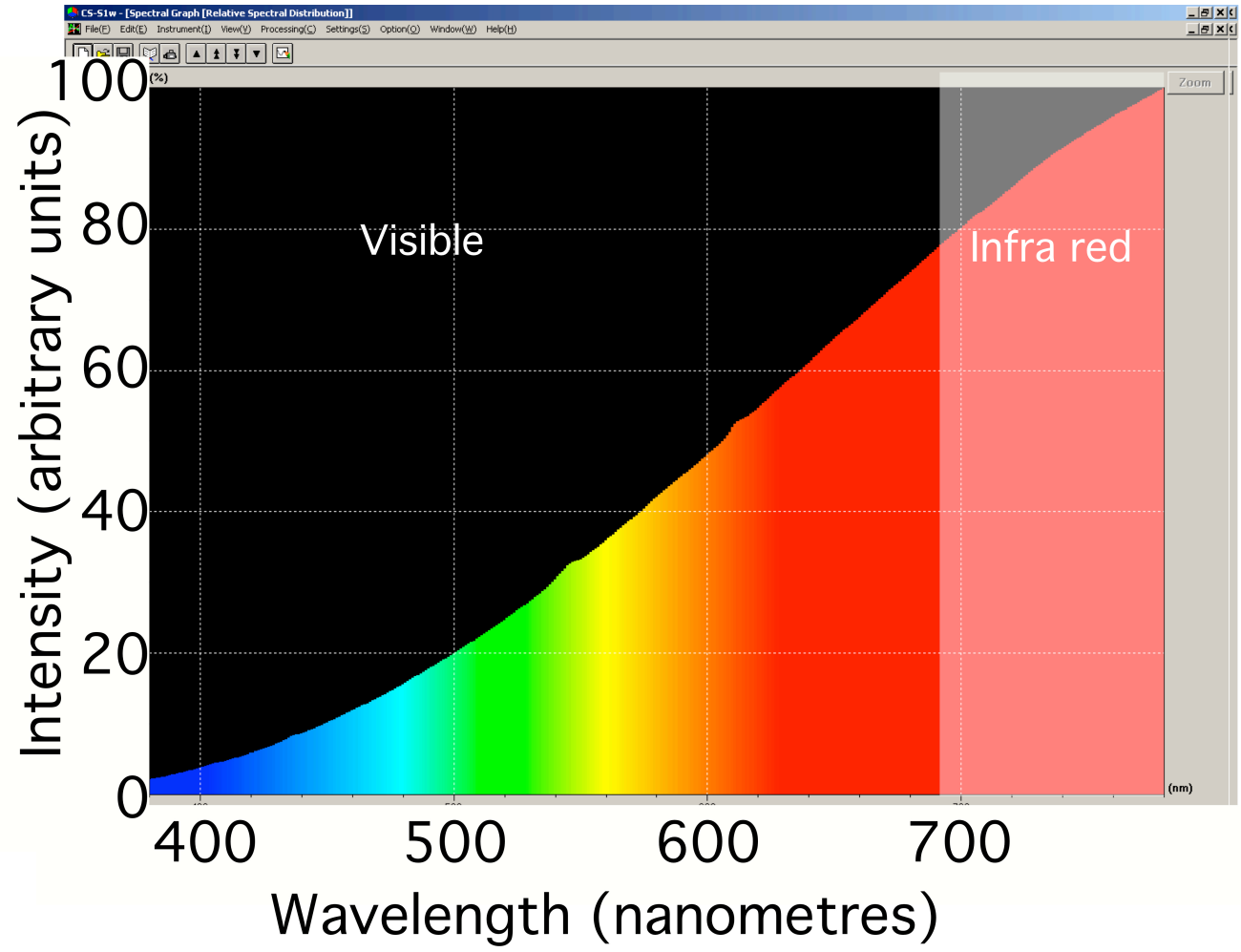
I found this insight because I knew it had to exist because of the varied physiologic abilities of polar and equatorial people. The pathway in the eye to the leptin receptor for the “eye clock” only revealed itself when I found its metabolic “trap door” in the SCN. The fact that all mammals can activate a “new biochemistry” when their environment changes have huge

implications for modern humans. The remainder of this blog is about those implications.

HOW TO CHECK YOUR ENVIRONMENTAL LIGHT EXPOSURE

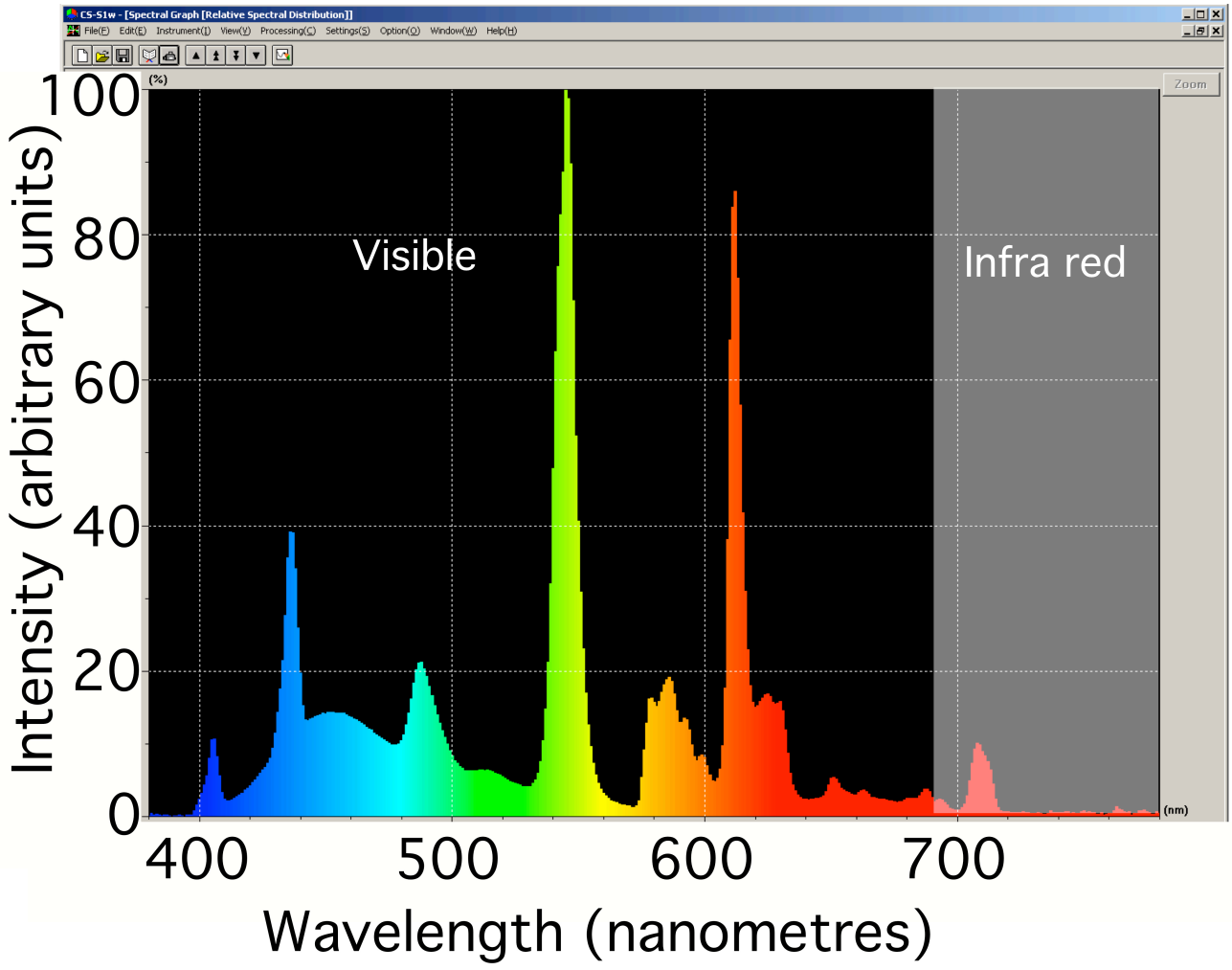
You can use a plastic spectrometer to measure the ambient light in your environment or you can use your phone. I have found there are differences in measurements between both. Our world is filled with different light sources: fluorescent office lights, sodium street lamps, and bright neon lights. My OR is filled with even more deadly treasures. Now you can see all of the emission spectra of these light sources with our new iPhone app: **SpectraSnapp if you can't find a plastic spectrometer on the internet.**

The results of both measuring sticks for the frequency of light can be very impressive when you view them side by side. Below I have put three screenshots of the light from three types of lamps: conventional Edison incandescent, the modern compact fluorescent, and the new energy-saving LED lamps. Each spectrum is strikingly different and to the bio-hacker. These pictures tell a dark twisted tale of how the light is made and what it might do to our health. **Pay attention to what happens in the far left from 500 nm on down. It is the critical part.**



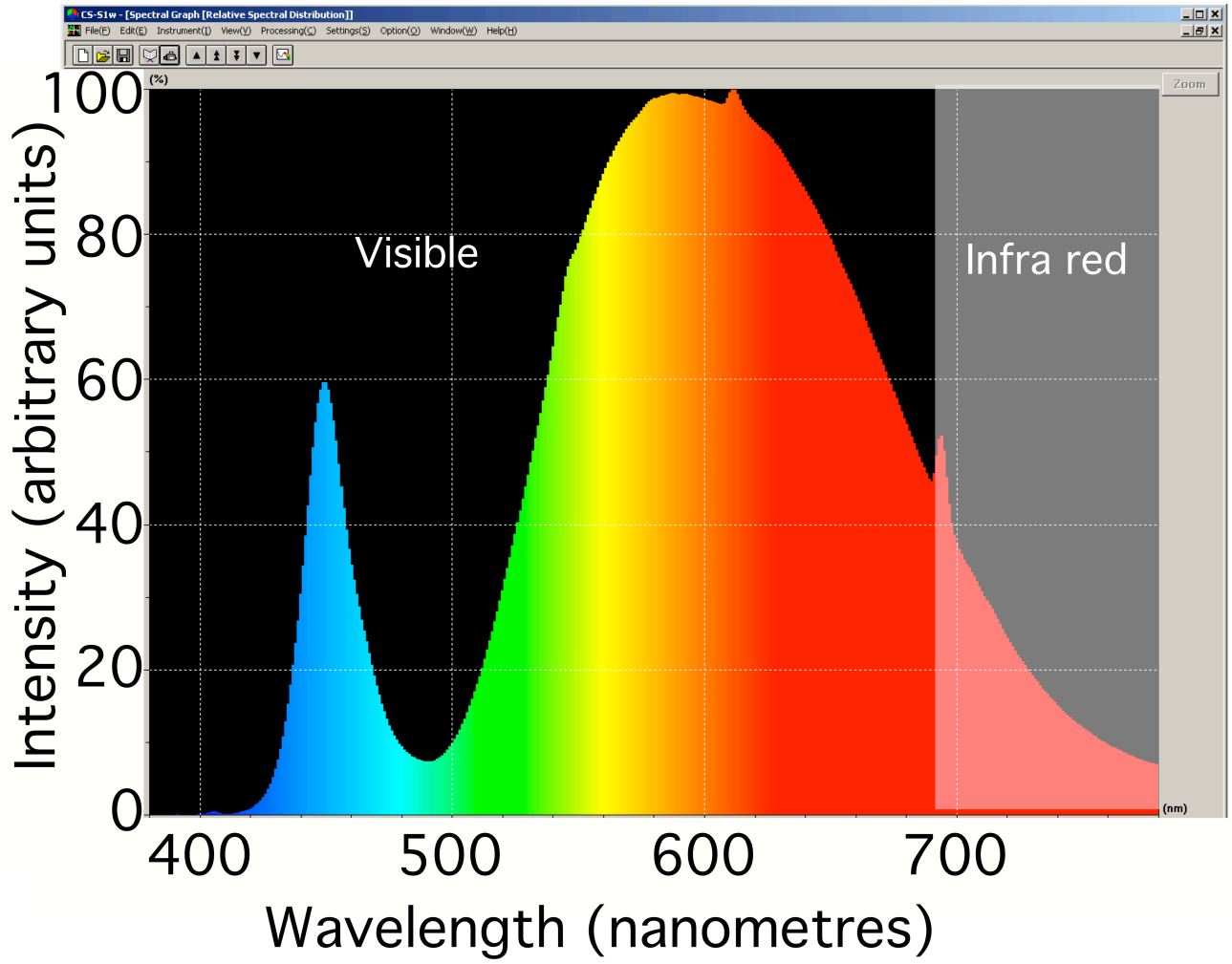
Note that these older Edison bulbs which are now hard (internet) to find had most of the light emission in the red range. Humans do not see them as red because we do not see the red and infrared range well, so our brains interpreted them as mostly yellow. Note that these “Edison like bulbs” did have all blue frequencies to the left in the picture to 0, and above the UV part of the spectrum, so we closer to full spectrum sunlight than the more modern fluorescent and LED bulbs being manufactured today for indoor lighting, TV panels, and technology displays. This explains why neolithic disease was present from 1880’s -1970’s but did not have the explosive growth until other lights showed up. Kerosene was the dominate lighting fuel prior to electric lights. This is how John Rockefeller Sr. made his money via Standard Oil. Today his family now is heavily involved in health and researching financing. GE came from another captain of industry named

J.P. Morgan. In the 1930's he bailed out the US from the 1929 market crash by creating the Federal Reserve. For that, he got the ability to print money on demand without needing any gold to back it. That ability remains today. Mr. Morgan also fueled the electric power wars (he backed Edison, who lost, but Morgan won) in the early 20th century between Edison and Tesla and Westinghouse. J.P. Morgan gained control over General Electric and put Westinghouse out of business. Tesla went on to electrify the world with AC electricity. (Not good for us) And Edison used the DC current (not good but better than AC) Today, GE makes most of the world light bulbs and medical diagnostics. JP Morgan remains a wall street darling that helps control our financial markets. GE also makes and control most of the LED TV market.



The spectrum of fluorescent light bulbs. Note they have intense sharp emission lines from the mercury vapors within the bulbs, with a smooth background from the phosphor in the

tube. These lights also emit X-rays (not shown). X-rays are not part of the visible spectrum of light that we get from sunlight. X-rays are part of the ionizing part of the spectrum. **Key point: they are not full spectrum bulbs because they do not have 290-390 nm light.** Sunlight contains these frequencies naturally and your central retinal eye clock uses them for circadian entrainment during the day and for AM hormone function. These are the bulbs that most schools, stores, business, and hospitals still use. They are being replaced because of their X-ray emission risks that first came to light in the 1960's when GE recalled their TV's which work by cathode ray transmission. These bulbs use a similar photoelectric mechanism to generate light more cheaply than Edison's bulbs.



This is the spectrum of the LED light bulbs we are now being forced to use. I spoke to them in the September 2015 webinar and how they have changed how cities look from space. They

are much brighter and use less power but my concern is the bright blue emission spike from the LED itself. They are actually increasing light pollution in cities. The fluorescence of the phosphor coating in the bulb (if used) is seen in the green, yellow, and red spectrums. **Once again, note that the 290-420nm wavelengths of full spectrum sunlight are completely absent.** These are the frequency of light that drives the retinal-SCN-hypothalamic pineal tract in humans during daylight.

THE DIRTY DETAILS

Modern artificial light is causing a huge change in the light frequencies our eyes see every morning. That light is causing a reduction of NAD^+ and oxygen levels in our extraocular eye muscles. ***This allows our eyeball to lengthen and our lens curvature to lengthen.*** Normally either one of these things can cause myopia. Myopia is short-sightedness. It means we can't see at distances. Most people have to wear glasses when this occurs. Today, myopia is the best measure of a redox problem in skeletal muscle in my opinion. *I discussed the details of how this occurs in Ubiquitination 23.* Our cornea gets its oxygen supply from the air external to our eye because our cornea has no blood supply to remain transparent to sunlight. This means if you place contacts over the cornea you are making it pseudohypoxia mechanically. No contact lens is *as permeable to oxygen* as the human cornea. Wearing contacts can lead to a circadian signaling problem because it alters the surfaces of your eye with light. Right behind our transparent cornea is the pliable crystalline collagen lens controlled by skeletal muscles ciliary muscles. It also fatigues the small ciliary muscles that control the shape of our lens in our anterior eye. There is another possible link also tied to UV light. Bright full spectrum outdoor light stimulates the release of the retinal transmitter dopamine, which is known to be able to block the axial growth of the eye, which can also lead to eye elongation. Lack of dopamine

causes an elongated eye. Barreto et al. have shown that in the presence of Fe(NO3)3 two broad bands of dopamine absorbance appear, with maxima at 437 and 740 nm. 437 nm is in the indigo/purple range. This range is missing in all artificial lights today. Shorter wavelength light, that is present can also penetrate into deep brain structures and regulate, for example, the seasonal cycle of reproduction in birds. We now know experimentally that melanopsin works in humans at 480 nm absorption in the blue range. For instance, opsin 5, a non-retinal and non-pineal deep-brain opsin photoreceptor in the hypothalamus of quail, has a peak of excitation at 419 nm. Tyrosinase is an oxidase (enzyme) that is the rate-limiting enzyme for controlling the production of pigmented proteins like dopamine. Dopamine, in the presence of tyrosinase, covalently modifies and inactivates tyrosine hydroxylase. This lowers dopamine and can cause myopia. It also can be associated with risks for other neurodegenerative disorders (PD). Artificial lights, TV's, and technology gadgets produced today have a very similar lack of 290-450 nm frequency in the spectrum of light. What might the results of this be in people who use these things chronically? They have a complete absence of UV light during daylight hours that leads to myopia and a huge increase in neolithic diseases in those people. Have we seen this already in humans? Yep.

Sixty years ago in 1950 (think about the opening paragraphs of EE4 now), 10–20% of the Chinese population was short-sighted. Today, up to 90% of teenagers and young adults are. In Seoul, a whopping 96.5% of 19-year-old men are short-sighted. The data is even worse in China where air pollution and technology are driving the epigenetic process further to bigger extremes. These Asian teenagers use technology far more so than any other group in Asia. I saw this when I was in Asia in early 2015. Why else are Asians more affected than Americans? Air pollution is no controlled in their countries because they are developing economies with different environmental protections. Air pollutions block the vital UV frequencies in our

atmosphere in AM sunlight from their eyes even if they wear no glasses. If they think wearing sunglasses is cool it is even worse. Sunglasses alter the spectrum the central retina sees to a greater degree. When they get diagnosed with myopia what is the knee-jerk response of the optometrist or eye doctor? A prescription lens that blocks UV light completely. Why? Because this is what we are taught to do. Just because we are taught to do something does not mean it is correct. *Do you still think myopia is a genetic disease, or might it too be driven by a* ***poor or absent UV light*** *spectrum in the environment?* When we have a chronic loss of AM UV spectrum of sunlight what should we expect to happen next? Low fertility is the result of massive drops in sex hormones. Are you people having fertility problems globally? Yes. Do they want to have sex? Ask the Japanese: They suffer from "celibacy syndrome". They are among the biggest abusers of technology and LED lighting. When you stop having sex, you stop having offspring. What comes next?

Is the Sixth Extinction well underway?

The charts above have been the topic of books including books the "Birth Dirth". Many recent epidemiological surveys have remarked that China with its massive population is becoming old more rapidly than we expected. Their policy limiting offspring will only hasten that result. This will have global social and economic impacts few of see.

Why are myopia and low sex steroid hormones linked to missing AM UV light?

What does pseudohypoxia (low NAD^+) mean to our hormone panel? The cost of a high aerobic capacity is a low fertility rate; I mentioned that in Ubiquitination 6. This is why the pregnenolone steal syndrome exists in modern humans everytime

I look and why males suffer low testosterone and females have an upside down PG/E2 ratios. They are all dehydrated too. I see it on MRI's scans. It is not what the primary care doctors or the anti-aging docs think is behind this. The PVN makes the choice for cortisol production over sex steroid production solely because our mitochondria are designed to work best with oxygen as the terminal electron acceptor. They can't do that in an artificially lit environment missing AM UV light signals. You'd be wise to remember that UV and IR AM light frequencies are capable of raising venous O_2 levels. Venous oxygenation is lowered in almost all disease states when we sample it. UV light alone has the ability in animals to raise O2, but we also fail to see that when it is daylight plants absorb massive amounts of atmospheric CO2 to make oxygen. The atmospheric oxygen helps out mitochondria because we use oxygen as our terminal electron acceptor. In this way oxygen allows electron transport to run fast. When it runs fast we stay well. This same motion is found in the hexagonal retinal RPE and in the chloroplast of plants. Both run quickly when UV light frequencies are present for these animal and plant cells, as proven by the time lapsed video's done by Dr. John Ott in the 1960's. We have missed these details. We rarely check venous oxygenation in our patients, unless the patient is in an ICU or has an arterial blood gas. What else do these people have or can expect to develop? They become anemic, which causes a lack of catalase in their RBC's. RBC's are filled with hemoglobin that binds oxygen and they are filled with porphyrins that absorb all frequencies of UV light. Low levels of RBC's in our blood cause a build-up of hydrogen peroxide (H_2O_2), a free radical. Catalase normally gets rid of hydrogen peroxide. It cannot if you are anemic. This is why doctors have a condition in their Merck manual called anemia of chronic disease. They have no clue why it happens and now you do. It is due to a lack of UV AM light. Missing your AM UV light frequencies for any reason, fuels this low fertility by way of the anterior pituitary relays.

These relays connect to the leptin-melanocortin pathways. This is why leptin controls fecundity and ovulation selection in humans. Modern Optogenetic research now shows us we can get the anterior release of these hormones with light. They use red light only because they falsely still believe UV is dangerous. Since UV has a shorter wavelength IT contains more power than red light. This means UV light in the eye can reverse disease faster than any drug on this planet. UV light is a lot more powerful than clomid or bio-identical hormones. Our modern versions of artificial light, covering our eyes, to subtract UV light gives our SCN the stimuli of a defective spectrum; it also makes fertility doctors and anti-aging doctors rich and busy.

The central retinal pathways project to the anterior lobe of the pituitary and control the hormones and their release. **The central retinal-SCN-hypothalamic-pituitary axis needs 290-415 nm light exposure in the AM to function properly.** This is why your hormones from the anterior pituitary are almost exclusively released between 6-10 AM as I laid out in the Cold Thermogenesis 7 blog post years ago. This is also why I been telling my members as soon as they rise they need to go look in the direction of the rising sun and basking their skin in it for a period of time as soon as they rise. ***I also warned them not do it behind glass, plastic, or glasses, ever. Now you know why I said it.*** The worse myopia becomes the more choroidal thickening one gets (we should expect higher pressures in the eye). As the high pressure rises dopamine release drops and the eye elongates and gets larger. When the process occurs chronically dopamine will drop in the frontal lobes and you'll get fat. If it goes on longer, you might lose dopamine in your substantia nigra and get Parkinson's disease.

The higher pressure in the retina or longer the elongation the higher the risk is for cataract formation, glaucoma, retinal detachments, macular degeneration, myopia, neuro-degeneration,

obesity, and autonomic instability. Why might that be the case? The mechanisms suspected in the ophthalmic literature for choroidal thickening were ***ocular hypotony***, impaired drainage in the vortex system (low magnetic flux), and severe intraocular inflammation (more protons to electrons). **Ocular hypotony not only occurs in the extraocular eye muscles to cause myopia but when it affects the eye saccades speeds, it lowers dopamine levels in the frontal eye fields and this is how neuro-degeneration begins in the human brain.** You might have heard humans have this problem globally with the explosive growth of PD, HD, and AD problem in the last 50 years that is exploding and getting worse even while they are doing more thing correctly with diet and exercise.

Cataract surgery, also explosive, often increase choroid thickness, by itself, and the situation is worsened if the replacement lens that blocks UV light is often implanted by the physician. This is why so many people post cataract surgery complain that light bothers their eye. When you block UV light from the eye the pupil dilates more because the ciliary muscles are chronically pseudohypoxia. UV light generates oxygen. This steepens the decline in wellness in the eye but in all the things it is connected too. The central retina directly links to the SCN and hypothalamus. As myopia gets worse people get sicker from neolithic diseases. This is how this "eye clock surface" breaks downs and destroys health and the biochemistry in other cells. All of these conditions link back to blood flow, light frequency, pseudohypoxia, and low NAD^+ levels in the eye and all increase disease of aging because they increase ubiquitin marking or proteins. All of these things were discussed in detail in Ubiquitination 23. Let's review it, again.

Ubi 23 said, "*Power in light waves is a function of its frequency*. It is the only way the power of light can be modified in nature. When the frequency is changed, what else occurs simultaneously in mitochondrial cytochromes? The amount

and type of free radical signals released also change. When nitrogen gets oxidized, this means electrons are taken away from its molecular structure. When electrons are removed from any proteins it makes them less hydrophilic (*things swell, like the choroid*) and as a result, the size of the EZ in cells drops. This is also true in the MINOS that surrounds the cytochromes. The MINOS must remain reduced, ie: filled with electrons, to maintain a large EZ to continue to be able to exclude protons. This is why the mitochondrial matrix is filled with protons and why there should not be a lot of free protons outside the matrix. This sets up chemiosmotic gradient between the two areas of a cell. This can be used to do work and harvest energy. When the size of the EZ drops, ammonia rises and the mTOR pathway is activated. Resveratrol, turmeric, and metformin have been shown to prevent ammonia toxicity in cells. When protons cannot be contained within the matrix or the EZ decreases the mTOR pathway is activated. This is why mTor expression is a problem for generating longevity. *It works by limiting or lowering ubiquitin marking of proteins in cells.* With mTOR activation we see ***pseudohypoxia develop, NAD^+ levels drop, and NADH rises at cytochrome 1."***

Why should you care deeply about the nitrogen atoms present in NAD^+? When nuclear NAD^+ levels drop, cells lose the ability to properly regulate mitochondrial homeostasis independently of PGC-1α/β pathways. PGC-1α is a transcriptional coactivator that regulates the genes involved in energy metabolism in cells. PCG-1α is a so activated by endurance exercise and sprinting. PGC-1α is a major regulator of mitochondrial biogenesis and function. This pathway helps cells get rid of redox shifted mitochondria that cannot make energy well. I spoke about them in the Ubi 4-7 blogs. Those are mitochondria ruined *by blue light at night, nnEMF, and 24/7 carbohydrate uses*. This protein interacts with the nuclear receptor PPAR-γ, which permits the interaction of this protein with multiple transcription factors to optimize energy production in cells

by optimizing mitochondrial function. This protein can interact with, and regulate the activities of, cAMP response element-binding protein (CREB) and nuclear respiratory factors (NRFs). It provides a direct link between external physiological stimuli (think environment) and the regulation of mitochondrial biogenesis. **This pathway is responsible for regulating muscle fiber types in skeletal muscle.** *This fully explains why the extraocular eye muscles get atonic and the eye gets longer in myopia. This leads to dopamine levels dropping in the retina. It also explains why they ciliary muscles fatigue and this cause the shape change in the lens to cause myopia in the anterior eye.* The fiber type in the skeletal muscles involved determines how sensitive or resistant we are to insulin and glucose and how well we can use fats in these muscles. This is also true for your extraocular muscles and ciliary muscles. It is also why the eye saccade speeds correlate with neuro-degeneration in the brain. It is a thermostat for the break down in the "eye clock". ***All of this is tied directly to the environment the mitochondria is sensing in the environment or surface of that organ. The mitochondria of the retina respond to the frequencies of light as the day evolves. All this happens before there are any changes in the nuclear genome.*** This shows you that the environment dictates to the genome. *It is not the other way around as modern science keeps regurgitating.* This also shows how a badly lit environment at our eye surfaces, is capable of uncoupling light from nitrogen and water cycles to alter carbon flows in biochemical pathways. This is why dopamine falls, the RPE of the retina is destroyed, and DHA is destroyed to lead to macular degeneration. Taking a DHA supplement will fix nothing if you don't fix the proper light signaling. Thus, the artificial light becomes a big problem for the human eye because it is missing its AM UV frequencies. Missing these frequencies are fully capable of increasing ubiquitin rates for all proteins in humans in ALL CELLS. Why? **THE SCN HAS HIERARCHAL CONTROL FOR THE ENTIRE ORGANISM. CLEAR NOW?**

Missing UV AM eye frequencies combined with a bombardment of nighttime artificial blue light frequencies also increase the atomic size of the respiratory proteins in the respiratory proteins. Why is this a big deal? it causes swelling and inflammation which alter the optics in the eye and can disrupt the central retinal electrical signaling to the SCN. *Did I not say this 4 years ago in Cold Thermogenesis 4, The Holy Trinty? Have a re-read, because I been telling you the same story over and over again at deeper and deeper levels. We now are at the light frequency. There is no smaller place to go.* ***The metabolic trap door was in the eye.*** I have been telling you the truth a long time. Optimal health is an environmental decision and choice, not a genetic lottery.

The choroid of the eye is capable of changing its size and volume because of the blood flow it receives. Swelling is a sign of a loss of energy in the choroid. This means it can affect the intraocular pressures in the eye too. This links it to glaucoma and cataract formation. The amount of blood it receives is directly tied to the *amount and frequency of light it receives*. In a myopic eye, light does not fall at the fovea where it should, and it is devoid of AM UV frequencies. This means nonfull spectrum sunlight falls short of the choroid and lands anterior to the retina, changing the normal scattering of light within the eye. This alters electrical signaling and photochemical transduction. All circadian mismatches occur in the same fashion on our surfaces in the skin, gut, lung, as I mentioned in Ubiquitination 23.

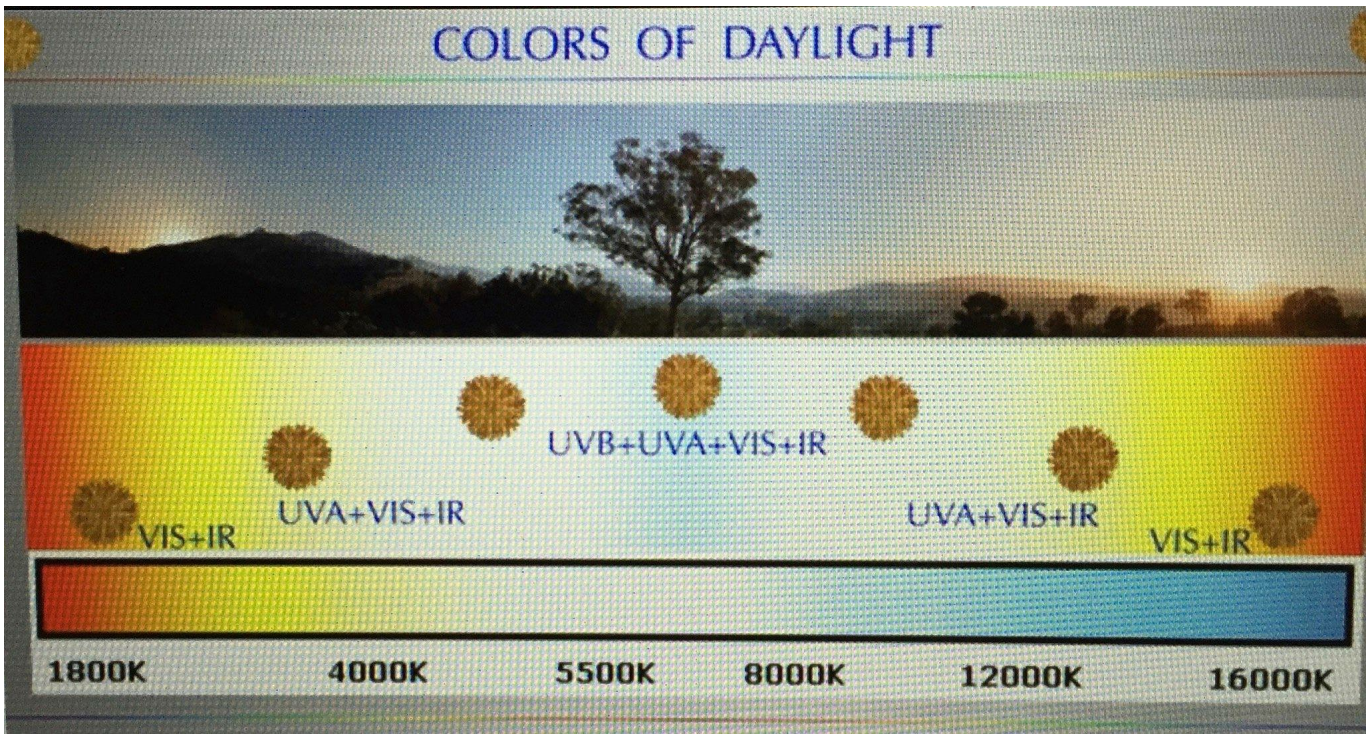
THE EYE SURFACE AND ADRENAL FATIGUE ……..yep that too!

The choroid of the eye is primarily a vascular structure supplying the outer retina. It has several unusual features: It contains large membrane-lined lacunae, function in some animals as part of the lymphatic drainage of the eye and which can change their volume dramatically, thereby changing the thickness of the choroid as much as four-fold over a few days (much less in humans and primates). This, however, does occur

in them and steepens as the myopia increases. This can lead to early aging and early death. Why? The choroid is linked to the SCN outflow tracks of the central retina. The choroid contains non-vascular smooth muscle cells, especially behind the fovea, the contraction of which may thin the choroid, thereby opposing the thickening caused by expansion of the lacunae. It has intrinsic choroidal neurons, also *mostly behind the central retina*, which may control these muscles and may modulate choroidal blood-flow as well. When mitochondria in this area swell they get pseudohypoxic and NAD^+ levels drop. This slows ETC flow by increasing the size of the respiratory proteins in this part of the eye, and this slows electrical outflow to the SCN to slow its function down to alter circadian cycles that control ubiquitin rates in cells. This system controls every cell in our body via the peripheral clock genes. These central retinal choroidal neurons receive sympathetic, parasympathetic and nitrergic innervation linking them to the paraventricular nucleus (PVN) of the brainstem. Here again, you can see where a surface change drives the altered biochemistry in deeper tissues. When electrical signal declines in this system of neurons, firing rates in the PVN decline and adrenal fatigue is the clinical result. Taking herbs and foods as a therapy is a misplaced prescription for this condition as a first step. The environment must be altered first. If this is not recommended it tells you the person making the recommendations has no idea what they are talking about.

INSIGHT BOMB: The shorter the wavelength the more cancer/disease we should expect. True or false? Answer: what has bending got to do with the frequency of light? A LOT. How much do you know about refraction? Remember that in the daytime our cells have a lot of EZ. The EZ has a higher refraction rate and is denser. It is more viscous. When deuterium fractions are higher the density of tissue is even

denser and this slows light penetration and signaling down further. This means light can't move throughout it quickly to carry out normal physiologic functions diurnally as the day goes on.



At night we have less EZ so we don't need high powered UV to dash through the EZ. Here we can use the longer wavelength IR light. Guess what? That is why your mitochondria release IR light at night while you are in ketosis! The quickest path in life is not always straight. Counterintuitive truth bomb of physics. Blue light fits this bill because it is highly powered at shorter frequencies (UV) than it is at higher ones (blue light); More power translated to the smaller frequency of the wavelength. It means it can "swim faster through tissues", like the more viscous EZ during the day. The EZ exclude everything larger than everything greater than the size of a single proton. This includes deuterium.

Analogy time: Think of a lifeguard. Can he run faster on the beach than he can swim in water right? So if he were going to save a grown man would he talk the shorter path that requires the most time swimming in the water, or would he take a longer path that allowed him to get to the victim first? Light acts

the same way. As light becomes bluer, especially at night, the situation worsens because the wavelength gets longer and its power drops. Blue light in the AM does not have the same effects as blue light at night, but few people really have thought about this. I mentioned it in Ubiquitination 20 blog to crickets. The reason for this is the pigments in proteins are activated at different times of the day because of the frequency difference within the blue range. In the AM we need shorter blue lights UV in the 290 nm-420 range to swim through more EZ water at our surface skin. EZ has a higher viscosity and higher density, therefore, it has a higher refractive index to light. At night we need to avoid anything between 420- 480 nm blue peak because this is when melanopsin activates the pineal to make melatonin from this light frequency. Light below 48onm turns off melatonin production and can destroy sleep. This is why is longer blue frequency is used at night as the pineal signal from the central retina. The central retina uses AM UV to turn on the pituitary and turn off the Pineal. AM sunlight is more highly powered to activate the release of pituitary hormones from the anterior lobe. The energy of its constituent photons increases and the number of materials (proteins) which can be excited to a high energy state and usefully convert that energy into light diminishes rapidly. When the blue light is dialed down in power (nitrogen interaction in proteins like NAD^+ and $FADH_2$) you should expect lowered cancer rates, while retaining a higher capacity to regenerate well. This is why we need UV light in the AM and we need to avoid blue light after sunset. Regeneration = a strong DC electric current = higher nighttime melatonin level = a strong AM UV signal. In you, your vitamin D3 level should also be higher in the AM because of its initial interaction with UVB light in your skin surfaces. When that light frequency signal is altered or missing, so will the signaling in the deeper levels of the skin cells and arterioles that feed these tissues oxygen. Arterioles bring blood RBC’s and hemoglobin and porphyrins that bring oxygen

and UV light. If they don't bring both this lowers oxygen at the end of ETC transport in mitochondria, slows the electron flow (like we see in RPE and chloroplasts missing UV) and pseudohypoxia results. Sound familiar? AM sunlight increases O_2 delivery to the skin when the light hits RBC's because of what RBC's contain. Porphyrins and hemoglobin. RBC's deliver oxygen to mitochondria optimally in the skin when this situation occurs, so as a result, there is more venous oxygen present. This means that AM sunlight (UV-IR) increases venous oxygen levels naturally. This is frequency effect of AM sunlight. As the frequency of light in your environment decreases or is missing, autoimmunity and obesity should be expected to rise quickly in populations based upon these physical relationships. Does this set of circumstance sound familiar to anyone? Are you worried about anything now?
Plants and humans have the same UV systems built into them. Plants lose their ability to regenerate with artificial light exposure at night as well. In this circumstance, they make less O_2 and consume less CO_2, while their ubiquitin rates increase!! This makes us more pseudohypoxic! The reverse of this situation fully explains why the Warburg metabolism exists in animals who face the same loss of UV light in the daytime while using blue light at night. Cancer manifests when you break both sides of the equation in people who are exposed to chronic changes 24/7 artificial light. Why? They are missing AM UV light in their central retina while destroying DHA levels in the SCN at night lowering melatonin and destroying sleep. Still, think paleo foods can help you? Supplements?

CONSTRUCT YOUR OWN BIO HACK OF YOUR LIGHT ENVIRONMENT: UNDERSTANDING HOW THE QUANTLET WORKS

If you buy or rent a spectrometer you can access the light emission from what your eye sees for yourself. The longer you stay in or under these artificial lights or use TV or technology the more likely you will develop myopia and hormone

disruption because of how the central retinal tracts work with natural sunlight. This is doubly true if you use modern laptops, iPhone, tablets or TV's which all use LED technology. These lights are not full spectrum lights like the sunlight provides. Our eyes and CNS are designed to need UV light in the AM and none of it in the PM. We break both sides of this circadian cycle. Plants also have a light and dark side to their photosynthesis but we do not see the homology between them and us. It exists and the boom in myopia and hormone dysfunction is proof of concept. The main reasons for the light spectrum change given by governments and captains of industry are that they have been developed is because of the 40 years need to limit X-rays emissions from TV and indoor lighting from fluorescent light bulbs. There was some damning data on this source of artificial light in the 19-60's and 1970's done by Dr. John Ott. His work caused massive recalls of color TV's because they were emitting serious amounts of X-rays even when the standards were poor. I remember having our TV removed by a repairman when I was young. I also remember that my sister sat in front of that TV for many years before the problem was recognized. My sister and I are complete opposites in real life and I often wonder if that was the etiology of our divide. The only reason Edison's incandescent bulbs went away is that they were energy inefficient and costing us money as a country on a population basis. My bet is that we will spend thousands-fold more on the coming health crisis because of the new LED bulbs. It has just begun. The crazy part is that even though they were energy hogs, they released mostly IR light which has very few health side effects. In fact, they have some very beneficial health effects on mitochondrial function and wound healing that we covered in detail in the May 2015 webinar with Mr. Ruben Salinas co-founder of the Quantum Dynamics.

SUMMARY

Activity doesn't lead to an achievement. The most difficult

roads lead to the summit. Your summit should be where your passion is buried. Sometimes your light shines so bright that it blinds folks from seeing who you really are. Do not stop. Continue, even if they mock and ridicule you. Once their eyes adapt to your light, they will be shocked at your results, and what you saw that no one else saw. That is the mark of a renegade and innovator. Sometimes, we have to look back to see what the brightest among of us have missed helping our entire species. Actions are the translators of your thoughts. People awaken to this perception of you only after their eyes adapt to the light you shine on the world.

Enemies of truth are hidden within our convictions and beliefs. What are our truths ultimately? They are our irrefutable errors in judgment. Humans have made a ton of these in the 20th century. The result is the creation of neolithic disease by altering the surfaces to light frequencies. We have mistaken technologic progress for biologic extinction.

When you become coherent with the music within you, that is when you can make sense of the distraction going on around you.

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26. BIO HACK LIGHTING PRIMER:We can make our bio hacks more scientific and quantitative by using hand-held plastic spectrometers or apps on our phone to check our mobile technology and TV displays. They give us data that display the spectra against a wavelength scale of visible light. In this way we can check the wavelength of light against what we would see if we were out in the sun. Artificial light is, in my opinion, the most significant non native EMF modern man faces. Spectrometers give a quantitative measure of the wavelength of light, they give no information about the relative intensities of the different wavelengths. The intensity of light is measured in foot-candles or by erg-seconds per square centimeter. Roughly 2 million ergs are equivalent to 19 minutes of full summer noonday sunlight at a latitude in the midsection of the USA. This brings up an important point. Light intensity does not have standards in many citations, so if you go hunting for it you need a small primer on light intensity if you want to figure out how-how much artificial light is affecting your surfaces in your eye, skin, gut, or lungs. LIGHT PRIMER FOR EQUIVALENCE MEASUREMENTS FOR YOUR OWN BIO HACKS a foot-candle (fc) is a non-SI unit of illuminance or light intensity widely used in the United States in photography, film, television, conservation lighting, greenhouse horticulture, the lighting industry, construction-related engineering and in building codes. The name “footcandle” conveys “the illuminance cast on a surface by a one-candela source one foot away. One foot-candle

is equal to one lumen per square foot or approximately 10.764 lux. We will get to lumens and lux soon. Full, unobstructed sunlight has an intensity of approximately 10,000 fc. An overcast day will produce an intensity of around 1,000 fc. The intensity of light near a window can range from 100 to 5,000 fc, depending on the orientation of the window, time of year and latitude.Say you have an old Edison style lamp. You are told it produces 100 foot candles of light. That means at one foot from the lamp, you will receive 100 foot candles of light.A LUMEN is a unit of measurement of light. It measures light much the same way. Remember, a foot-candle is how bright the light is one foot away from the source. A lumen is a way of measuring how much light gets to what you want to light! A LUMEN is equal to one foot-candle falling on one square foot of area.So, if we take your candle and ruler, lets place a book at the opposite end from the candle. We'd have a bit of a light up if we put the book right next to the candle, you know. If that book happens to be one foot by one foot, it's one square foot. OK, got the math done there. Now, all the light falling on that book, one foot away from your candle equals both…….1 foot candle and one lumen! One foot-candle is equal to one lumen per square foot or approximately 10.764 lux.RADIANCE and ILLUMINANCERADIANCE is another way of saying how much energy is released from that light source. Again, you measure it at the source. Unless you're talking about measuring the radiance of something intensely hot, like the Sun. Then you might want to measure it at night when it's off.

ILLUMINANCE is what results from the use of light. You turn your flashlight on in a dark room, and you light something up. That's ILLUMINANCE. Turning on a light in a dark room to make the burglar visible gives you ILLUMINANCE. It also gives you another problem when you note the thief has a gun pointing at you.

Illuminance is the intensity or degree to which something is illuminated and is therefore not the amount of light produced by the light source. This is measured in foot-candles again! And when people talk about LUX, it's illuminance measured in metric units rather than English units of measure. To reinforce that, LUX is the measurement of actual light available at a given distance. A lux equals one lumen incident per square meter of illuminated surface area. They're measuring the same thing, just using different measurement units. Remember, one foot-candle is equal to one lumen per square foot or approximately 10.764 lux. If you go to Home Depot or Lowe's to buy bulbs you will see all these terms mixed together. They do it on purpose hoping you'll think they are more scientific and therefore, more healthy. You will soon see, this should not dictate your choices.

LUX is an abbreviation for Lumens per square meter. Foot-candles equal the number of Lumens per square feet of area.

A candlepower as a unit of measure (English) is not the same as a foot-candle. A candlepower is a measurement of the light at the source, not at the object you light up.

In theater or warehouses, something else is used to measure light intensity. Nowadays we use the term CANDELA instead of candlepower. Candlepower or CANDELA is a measure of how much light the bulb produces, measured at the bulb, rather than how much falls upon the thing you want to light up. Further confusing the matter is beam focus. That's how much candlepower can be focused using a reflector/lens assembly. Obviously, if you project all your light bulbs intensity at a given spot, or towards something, it will be more intense, and the illuminance will be higher.

And for you figuring out LED equivalents, first, you must know how many lumens your LED’s each produce. Then divide that value by 12.57 and you have candlepower of the LED. You don’t have foot-candles, remember foot-candles are illuminance. And we are measuring radiance.

Summing it all up:

Candlepower is a rating of light output at the source, using English measurements (rarely have I seen this in the USA).

Foot-candles are a measurement of light at an illuminated object.

Lumens are a metric equivalent to foot-candles in that they are measured at an object you want to illuminate.

Divide the number of lumens you have produced, or are capable of producing, by 12.57 and you get the candlepower equivalent of that light source.

We’ve now converted a measurement taken some distance from the illuminated object, converted it from a metric standard to an English unit of measure, and further converted it from a measure of illumination to a measure of radiation! Hopefully, you’ll find this helpful in your bio hacks should you see these or hear these things from your local stores or human resource departments. I can tell you when I tried to figure out the light intensity in my operating room I needed all of these to get an idea of just how much artificial light I was getting and it was staggering. No wonder I got ill ten years ago before I began to mitigate the risks. The dentist office came in a very distant number two. This is why I wear my blue blockers and do some other things before I go to get my teeth cleaned.


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