

BIOHACKERS

ISSUE 16

MAGAZINE

SPECIAL EDITION: Biohacking Water

EXCLUSIVE INTERVIEW
COFOUNDERS OF **LITEWATER SCIENTIFIC**
- THE FIRST AND ONLY SUPER DEUTERIUM-
DEPLETED LIGHT WATER

**VICTOR
SAGALOVSKY**

ROBERT SLOVAK

Also In Our AUGUST Edition:

- THE FORGOTTEN FOURTH STATE OF CONSCIOUSNESS
- CHRONICALLY ILL AND SEEKING SOLUTIONS
- RECHARGE RED LIGHT & HORMONES
- AND MUCH MORE!

THE ULTIMATE BIOHACK: **DEUTERIUM
DEPLETION**

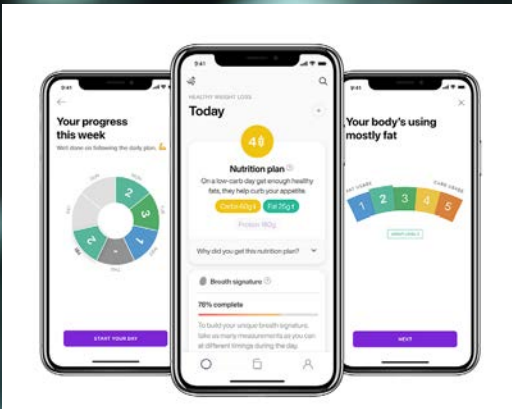
WHAT IS DEUTERIUM? **AND WHY DEplete IT?**

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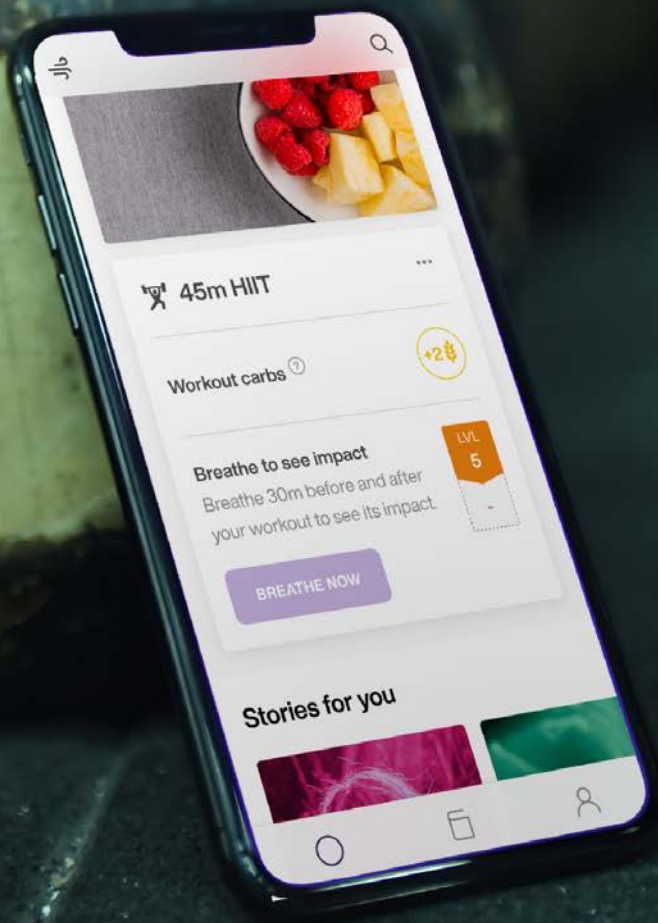


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Our Categories

Our categories bring you quality content in a clear, swift order, based off pure simplicity and experience.

Outer – This branch contains concise and ‘to the point’ articles that just touch the surface of what biohacking is as a subject while relating to everyday life and how biohacking fits in.

Inner – This category takes a deeper and more scientific approach to biohacking. These articles focus on a more scientific and analytical theme of biohacking, breaking down more of the whys and hows behind it all.

Core – Within this sphere lie many specific and perhaps relatively new biohacking articles, all backed by science and studies, many of which are written by experts in their relative field. These articles bring it all back to the big WHY behind biohacking while connecting it to all the facts.

A hand is shown from the wrist up, palm facing up, holding a glowing, wireframe-style brain. The background is a sunset or sunrise sky with orange and yellow clouds. A network of white dots connected by thin lines is overlaid on the entire image, resembling a neural network or data structure.

MESSAGES FROM OUR BIOHACKING TEAM

A LETTER FROM THE EDITOR

Progress. It's a word with meanings of advancement, improvement, a clear change towards a goal or objective. From the moment humans have inhabited this Earth, our whole existence as a species has experienced Progress, as well as Decay. Civilizations had flourished and progressed for many years, and then decayed slowly and rotted over time until there little to nothing left. What is left however are usually things that we following civilizations have studied and learned from. The remnants of civilizations are usually the teachings, technologies and tools that outlast them. History does love to repeat itself and leave the following generations wondering what their marks on the world and human progress will be.

Going beyond the terminology and historical examples, one can ask some more insightful, profound questions. The first being, why is there progress or decay in the first place? There is of course no clear answer to this, but I suppose it can be best summed up with the phrase, 'First there is time And then there is what you do with it.' By that I mean that there is a natural order to the way things are and that to accept that there is life given to each and every being, also means one's acceptance of this law of progress and decay.

We, as humans, are bound to grow, just as we're bound to shrink into old age. Although we cannot change this supernatural law of the universe, we can in many cases choose

how fast we progress or decay. We can use our rational human brain towards the consistent progression of ourselves, our community, our world. We can do this through sustained faith and steady discipline. In turn, this decreases the decaying rate. On the other hand, through the coddled comfort of selfishness and endless pity, we can do just the opposite and plateau our progress while accelerating our rate of decay.

One of the main reasons I like Biohacking is because of its communal camaraderie continually focusing on progress. In fact, many famed biohackers discovered and healed themselves through biohacking after finding themselves in a deathly sick cycle of decay and depression. Biohacking, when used safely, conservatively, and respectfully can help us determine what it is that we need to progress in, how we can do it, as well as how we can measure it, and why we should progress and become the best version of ourselves. We as individuals, families and communities can learn a lot through our experiences with decay and use these dark fragments to build a brighter picture of progress overall. And while history may indeed repeat itself as it continually proves, we as individuals have the power to choose our rate of progression and decay. Choose wisely.

ABOUT DALLAS MCCLAIN



Born in the USA, Dallas is a passionate reader of theological and personal development books. He holds a bachelor's degree in Biological Sciences. Teaching English abroad, Dallas has been immersed in various cultures and backgrounds while making friends all over the world. He is a Catholic Christian and enjoys time outdoors while being a tennis enthusiast. He is the Co-founder and Editor of Biohackers Update Magazine. He is currently living in Orlando, Florida with his wife & children, where he enjoys writing, sports, and nature hikes in his free time. Dallas can best be reached at his email: dallas.biohackersupdate.com@gmail.com

A MESSAGE FROM COO JEAN FALLACARA

Rethinking The Rule of Time.

When waking up every morning, I totally avoid exploring all the big questions such as, What's the meaning of life? Is there a God? What is Right, Wrong, Good or bad...?

I avoid these all for a simply reason: I don't want to over think right when I roll out of bed. I'd rather spend 10 good minutes meditating.

That motivation comes from Neuroscience. Morning anxiety has a biological cause, Cortisol, our "stress hormone," is higher during the first hour after waking for people experiencing stress. Sometimes you can even feel more in control when you worry, but actually you trigger a dramatic problem and will have serious trouble stopping this cycle, plus you are increasing your chances of having a long day of procrastinating.

The most important lesson I've learned the hard way in my life is that TIME is the Essence - it can't be made, it can only be taken; - either by us, or from us.

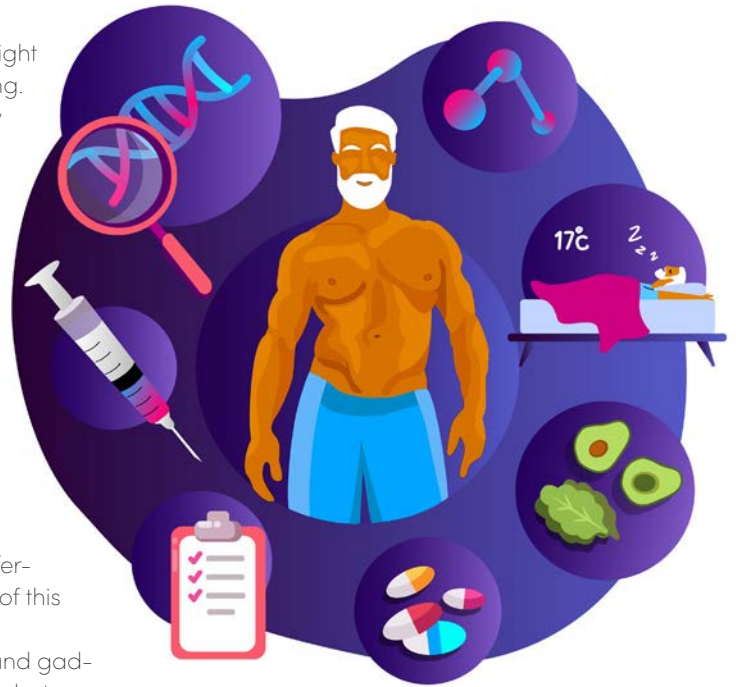
The equation is simple: The more Time is taken from us, the less of ourselves we must give.

Time is the most critical factor for creativity, improvement, and wellbeing.

I'm not talking about that open slot on your schedule - I am referring to your commitment to be fully present to make the quality of this allotted time more valuable.

As Biohackers, before even thinking supplements, techno gears and gadgets to optimize our lives, we should use some time to define what our real goals are and become more intentional about the most powerful words required to make the most of our TIME.

Time is Your Choice and the Best Biohacks are freely available as long as you are alive.... #lifeonpurpose



ABOUT JEAN FALLACARA



Born in France, Jean is an athlete, entrepreneur, scientist, public speaker and an Art collector. He is the founder and CEO of Cyborggainz, the Managing Director at inTEST Corporation and the COO of Biohackers Update Magazine. He is also the author of "Neuroscience Calisthenics: Hijack your Body Clock." Jean holds a bachelor's degree in biochemistry, a master's degree in immunology and genetics, and an engineering degree in biotechnology. He has also studied neurosciences and brain functionalities, and law and finances. He is currently living in between Boston and Montreal after his biotech company was acquired by inTEST Corp (NYSE:INTT) in October 2021.

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Website: cyborggainz.com

ARJUN'S STATEMENT

"If you want to find the secrets of the universe, think in terms of energy, frequency, and vibration." Nikola Tesla.

We are all made of energy, the food we eat, the air we breathe and everything we absorb becomes energy. Now what we absorb as living beings defines the type of energy we create and store. Good food and environment create good and positive energy, bad food and environment lead to negative energy.

Accumulation of too much bad energy in the body causes illness, it can be one of the reasons why almost everyone is suffering from something or the other. You will hardly find anyone who says they are healthy or free of illness, everyone has something, be it mental health problems, digestive, diabetes, or any of the fatal ones.

To exist in the universe, we need to understand its language, learn about energy. How much do we need? What are clean sources to get them? Why are you consuming what you are consuming?

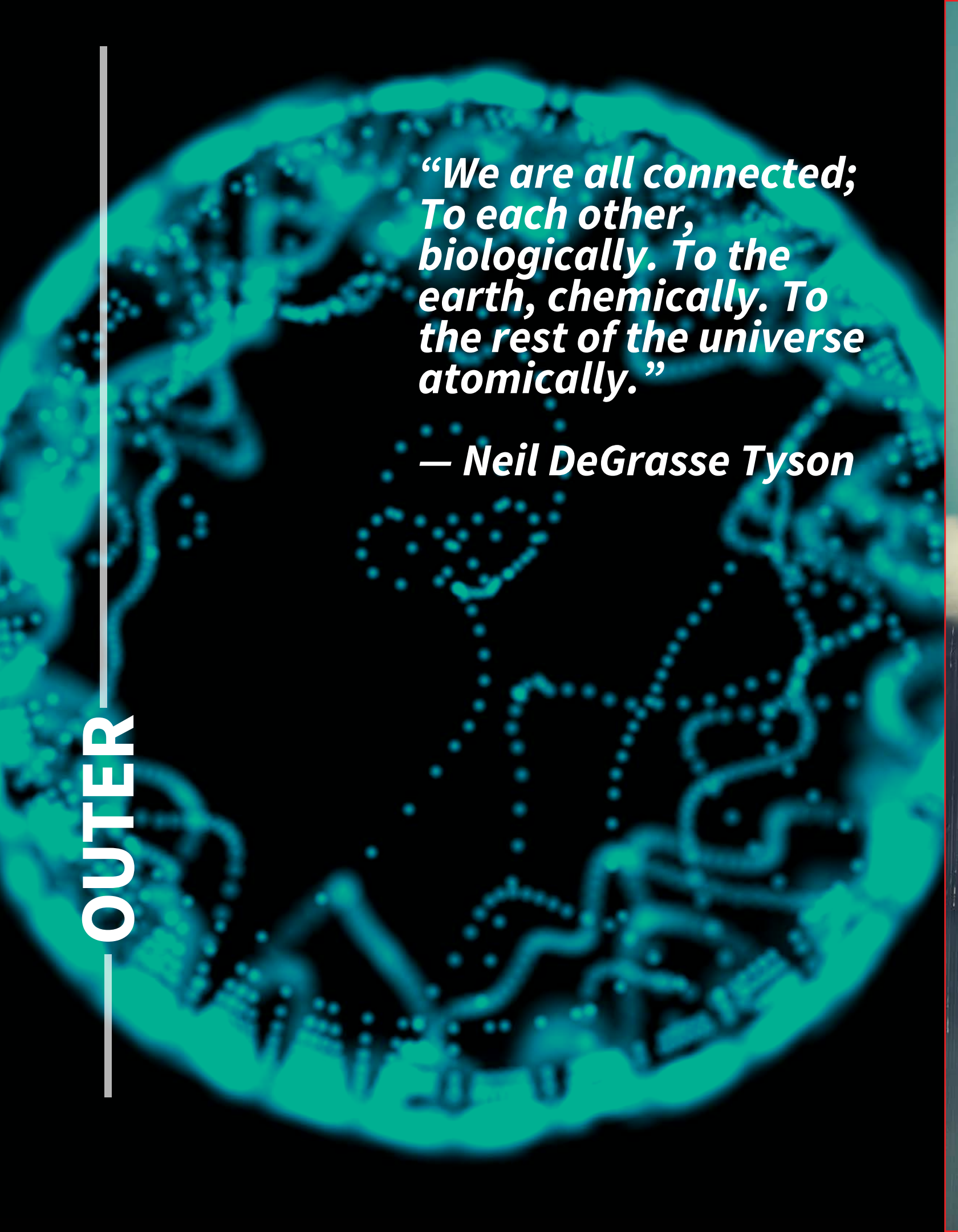
Ask questions, introspect, question your living, because if we don't question our existence, how else would we grow?



ABOUT ARJUN CHAUHAN



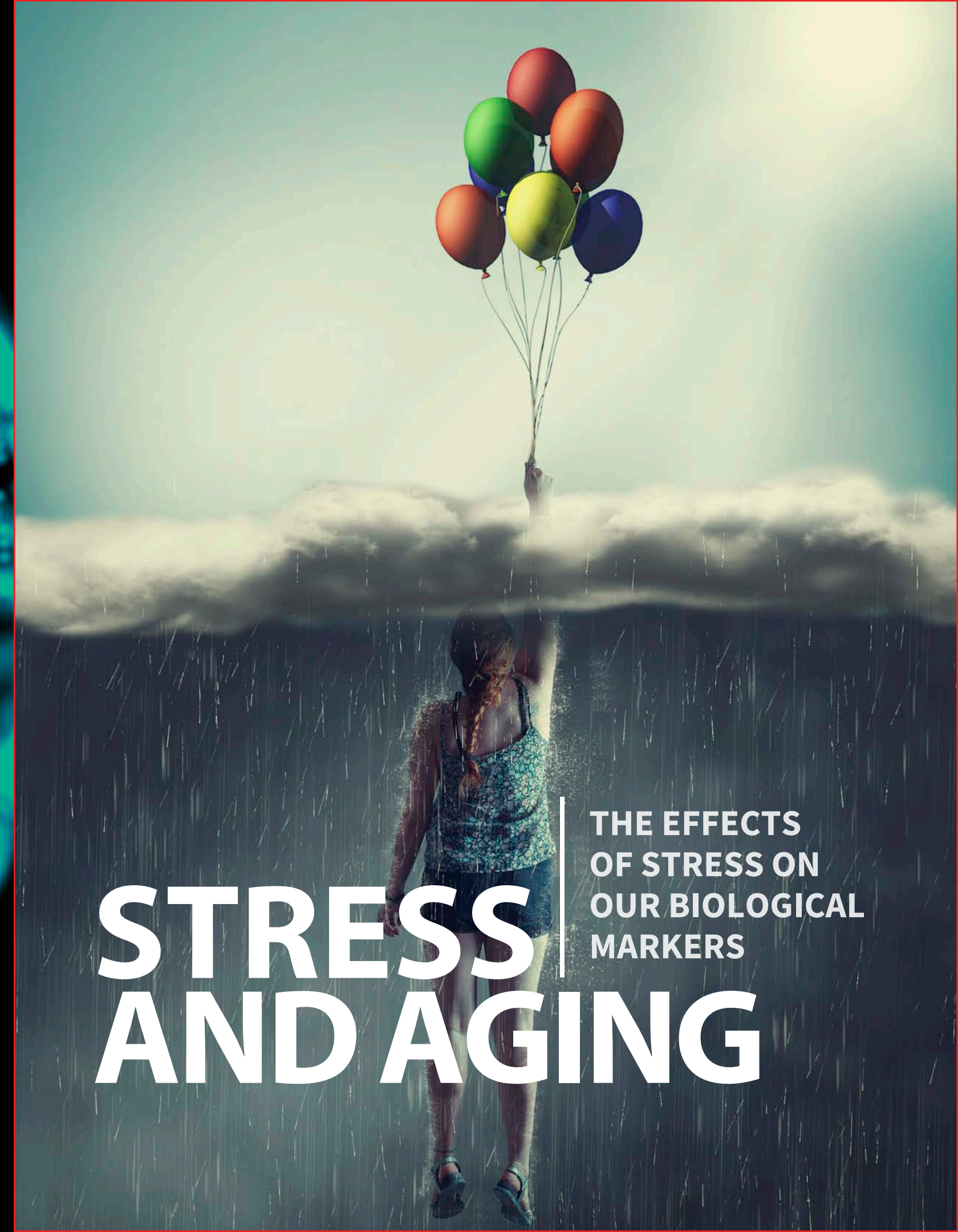
Born in India, Arjun is the master of all trades, the Chief Marketing Officer of Biohackers Update Magazine and a soccer enthusiast. He holds a bachelor's in commerce and a Master's in Business administration, specializing in marketing and human resources. He has 6 years of experience in Content Marketing and is always looking forward to gaining more from life. With a passion towards nature, he is currently in the Foothills of Himalayas, in the northern part of India.

The background of the entire page is a composite image. The top half shows a view of Earth from space, with swirling white clouds over a dark blue ocean. The bottom half transitions into a dark blue night sky filled with white stars. A constellation of stars is connected by thin white lines, forming a shape that resembles a large, stylized letter 'A' or a similar geometric pattern. The text is overlaid on this background.

— OUTER

***“We are all connected;
To each other,
biologically. To the
earth, chemically. To
the rest of the universe
atomically.”***

— Neil DeGrasse Tyson

A person with long hair in a braid, wearing a patterned tank top and shorts, stands in a heavy rainstorm. They are holding a bunch of colorful balloons (red, green, yellow, blue) that float above a layer of dark clouds. The scene is dramatic, with rain falling heavily around the person.

STRESS AND AGING

THE EFFECTS
OF STRESS ON
OUR BIOLOGICAL
MARKERS

Introduction:

The aim of this article is to first determine the psychological effects of stress on clinical and biological markers of aging as well as their mechanisms. Then I will discuss the role of positive emotions in their prevention.

As part of the University Diploma in Morphological Medicine and Anti-Aging, it's useful to remember that whatever the techniques used for restoring the body's image in the face of aging, our patients "bathe" in an emotional environment and this effect must be taken into account.

Studies and Research:

Studies on the effect of emotions on aging have been identified by a Pubmed research and Google Scholar. The search strategy is based on the keywords "stress", "emotion", "aging", "senescence", "prevention" and links to related articles. No date or language limits were applied. 64 studies were selected. The results were classified to list the markers of aging influenced by the emotions, the mechanisms of action and the prevention of these effects.

Results:

Age markers and the effects of stress on the biological markers of age and the organs of the body.

Biological markers of age

Age is characterized by a progressive loss of physical integrity. This damage is the major risk of pathologies such as diabetes, cancer, heart disease or neurodegenerative diseases. The evolution of age is determined by biological processes that can be explored.

Different biological markers were evaluated.

-**Lopez-Otin's study** in 2016 (1) proposes: the instability of the genome, the shortening of telomeres, epigenetic damage, the reduction of proteostasis (balance between syntheses and degradation of proteins), the deregulation of the capacity of cells to recognize substrates such as glucose (nutrient sensing), mitochondrial dysfunction, cellular senescence and impaired intercellular communication, all are involved in aging.

-**Methylation:** Studies in humans have shown that changes in DNA methylation (i.e. the presence or



absence of a methyl group on cytosine) are linked to pathologies of aging. These methylations have been proposed as biomarkers of age (2) (3) like an "epigenetic clock".

-N-glycosylation is the addition of carbohydrates to peptide chains in the endoplasmic reticulum. Plasma N-glycosylation has been proposed as a marker of physiological age (4).

-Elevated proinflammatory cytokines. Physiologically, age is associated with an elevation of proinflammatory cytokines. This phenomenon called "INFLAMMAGING" was described in 2013 (5).

-The klotho gene and the protein it encodes play an important role in longevity (6).

The effects of stress have been studied on most of these markers.

Effects on the markers proposed by Lopez-Otin

Among the biological markers of age proposed by Lopez-Otin, three are influenced by the stress response (7) (8). The effect of stress has been demonstrated on DNA damage, telomere shortening and certain genetic expressions. In humans, various studies show that epigenetic age can be accelerated by psychological stress (9), war trauma (10) or even childhood (11). The effects of stress on aging can appear very early. Childhood trauma is associated with changes in the response to inflammation (12) and telomere shortening (13). Elisabeth Blackburn and Elisa Epel then show that DNA of stressed mothers of children with chronic illnesses show a shortening of telomeres (14). It reflects cellular senescence, hematopoietic reserves of stem cells. The effect of stress on this telomere shortening is well documented (15) (16). The effect is very early and can appear as early as the prenatal stage (17). Several studies also report the effects of post-traumatic stress on telomere length (18) (19) (20). A study investigated this phenomenon in caregivers subjected to anticipatory stress (21).

Effects on Klotho

A similar study finds an influence of stress on aging by studying the effects on the Klotho protein (22).

Effects on N-Glycosylation

Post-traumatic stress alters plasma N-glycosylation. People subjected to post-traumatic stress showed a N-glycosylation profile 15 years older than their age (23).

Effects on DNA and methylation

Similarly, post-traumatic stress causes direct



damage to nucleic DNA (24) and methylation (25).

Therefore, stress has many repercussions on biological markers of aging.

Effects on the organs

Stress has effects on age-related pathologies. People suffering from depression or anxiety have higher cardiovascular risks than the general population (26). The effects of stress on the heart are similar to those of physiological aging. The long-term effects are not only cardiovascular but also infectious, auto-immune and cancerous by production of free radicals (27) (28). Long-term stress has cognitive effects and increases risk of Alzheimer's disease (29).

On the skin, the action of stress on aging was

the subject of a review in 2013 (30). A study in rats shows that chronic exposure to stress accelerates skin aging with an action to fibroblasts (31).

In in-vitro fertilization centers, ovarian reserve is an essential marker of physiological age. Stress decreases ovarian reserve in pre-menopausal women (32) (33).

Osteoporosis is a typical disease of skeletal aging. Chronic stress promotes it. Chronic stimulation of the hypothalamic-pituitary-adrenal axis promotes osteolysis and decreases osteogenesis (34).

Therefore, stress has organic effects on aging.

Discussion

Stress and its systemic effects

“Chronic” stress is defined as an uncomfortable emotional experience with behavioral, physiological and biochemical effects. The effects of stress on health are numerous with neuroendocrine, metabolic and immune effects, with biochemical damage (35) (36).

Stress involves the nervous, endocrine and immune systems. Activation of the hypothalamic-pituitary axis leads to the secretion of cortisol and catecholamines by the adrenals. Chronic activation of these systems causes physical and psychic disorders. With age, hormonal regulation deteriorates. The reactivity to stress of the hypothalamic-pituitary axis is greater (37).

The molecular cascade linking stress to epigenetic age involves different mechanisms. A study links the endogenous secretion of glucocorticoids in response to stress and changes in the methylation of certain genes involved in age-related pathologies such as coronary heart disease, arteriosclerosis and leukemia via the **FKBP5** gene. The Zannas team (Max Planck Institute of Psychiatry, Munich) showed that in the event of aging and depression, the FKBP5 gene was hypomethylated and therefore overexpressed (38) like a “molecular scar of stress”. The effect of stress on FKBP5 would be due to endogenous glucocorticoids produced by stress (39).

Mental disorders as well as post-traumatic stress are associated with an elevation of proinflammatory cytokines (40) (41) (42) like age. In the short term, stress hormones, including cortisol, inhibit the secretion of the cytokines and have an anti-inflammatory action. On the other hand, chronic activation of the hypothalamic-pituitary axis leads to resistance to cortisol and a decrease in feedback control (43). The excess of cortisol secretion results in consequences for the physiological effects of aging (44).



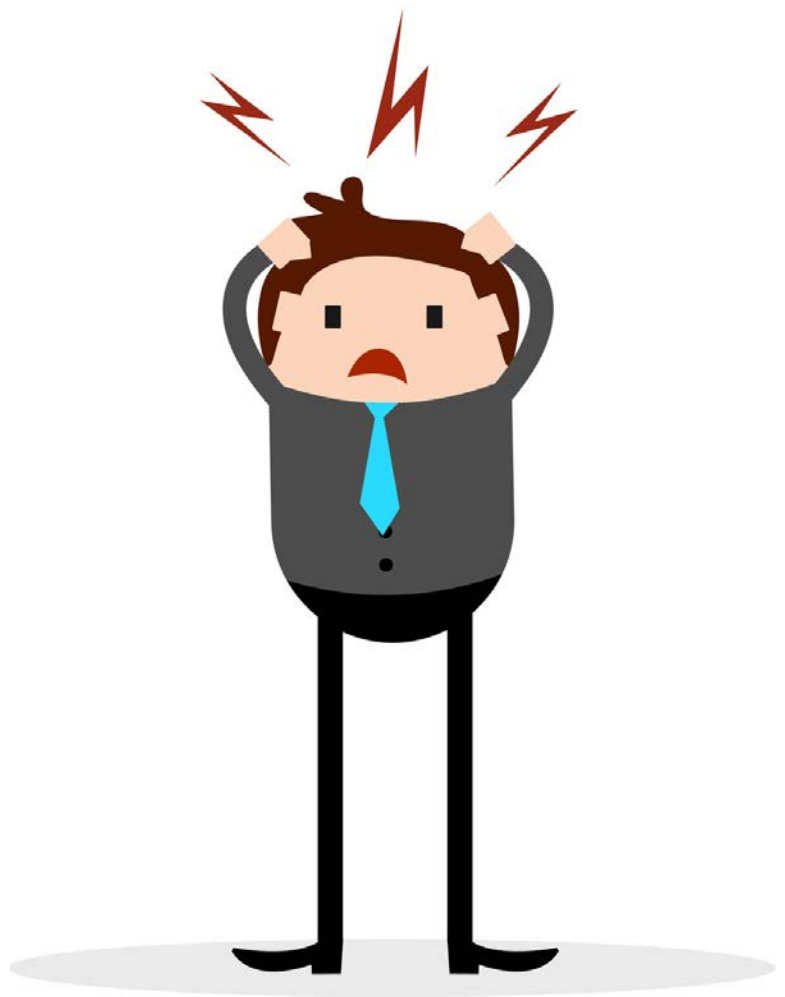
How to fight against the effects of stress on aging?

Today, all living beings are the result of a “natural selection” of all their ancestors who survived thanks to stress. Activation of the sympathetic nervous system enables the body’s “fight or flight” response. Therefore, stress has a protective effect by participating in homeostasis. Physiologically, this “necessary” stress is called hormetic stress or eustress (45). The limit at which stress ceases to be hormetic and becomes deleterious depends on individual factors. Similarly, if stress and “negative” emotions have an effect on aging, the corollary question is whether “positive” emotions or ways to deal with stress have an effect on slowing down age.

Many treatments used in psychiatry can fight the effects of stress. Their antidepressant effects allow the regulation of monoamines, glutamate, GABA and cortisol. They do, however, have many side effects (46). Psychotherapeutic methods have similar effects to these treatments without the side effects (47). They have actions on heart and respiratory rate, electroencephalographic elements and even skin tone (48). The effects of psychotherapies are found in DNA. The effects of post-traumatic stress on DNA disappear after psychotherapeutic treatment (49). Apart from psychotherapies, physical activity also has a psychotherapeutic effect (50). There is an epigenetic protective effect of stress prevention.

The effects of thought on the body are well known. Charcot published a book about it called “The healing faith” in the 19th century. The best-known expression is the placebo effect. This “power” of suggestion and belief, which can be found in hypnosis, among other things, has real effects on the body. The placebo effect can even allow an improvement in lesions such as osteoarthritis, a widespread pathology in the elderly. Moseley showed that sham knee arthroscopy procedures had results similar to a real procedure (51) as long as the patient was persuaded to have real surgery.

The Mayo Clinic study (52) followed 447 people for over more than 30 years. Optimistic people were physically and mentally healthier. The same year, the Yale study (53) (54) of 660 people over 50 years



old showed that those who had a positive attitude towards aging lived on average 7 years longer. The “nun study” launched in 1986 by Snowdon with 678 nuns studied many aspects of cognitive aging. In particular, it shows that optimism increases life expectancy (55).

Among non-drug methods of stress management, Chinese gymnastics (qigong) has been studied in sexually abused women. These women had shorter telomeres than the other women. The ten-month study showed reversibility of telomere damage (56).

Of all the non-drug methods of stress management, the one that has been studied the most is mindfulness meditation. Initially confined to spirituality, meditation has been democratized since the 80s under the impetus of Jon Kabat Zinn who created MBSR: Mindfulness Based Stress Reduction. Its effects on stress are well documented (57) as well as aging (58). Its effect on telomerase activity has been shown (59) in particular in patients suffering from breast cancer (60).



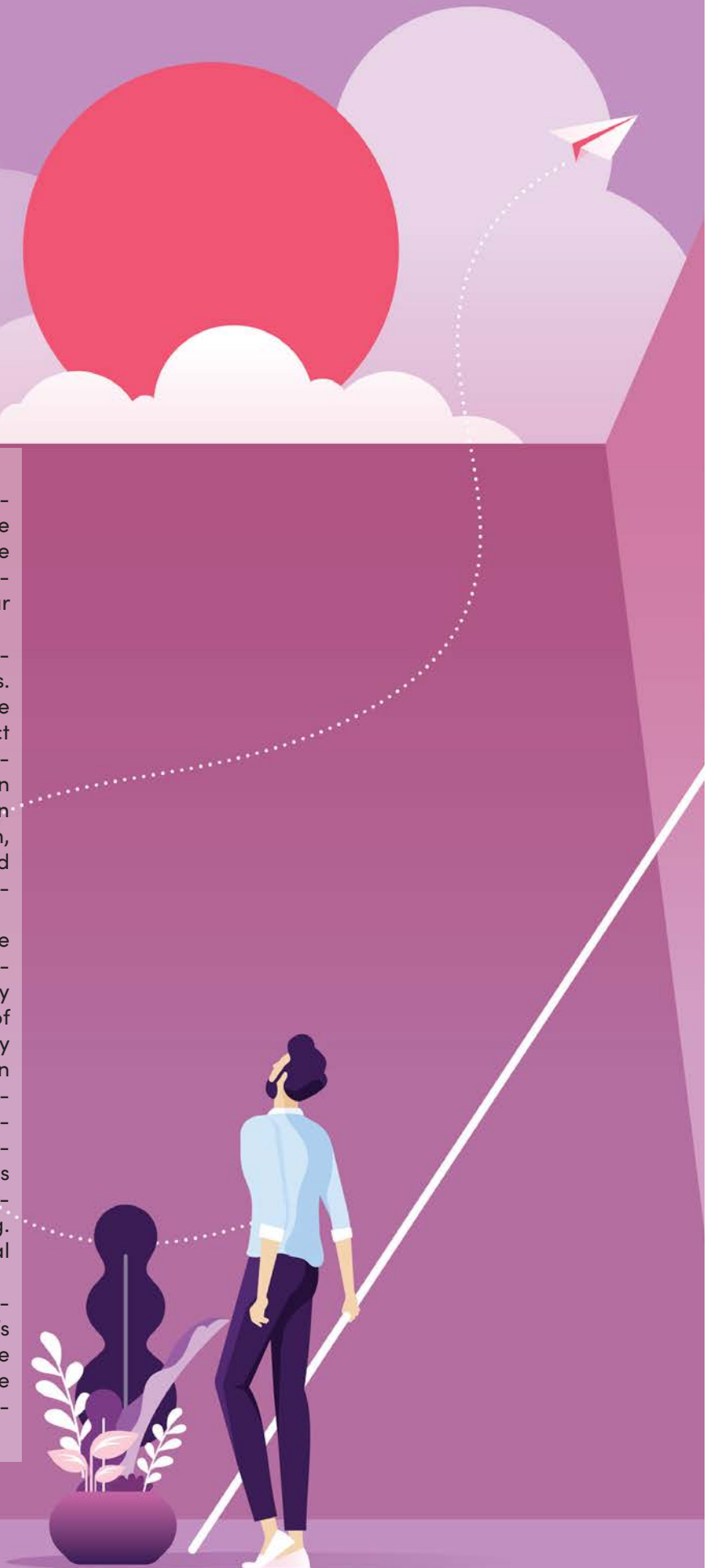
Conclusion

More than half a century ago, Hans Selye, considered as the father of stress research, wrote "Every stress leaves an indelible scar, and the body pays for its survival after a stressful situation by getting a little older", like a "molecular scar of stress".

The epigenetic effects of stress on the organism leave molecular, cellular and tissue traces. Of the biological markers of age, several have been linked to the stress response. The effect of stress has been demonstrated on DNA damage, the shortening of telomeres and certain genetic expressions, the methylation of certain genes, changes in the profile of N Glycosylation, increases in pro-inflammatory cytokines - ...and the effects are the consequence of chronic neuroendocrine activation.

These acquired epigenetic traces can be passed on to next generations. Prolonged contact with high cortisol levels during pregnancy can scar the child's DNA (61). This transmission of acquired DNA changes was also found in a study comparing fetal telomere lengths depending on mothers' stress during pregnancy (62). The recent study conducted on descendants of Holocaust survivors (63) shows that they have epigenetic alterations in their genome. Anti-stress methods such as psychotherapies (64) and positive emotions have a protective effect on aging. This effect has been shown on both biological and clinical markers.

"Stress", also called "the disease of the century", has effects on our organism, our children's organism and aging. Its management could be a cause of public health and integrated into the overall management of patients in morphological and anti-aging medicine.



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ABOUT DR. DENYS COESTER



Dr. Denys is the author of the first biohacking book in France. He has been in the medicine field since 1990 and has been invited to share his expertise with some of the most known media in his country, on TV, radio and printed magazines. He has been published by some of the biggest and most serious publishers in France for whom he wrote 3 books, the latest being on the Secrets of the Immunity. He has been the very first clinician to receive the two anti-aging health diplomas which are officially recognized by the French government. He is currently teaching at the medical schools of Paris V. Descartes and Paris XII Créteil. Dr. Denys also creates mind-body products for various medical issues: sugar addiction, tinnitus, overweight, pain, nicotine addiction, etc.

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Facebook: <https://www.facebook.com/docteur.denys.biohacking> & <https://www.facebook.com/denys.coester>

THE DOG WHISPERER

A (True) Story of Meditation



Fear is a funny thing. It grips you by the throat. Ghosts of the past claw at your skin, dragging you away from situations possibly deemed unfit. That's not to say fear isn't a great tool, as the human race would not have lasted nearly as long as it has without the help of some good 'ole adrenaline, but it is also an element that can hold you back. Regardless of whether the fear is rational or not, the emotions accompanied with it are very real. I am still growing; I am still learning and there often comes moments in life where I can't help but feel as though there must be some sort of magic surrounding our existence. Little did I know how void the meaning of fear is when compared to the intertwining energies of our world.

I've been afraid of dogs ever since I was little. Of course, like many fears, it didn't start off that way. I owned one, and it wasn't that I was particularly close with him or that I considered him my "furry best friend", but in my mind there was a sim-

ple understanding of respect between the dog and I. Unlike my brothers, I refrained from messing around with him too much and in return Milo, he was called, often came to keep me company in the dark of night. As far as I was concerned that was a pretty fair deal. Old age changes animals, similarly to humans, and as they hurt they tend to unleash their emotions outwards. I guess Milo wasn't feeling too well, as a malignant cancer was spreading inside his bones. Unexpectedly, while I was petting him, he bit me. His powerful jaws locked around my hands, razor sharp canines searing through my skin. Fear of not just the animal, but also the species began blossoming within me, and whoever dwells on fear invites hate. Now I wasn't cruel to dogs, nor did I wish them any ill intentions, but simple actions such as petting them or even looking at them froze my blood cold. As far as I was concerned, dogs hated me, and I hated them right back.



It's been years since the Milo accident, and yet, when a dog happens to be on the same sidewalk as me, I still cross the street. Though I've worked on a variety of skills to truly elevate my mindset, some fears are so deeply rooted from the trauma that they are much harder to shake off.

I like to begin my day with mindfulness meditation. I've always found that it gave me an unexplainable calm energy for me to work through the day. On July 17th, 2022, I replicated my everyday routine in the park near my apartment in Boston.

Though me and dogs weren't the best of friends, something led me that day to the dog section of the greenery, the image of puppies and elders chasing after balls with careless happiness brought to me a strange wave of calmness. I relaxed, inhaled a breath of the warm summer air, and felt it invade my lungs, slowly leaving my mind deliciously blank. After about half an hour, a thick coat of fur seemed to rest on my leg. Distracted, my eyes flashed open only for them to widen at the sight before me. Eleven dogs had come to nestle around me, one of whose head laid gently on my lap, his eyes peacefully closed. I didn't dare move, not because I was frozen with fear, but because for the first time I simply cared about not waking up the dogs.

One of the dog's owners, I assumed of the Pitbull whose brown fur caressed my thigh, approached me. Curiosity was spiking his eyes.

"How on earth did you do that?" Still in a dream like state, I shrugged.

"I have no idea man."

"Do you have dogs at home or something?" I breathlessly laughed at that.

"Oh I'm terrified of dogs." The stranger frowned for just an instance.

"C'mon Molly it's time to go!" Molly's square face lifted from my lap, yawned and stretched her legs before trotting over to her rightful owner. I got up and walked home with a small smile on my face, my lips curling ever so slightly.

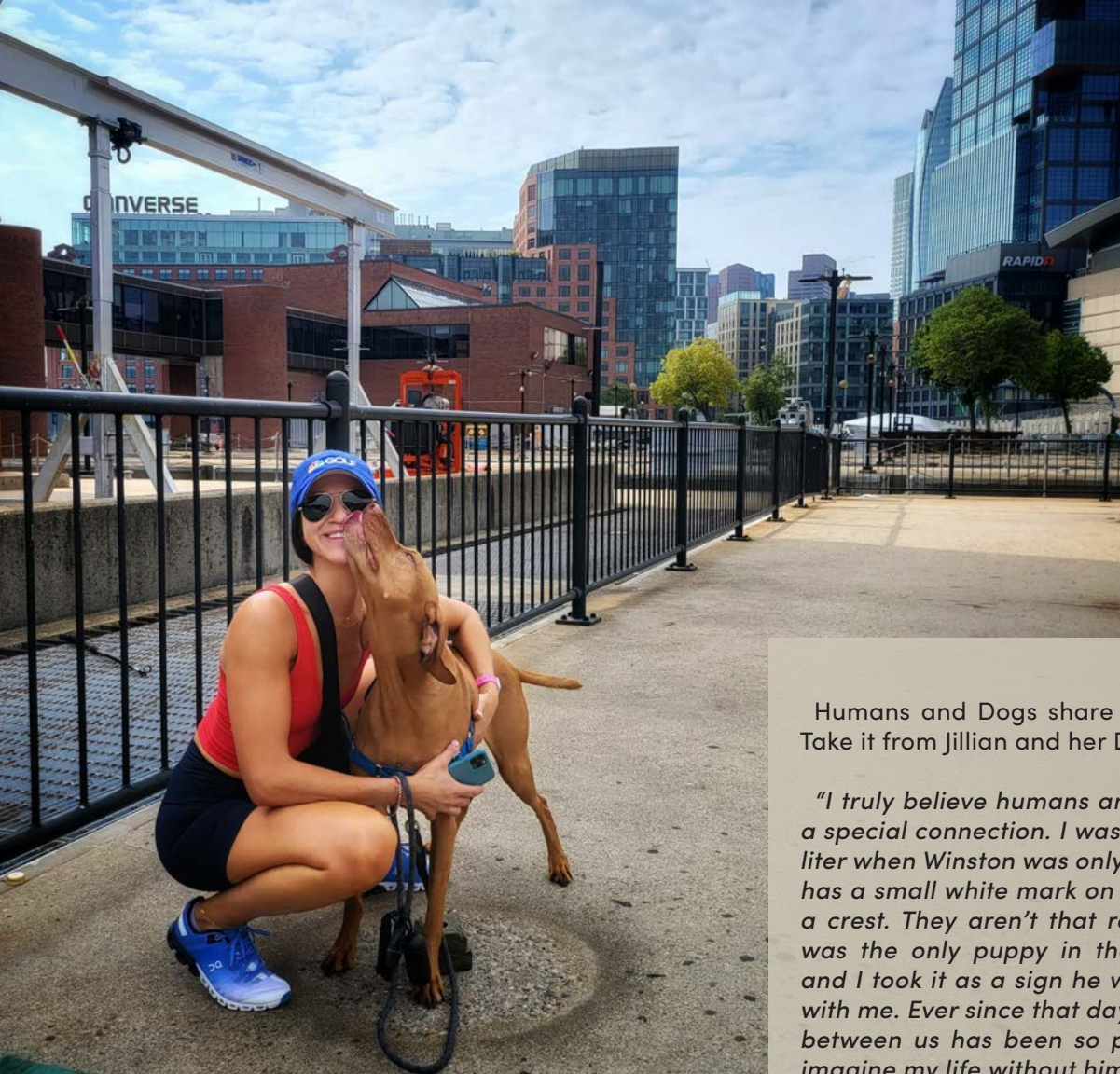
After discussing this even with fellow researchers, we concluded that the energy we emit, the frequency, can either attract or repel other species around us. As I had been exuding a calm, high frequency, the dogs at the park had found peacefulness and relaxation around me, bathing in my energy.

I still wonder today, if my brain was in between the 432Hz Nature's Frequency and

The 639Hz Rebalancing Positive Energy Frequency, or if it was simply aligned to the electromagnetic field around the Earth, (Schumann Resonances), which has maintained a value of 7.83Hz, the Earth's natural frequency. (See my posts for more info). One thing is for sure, next time I'll wear my EGG!

There are a lot of morals to this story, the obvious one that meditation really does change you. However, I believe the biggest lesson is that often fear is simply a reaction to your environment and not a result of animosity. Goodness is a language spoken through all species of the world and raising your vibration signifies a lot more than simply feeling better about yourself. You can become an oasis for those in need.





Humans and Dogs share a special bond.
Take it from Jillian and her Dog Winston

"I truly believe humans and animals have a special connection. I was able to visit the litter when Winston was only 2 weeks old. He has a small white mark on his chest, called a crest. They aren't that rare but Winston was the only puppy in the litter with one and I took it as a sign he was meant to be with me. Ever since that day the connection between us has been so powerful...I can't imagine my life without him."

ABOUT JEAN FALLACARA & NOEE SPIEGEL



Born in France, Jean is an athlete, entrepreneur, scientist, public speaker and an Art collector. He is the founder and CEO of Cyborggainz, the Managing Director at inTEST Corporation and the COO of Biohackers Update Magazine. He is also the author of "Neuroscience Calisthenics: Hijack your Body Clock." Jean holds a bachelor's degree in biochemistry, a master's degree in immunology and genetics, and an engineering degree in biotechnology. He has also studied neurosciences and brain functionalities, and law and finances. He is currently living in between Boston and Montreal after his biotech company was acquired by inTEST Corp (NYSE:INTT) in October 2021.

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Noee Mathilda Spiegel is a published reporter, in charge of research. She writes or reviews most articles and reports on information.

A person is inside a large, transparent, inflatable sphere that is partially submerged in a body of water. The person is in a dynamic, acrobatic pose, with one leg bent and arms extended. The sphere's surface reflects the surrounding environment, including the sky and the water. The water is calm, and the background shows a shoreline with some vegetation and a clear sky.

*“One who looks around
him is intelligent, one
who looks within him is
wise.”*

— Matshona Dhliwayo

INNER

TRANS-CRANIAL PHOTO-BIOMODULATION



Cognitive Enhancement
and Success



Intelligence, how do we amass more of it? When we want to achieve more, do more and simply be more. To shatter glass ceilings creates a drive like no other. Success is a success, but at what speed you can succeed matters the most.

The true question is, how do we build a brain that can parallel this kind of tenacity?

By decoding the brain, mapping the brain, and identifying the areas of dysconnectivity, only then can you begin to decipher the enhancements required for relentless achievement.

Learn to use Nature's prescriptions and tap into your body's innate regenerative ability. This same power that was gifted to you by the Universe that God ordained.

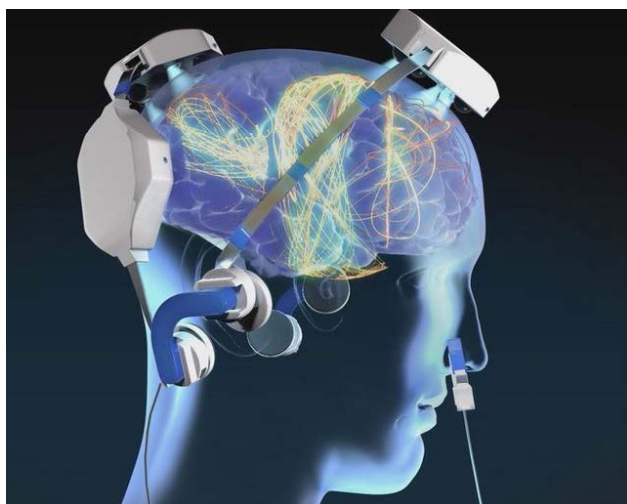
The manipulation of photonic frequencies is the answer to accelerated intelligence. Just as Tesla discovered, harnessing the power of electromagnetic energy is the solution.

At the level of neural tissues, this is what is known as transcranial photobiomodulation. Founded on the basis that red light can aid in wound healing, this fascinating area of research began around 15 years ago.

"My brain is only a receiver, in the Universe there is a core from which we obtain knowledge, strength and inspiration."

- Nikola Tesla

When you think about the brain, you must understand that our neurons are inherently electrochemical systems, and there is an interdependency between the two variables.



Remember this relationship.

An equal reaction is obeyed whether you change the chemistry or influence the electrical activity.

Research suggests that to control the chemistry is idle, but to govern the electricity is to win.

By using specific wavelengths of light, we can dominate the intricate relationship of neuronal interdependence.



And, as we calibrate the spectrum and pick the nanometer, we learn that we can impact certain parts of our cerebrum to perform to the best of their ability.

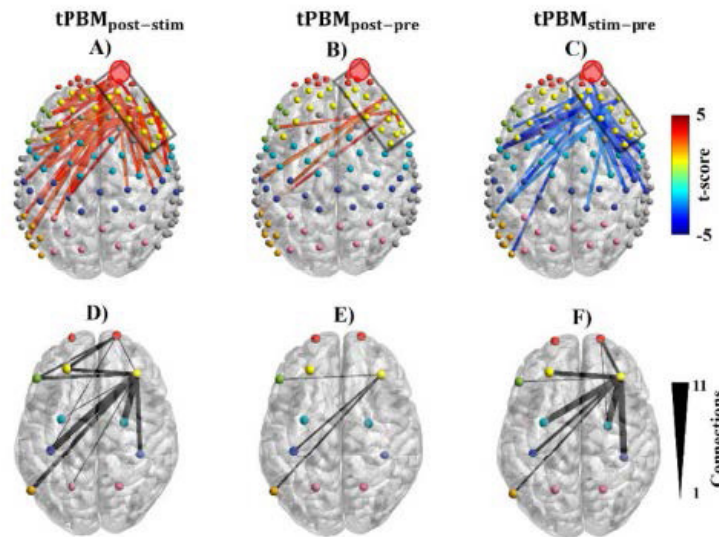
Decades of data suggests that photons of light energy from calculated ranges bring about outstanding biological and cellular effects.

Transcranial photobiomodulation-induced changes in human brain functional connectivity and network metrics mapped by whole-head functional near-infrared spectroscopy in vivo (Urquhart et al., 2020). (Figure 1)

Combined with neuro-feedback techniques and quantitative electroencephalogram (EEGs), we can analyze patterns of cognitive dysfunction and repair where repair is due.

Together, we restore dysconnectivity between the

(Figure 1)



two hemispheres and induce extraordinary forms of neurogenesis. We can develop a neuroplastic flexibility like never before. We can force brilliance.

"My brain is the key that sets me free."
- Harry Houdini

Worldwide clinical experience has seen sustained improvements combined with a refined structure, many patients show little to no regression.

The future is to envision the efficiency of the brain's operating power after months of using this kind of technology.

To be clear, photobiomodulation is otherwise commonly known as light therapy. And nanometer refers to where on the spectrum the light energy is coming from.

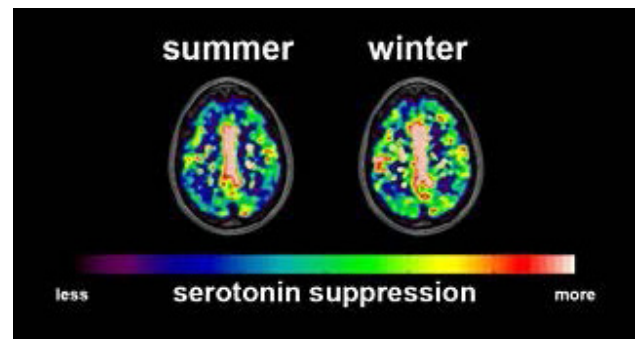
Blue is in the 400nm range and can help clear bacteria, especially acne. Yellow is also useful for some therapeutic avenues. But the real focus lies on red and infrared.

600-700nm becomes visible red, and infrared is usually 700nm-1200nm.

+1000nm are where the high-powered lasers come in.

The difference between infrared and red light is that infrared has a longer wavelength and can penetrate more deeply.

Although visible red is shorter in wavelength and has a superficial depth of penetration, visible red can have an enhanced systemic healing effect and is absorbed by the platelets in the blood and then taken throughout the body.



Seasonal difference in brain serotonin transporter binding predicts symptom severity in patients with seasonal affective disorder (Mc Mahon et al., 2016).

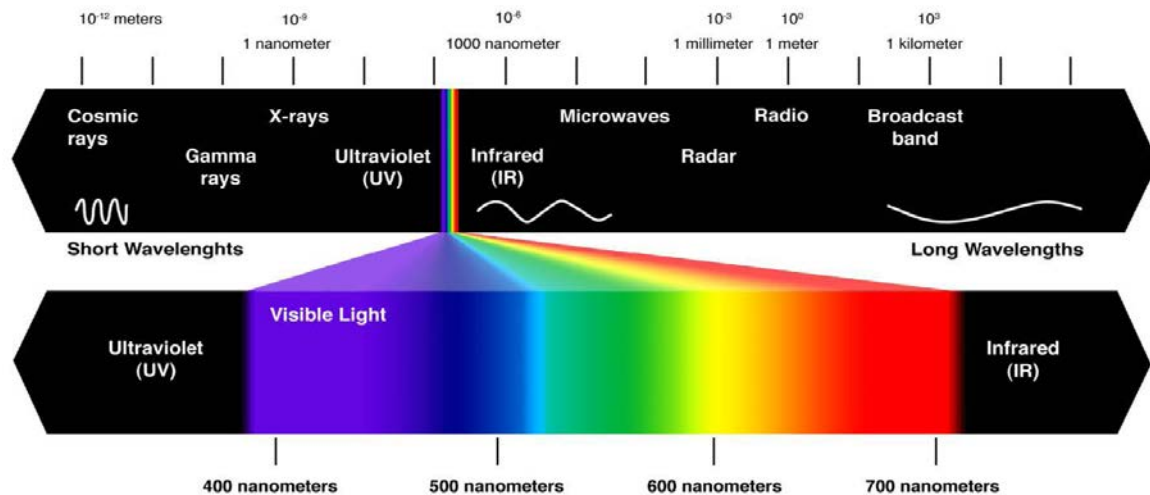
If you think this is new stuff, just think about seasonal affective disorder, and how gloomy, cold and dark winters affect your mood.

On the other hand, think about how much more energized and relaxed you feel in the sun.

To take this a step further, recent evidence suggests that the photons of energy emitted by a PBM device can penetrate through the scalp, hair follicles and skull and enter into the layers of the brain and surrounding fluids.

Thus alleviating the symptoms of Alzheimer's and dementia or enhancing your cognitive function to the extreme.

The fundamental mechanism of action is that these photons of light are absorbed by photosensitive chromophores situated with the mitochondria.



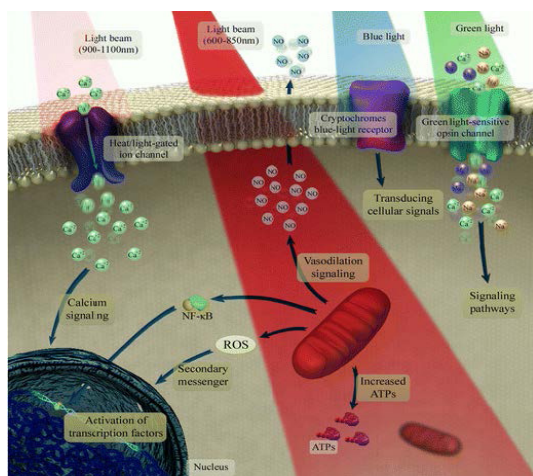
When these little chromatic elements within the cell absorb light energy, a positive biochemical downstream effect is observed.

To recap, our mitochondria are like our cellular engines and supply us with adenosine triphosphate (ATP). Hence, ATP is like the gasoline of the cell.

So, when we stimulate the chromophores within the mitochondria with specific frequencies of light, we generate more ATP. Our engine is running better with more fuel.

As a result, we see an increase in cell metabolism, a reduction in oxidative stress and a decrease in inflammation. This mechanism alone targets the key hallmark pathologies seen in cognitive decline.

To define this process in more detail, within the mitochondria, there is a protein called cytochrome C oxidase (chromophore). Cytochrome C oxidase is reactive to light frequencies between the 700-900nm range.



Brain Photobiomodulation Therapy: a Narrative Review (Salehpour et al., 2018)

In terms of regeneration, when the brain needs to repair and enhance function, the neurons cry out for an enhanced cellular energy supply. And by stimulating the mitochondria with these frequencies, you are giving them a considerable catalyst to raise their biological activity.

Researchers have celebrated harmonious results in patients with severe cognitive decline in a clinical setting.

These include:

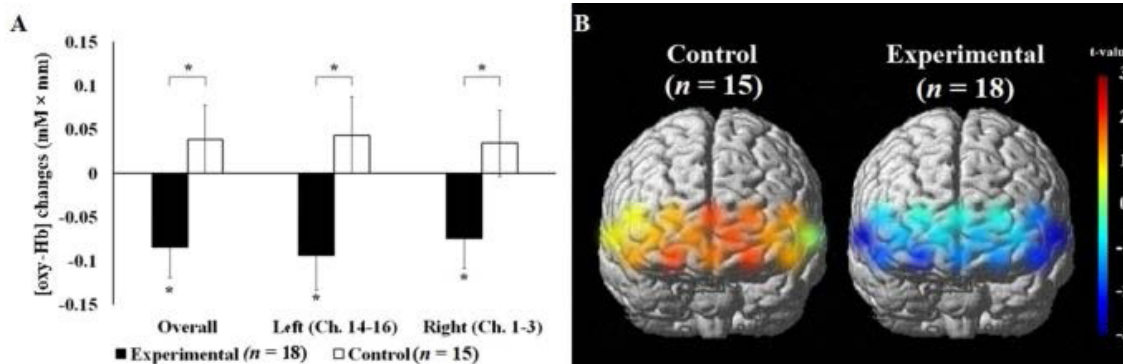
- Enhancement of sleep.
- Behavioral changes such as fewer outbursts and flying off the handle.
- Improved focus.
- Decreased frequency of headaches.

In 33 healthy young adults, photobiomodulation was seen to aid in memory-related frontal activation significantly. Chan et al., hypothesized that photobiomodulation may reduce the cognitive efforts needed to complete tasks with high memory loads.

Even after a single session, young adults significantly improve sustained attention and short-term memory. Additionally, the same cohorts improved performance on flexible thinking and inhibitory control.

"Our terminal decline into old age and death stems from the fine print of the contract that we signed with our mitochondria two billion years ago."

- Nick Lane

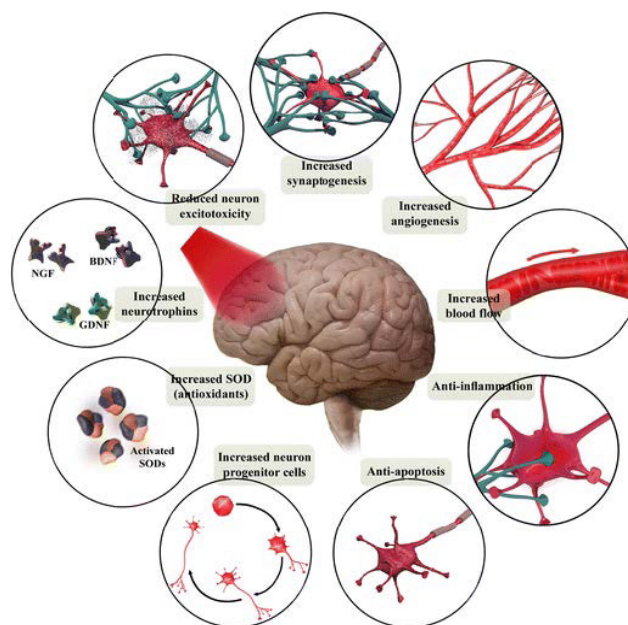


Photoneuromodulation makes a difficult cognitive task less arduous (Chan, Lee, Hamblin and Cheung, 2021)

So, it seems just by using Mother Nature's natural resource of light, we can alter our whole level of functioning and consciousness. It is important to note that photobiomodulation is holistic, non-invasive and natural.

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ABOUT JESSICA ALANA

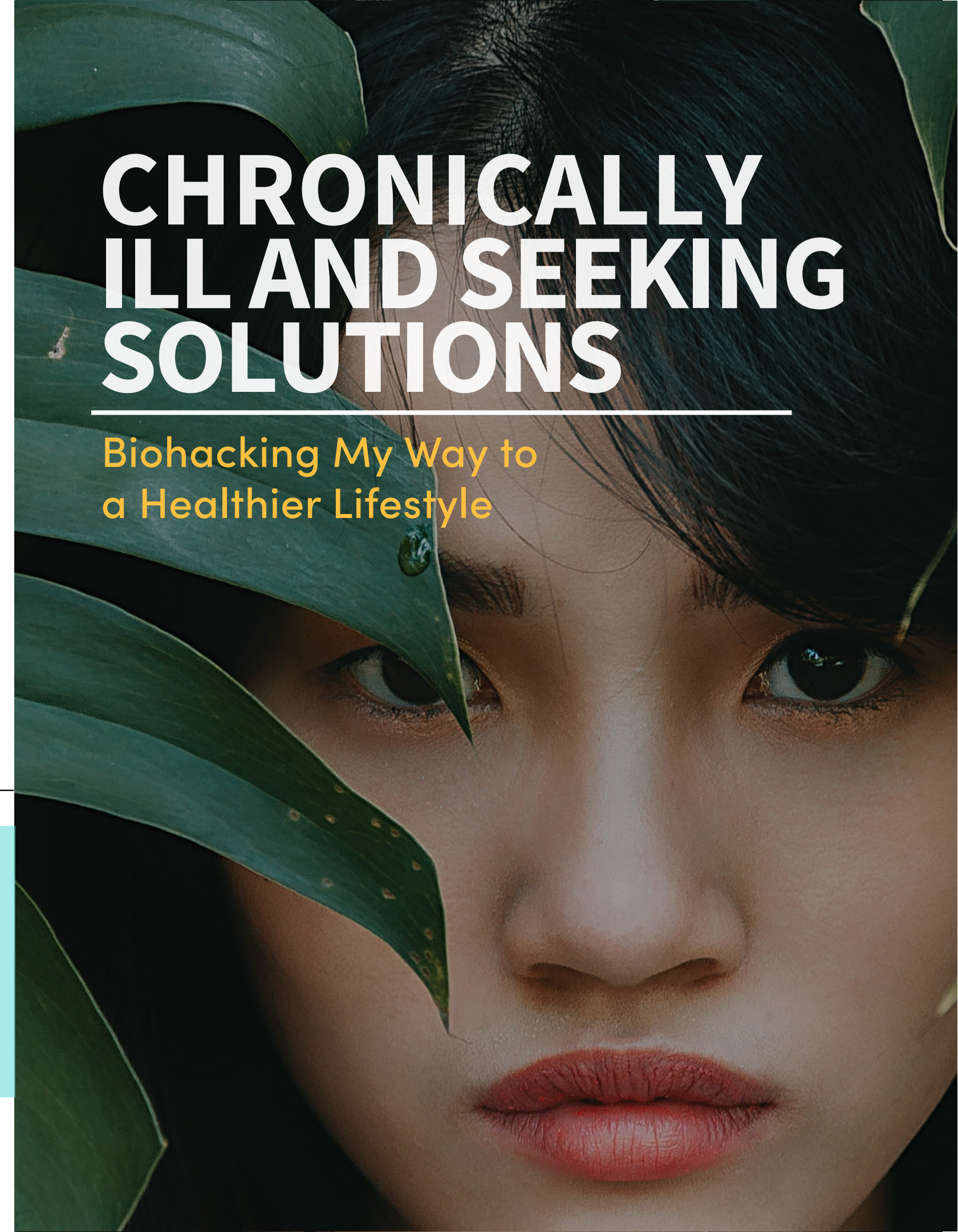


"Jessica holds a specialist degree in biomedical sciences which she uses to robustly pursue her passion for holistic health and wellness. After losing her mother to a long battle against mental health in 2019, Jessica lost faith in conventional medicine and the pharmaceutical industry".
Quote: "Medicine has become a place

of greed, it is no longer valuable to the pharmaceutical industry to create cured patients, rather, they are looking for customers for life." "I believe we are given life on Earth to help others grow and the planet to heal, once this is achieved by each individual, we can enter moksha."

Website:

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CHRONICALLY ILL AND SEEKING SOLUTIONS

Biohacking My Way to
a Healthier Lifestyle

I was in a race, just waiting to hear the horn go off and begin my run into the unknown and towards my Ultimate Goal, "A Healthier Me". Did going through cancer and remission prepare me for what I was about to face in the next chapter of my life? What was I about to face head-on without warning? Was I scared of the unknown? Yes! - Very much so, Terrified, to be exact. I began to judge my life as if it was a movie scene in which I rewind to what I had already overcome and the reality that life can change in a split second taking one away by Surprise. This awakening of Truth is no easy idea to accept; it's a constant conversion of the heart, mind, and soul.

I struggled to work a 40-hour job due to constant flare ups and hospital visits. I felt so exhausted and lethargic to the point where I was not able to give my full attention to my children who were so full of energy and excitement. I became absent in their life. Although I was physically present with my loved ones, the reality was that my mind was elsewhere. As much as I wanted to live life to the fullest, I struggled to stay awake & be present. The simplest things are our unknown treasures and at times we take them for granted until we find ourselves without them.



I remember as I laid there on the couch hopelessly, my children begged me, "Mommy, play with us." I felt my body ache and if it had a voice it would express all pain within. I replied - "I love you babies and want to play with you but mommy is tired. Tomorrow..."

This was a true reality check. I refused to be absent. They deserved better; I deserve better!

Now there was another challenge to face on the battlefield. The Feeling we all know as, FEAR. My internal conversations became endless questioning. At age 32, I had no idea why my body felt the way it did. Was it due to lack of sleep, life's responsibilities, and workload? What was the reason I just couldn't function? At times I had no desire to get out of bed.

Sleeping became a distraction; a way to not feel it all. Opening my eyes every morning became a new battle within. Although I didn't understand what was happening to me and why my body reacted the way it did, throughout it all I had this internal voice who would remind me to embrace each day and make it count. But why did I have to go through this? This question was like a scratched-up record that played and played all over again with no ability to repair itself and be brought back to normality with answers.

I was really overwhelmed and done with feeling sick & tired. Not to mention feeling like I had no control whatsoever of my own Life. This feeling became traumatizing quickly & very scary. All that surrounded me became unclear. What Path do I take? I wasn't sure, but I took this hunger and desire for answers to fuel my quest for the knowledge of how to cope when living with a chronic illness.

Finding out that I was not alone in this world and that there are many women and men going through such painful and awful diseases drove me even closer to the discovery that there are solutions such as Natural Medicine - The Holistic Approach - that can help us cope with such illnesses. Did understanding the diagnosis, symptoms, nutrition, clean and safe products for house cleaning and self-care, exercise and travel all promote a healthy living while containing some answers to my questions and fixing my problems? Yes, to a certain extent, my problems however still existed. These habits and lifestyle changes seemed uplifting and inspiring, and I thought that if they got me closer to self-healing for a healthier mind, body & soul, then why not continue with them? It was worth a try. What did I have to lose?

It was extremely useful to have a guide that provided what to do when you have a chronic illness; Absolutely essential. Knowing what to do was important but Actions spoke louder than words. Applying the knowledge in my life became the hardest decision because it steered me out of my comfort zone and into an unknown world. I took a leap of faith. I walked forward.

I wasn't going to let this awful, painful and reckless disease overcome me and rob me from my happiness & future. It was at this very moment I stood up and said to myself "Get up, wipe your tears, and fight back. If I wanted to change, I couldn't let this consume me."

I cried many times, knowing that having this chronic illness and knowing that every day my body fought against me. However, this became my strength to wipe my tears, stand up tall and hold my head up high. By this point my Transformation had begun.

I wasn't always this way. Before the diagnosis I was a healthy woman who had all the energy of the world to do so many things. I was able to do high intensity workouts like kick-boxing, run around with the kiddos, all while feeling flexible and strong. I could easily work a full-time job and at the end of the day still find energy within to add tasks to my agenda and be a fun, energetic mom, loving wife, and active woman living on the positive side of life.

So, what happened? Well Life decided to hit me





first with Thyroid cancer. This was a tough battle but was something at least known about and diagnosed. I conquered this after some time and was still embracing my remission status and feeling blessed and thankful when I started observing deep down that something was wrong with my body. The signs were everywhere and could not be ignored. I was not myself. I was then diagnosed with Lupus.

Lupus is when the immune system attacks its own tissues causing inflammation all throughout the body along with tissue damage in the affected areas. The Top 8 signs of Lupus are fatigue, unexplained fevers, hair loss, skin rash or lesions, pulmonary issues, kidney inflammation, painful and or swollen joints and gastrointestinal problems. It explained why I had trouble staying awake at social events, insomnia, why my family let me habitually sleep-in during the day. My joint-swelling, weight-loss and weight - gain along with other symptoms were no joke. I missed so many moments and memories because of this disease and not understanding how to cope with it.

I found more than just inspiration through one life-altering practice: Juicing. There are never ending benefits around fruits and vegetables, herbs and spices. I discovered places to visit that promote healthy living along with lifestyle changes. I felt a new boost of energy, less inflammation, less flare ups and I am a healthier person in mind , body and soul. I needed to learn to be self-loving and take more care of myself while setting time aside for what was & is important!

Coping with a chronic illness such as lupus has taught me so much. I have gained the hunger and the desire to seek change for myself but also now to inspire other women or men that find themselves in the same situation. Once I learned that my body attacked me and not the illness, through research and consultations with Specialists, it became clear that my journey would be full of roadblocks at any given time.

So, what did I do differently? I understood that knowledge is power. I began to see the world differently with endless opportunities. I researched. I read labels at the grocery store, and I began to

create a healthy balance between unprocessed and processed foods. I began to introduce cleaner products with natural ingredients whether it was for cleaning around the house or to add to my self-care routines along with being mindful around sun exposure and how that alone can cause flare-ups. It turned into an experiment. I learned something new everyday.

I am just a woman who understood that if I wanted to be healthier from the inside out, my habits needed to improve. What was my next move? What else did I need to explore as a woman who is chronically ill and seeking solutions and alternatives to compliment my day-to-day reality? What triggered flare ups? What places and activities could I do that would promote the opposite? The knowledge I needed was right at my fingertips. I could 'Take it or leave it!'

It is a struggle for me every year to be bikini Ready. I'm sure many ladies can relate. However, embrace your beauty. It's not just about the number on the scale. My blood levels soon became the most important factor in determining how my body and organs were performing on the inside.

Although there are some foods I was advised to avoid, research and medical advice/consultations became my motto! Before I plan to make drastic changes such as a 'Process of Elimination Diet', I research and seek medical attention prior to taking action to ensure it is safe to do so.

This Journey Goes Beyond Nutrition , It's a Lifestyle Transformation

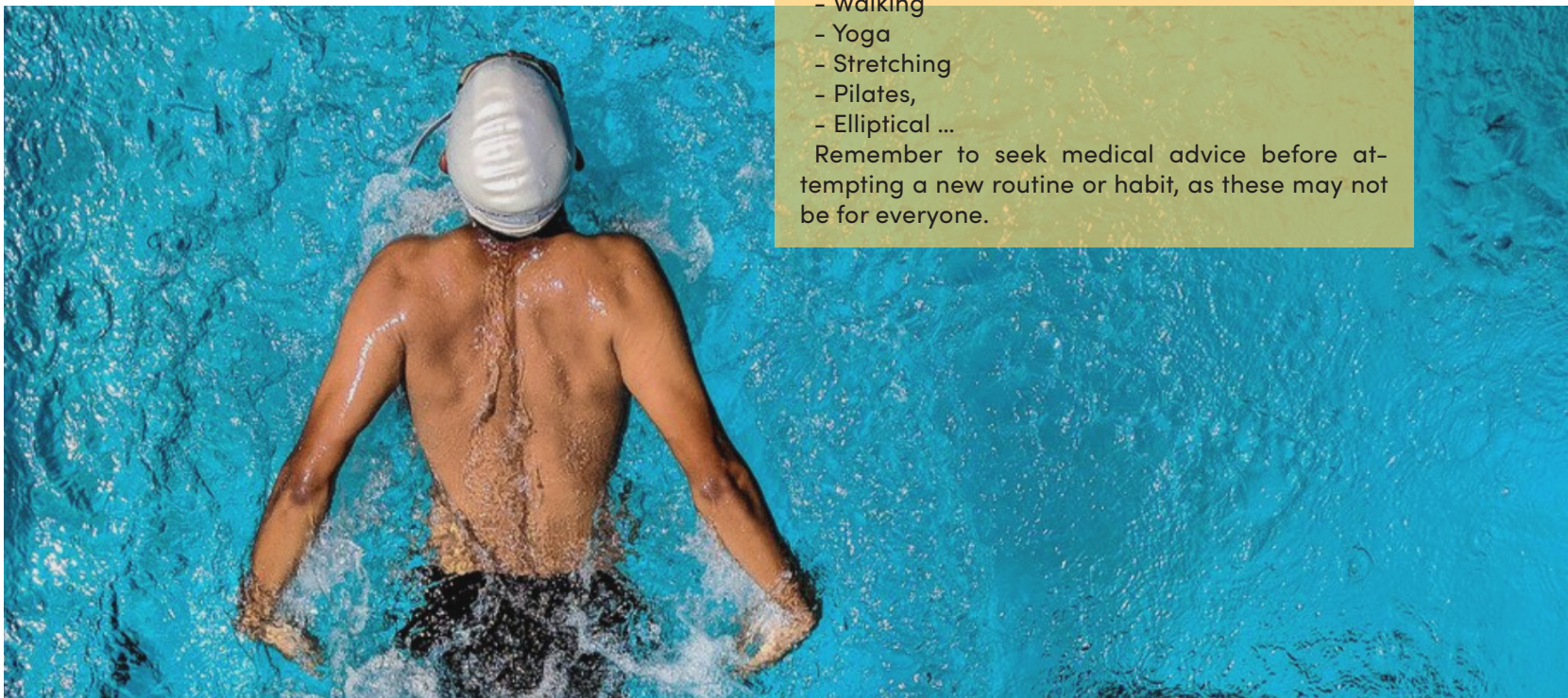


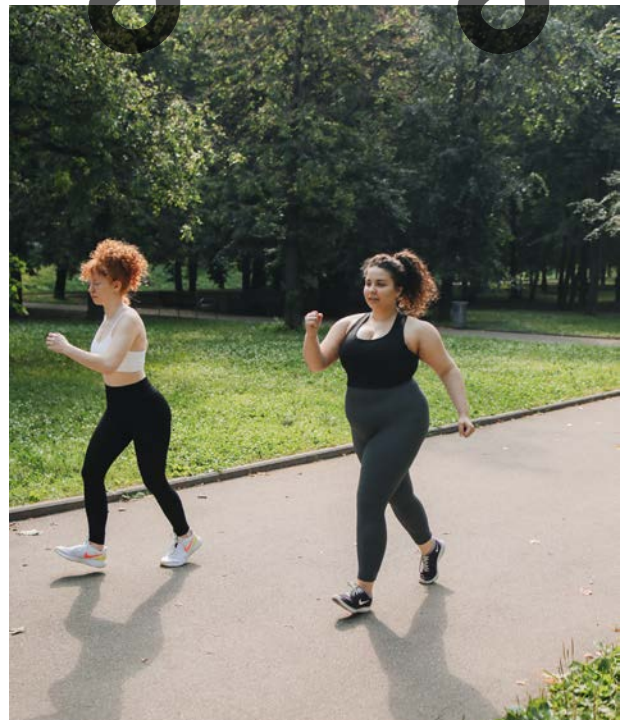
Does exercise help Lupus pain? And the answer is, yes!! Gentle strength training is known to help improve some lupus symptoms. Strengthening our muscles helps prevent joint weakening and damage.

Research shows that some low impact exercises include but are not limited to:

- Swimming
- Walking
- Yoga
- Stretching
- Pilates,
- Elliptical ...

Remember to seek medical advice before attempting a new routine or habit, as these may not be for everyone.





There are so many practices, habits, and wellness routines based on a natural approach to healing and self-health. Biohacking and experimentation, when done responsibly, can make the world of difference to all those seeking the truth of a healthy life, full of longevity and constant adventure.

Through my journey I've gained strength, I am healthier, I can think clearer, I've gained confidence, and I continue to stay active. I have had to change my exercise routines to accommodate certain restrictions but I still exercise during the week. Find what works for you. Someone once told me, "A student is ready to learn when they are ready to apply the knowledge they have been given." I understand some have different outcomes and my deepest condolences go out to them along with many blessings.

This is my story; what's your purpose?!

To be continued

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ABOUT WHITNEY MINNELLI FERRER



Born in Puerto Rico, Whitney is a passionate writer centering around the holistic approach to healthy living. She is the founder of the blog, IAmJuicing-WithPurpose.com. In the beginning she didn't have much knowledge but was determined to learn and survive harsh obstacles she faced along the way of her wellness journey. She recognized one day that life is too short and precious to let it just go to waste and allow the illness to take over without a fight. Although not a Doctor nor a Nutritionist, her mission & purpose is to inspire and encourage others; reminding them that

they are not alone and that we all have been given such gifts and talents and are put through tests that in the long run make us stronger. We all bring something of meaning to this world. She is spiritual, loves to sing gospel music and enjoys family time along with nature in her free time. She has made it her mission to share all the knowledge she has learned along the way and how she overcame her illnesses with courage and persistence.

B.you B.inspired B.healthy B.happy

Website: <https://iamjuicingwithpurpose.com/>

**LUCID VISIONS:
THE FORGOTTEN
FOURTH STATE OF
CONSCIOUSNESS – PART 2**

An illustration of a large, stylized head in profile, facing right. Inside the head, a person in a blue suit is sitting and reaching out. Various symbols float around the head: a bomb, stars, puzzle pieces, a heart, a cloud with three dots, a question mark, a lightbulb, and a blue arrow. The background is a mix of warm colors like orange and yellow, with some geometric shapes like a green triangle and a purple triangle.

LUCID VISIONS AS A SOURCE OF IN SIGHT, CREATIVITY AND HEALING:

Of all the many procedures that appear to bring about an equivalent of the naturally occurring Lucid Visions Fourth State of Consciousness and which, in turn, facilitate the emergence into awareness of visual imagination images, the easiest, safest and potentially most precise in its effects, is photic stimulation. Lucid Visions are known to also enhance lucid dreaming, and other forms of creative thinking. Examples have been reported for thousands of years in various religions and by many philosophers. During Lucid Visions, the mind is free to make creative associations and to assimilate verbal and imaginative information without the usual critical screening that is so ever-present in our waking state.

As an example, Charles Dickens was a prolific and ingenious 19th-century English writer who, along with being an insomniac, employed Lucid Visions as his central narrative structure as the experience served fundamentally to his work process, social engagement, and fantasy. Both artist Salvador Dali and writer Edgar Allan Poe also sourced the Lucid Visions/Fourth State/hypnagogic state for creative stimulation and exploration.

Poe writes:

"There is, however, a class of fancies, of exquisite delicacy, which are not thoughts, and to which, as yet, I have found it absolutely impossible to adapt language. I use the word fancies at random, and merely because I must use some word; but the idea commonly attached to the term is not even remotely applicable to the shadows of shadows in question. They seem to me rather psychical than intellectual. They arise in the soul (alas, how rarely!) only at its epochs of most intense tranquility — when the bodily and mental health are in perfection — and at those mere points of time where the confines of the waking world blend with those of the world of dreams. I am aware of these 'fancies' only when I am upon the very brink of sleep, with the consciousness that I am so."

One for the most famous modern “monsters”, Frankenstein, came to author Mary Shelley in The Fourth State. She writes:

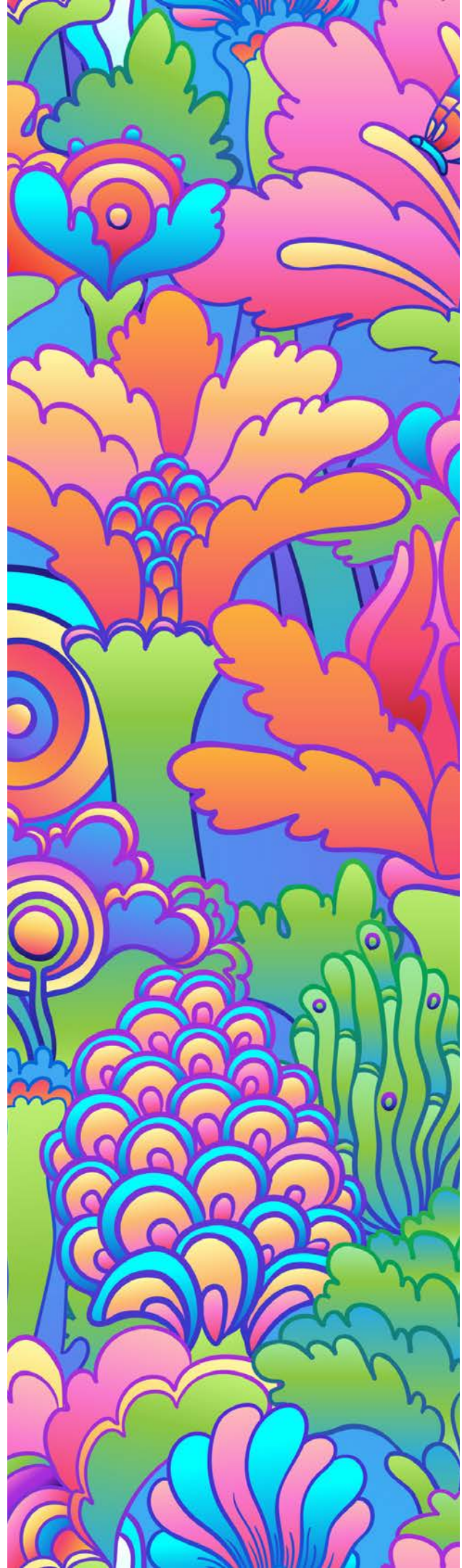
“I saw with shut eyes, but acute mental vision—I saw the pale student of unhallowed arts kneeling beside the thing he had put together. I saw the hideous phantasm of a man stretched out, and then, on the working of some powerful engine, show signs of life ...”.

Albert Einstein was a famous napper, and he relied on them heavily to help him solve problems. That’s because a short nap can consist mostly of hypnagogic Fourth State Lucid Visions.

THE BRAIN’S INNATE RECOVERY PROCESS:

Earlier in this paper, the proposal was made that we humans have a natural dynamic capacity for psychological and physical resolution and self-healing. Furthermore, if all four states of consciousness are harmonized, this dynamic capacity will enable us to fluidly resolve many of our psychological and even physiological challenges. Lastly, this harmonized dynamic is the actual hidden enabling influence of many applied techniques and therapies. The key position in this paper is that because of modern lifestyles, we commonly lack the Lucid Visions/Fourth State of Consciousness and consequently have an inadequate natural response in trauma resolution.

One form of enforcing our innate recovery process was first developed over 130 years ago in Berlin and is known as Autogenic Training. Essentially, Autogenic Training helps a person learn to move consciously from the “exteroceptive Task Mode” and into the “interoceptive Non-Task Mode”. In a way, it has certain similarities to the 1975 “Relaxation Response” of Herbert Benson. Autogenic Training is not a direct Lucid Visions technique but it does teach us a lot about the neurology of “interoceptive Non-Task Mode” states. The goal is to allow maximum opportunity to the self-regulatory processes of the brain so, in that way, it does share some common features with the Fourth State of Consciousness.



In Autogenic Training, various types of spontaneous brain-discharge expressions can occur:

- visual pseudo-hallucination of colors, patterns;
- small muscle twitches and jerks of the limbs;
- feelings of heaviness and lightness;
- warmth and cold;
- tingling and electrical sensations;
- feelings of pulsation and electric current;
- distortions of body image;
- detachment or displacement of body parts;
- dizziness, spinning, floating, turning.

In certain traditions of meditation, these same phenomena are called “kriyas” (Sanskrit term) and are regarded both as “stress releases” and “Kundalini” activities. The basic attitude towards these expressions is positive and persons are encouraged to welcome them as evidence of progressive benefits. In some persons, the phenomena may trigger an anxious reaction which will dissipate as the process becomes more familiar.

Autogenic brain-discharge was intensively researched it was found that the seemingly random and chaotic brain-discharges become over time increasingly coordinated, developing into a meaningful, hallucinatory, waking-dream process. The Lucid Visions Fourth State of Consciousness reliably emerged over a period of guided training sessions. Here, it is proposed that the eventual harmonized emergence of Lucid Visions can be accelerated by the inclusion of well-crafted photic stimulation experiences.



Luthe, a leading researcher in innate self-healing dynamics, attempts to summarize the brain's extraordinarily precise and complex capacity for functional self-healing:

The brain acts with:

- selection of disturbing material,
- timing and limitation of release of specific neuronal records,
- brain-directed management of multidimensional thematic combinations,
- gauging the dynamic force of material released and its correct adaptation to the system's level of tolerance,
- thematic repetitions and changes,
- self-confrontations and integrative dynamics,
- verification of its own progress and efficiency,
- programming and self-termination.

Luthe hypothesized that autogenic brain-discharges are the outcome of a self-regulatory “pressure principle” causing the brain to release and off-load disturbance. Chaos Theory currently models the “pressure” as a critical hypersynchronous state reached by neuronal ensembles before discharging as neuronal avalanches. Persons generating Lucid Visions using photic drivers such



as the neuroVIZR Brain Engagement device, often times describe an exciting “pop” experience that has a full body “rush” and a pleasurable shift in the color/pattern displays.

FOURTH STATE & THE ENTROPIC BRAIN MODEL:

The Entropic Brain Model developed by Carhart-Harris and team at the Centre for Psychedelic Research, Division of Brain Sciences, Faculty of Medicine, Imperial College London is an excellent example of an advanced brain model that merges a number of modern scientific perspectives. This model is here utilized and adapted to represent the Lucid Brain Model that includes the integration of the Lucid Visions Fourth State of Consciousness factor.

The human/mammalian brain developed “from the bottom up” and has an extensive sub-cortical set of functions and structures. This zone can be thought of as the Proto-Brain and results in a Proto-Consciousness. This Proto-Brain/Consciousness is also Pre-Ego self-awareness which is a cardinal characteristic of this state. This type of consciousness is more “perceptual” than “conceptual” information processing and relies more on direct sensory and emotive experience than on neocortex generated ideation and rational thought.

We still today maintain this Proto-Brain and Proto-Consciousness. Our nervous system builds on hierarchy for modular operations. The later development of the neo-cortex completed the Current-Brain and permits a complementary set of “top down” functions.

The Fourth State of Consciousness relies heavily on the sub-cortical Proto-Brain and Proto-Consciousness. The Entropic Brain Model rests upon such a view.

The original brain of the early human being went through a remarkably fast neurological expansion. Our homo sapiens brain became a more free-wheeling organ that allowed conscious processing to more easily enter upwards into less defined certainty of consciousness (in the model, towards more disordered chaos aka “entropy”). Such “entropic” expansion offered a new wide range of possibilities while also paradoxically introducing higher degrees of uncertainty. As a consequence, further brain evolution demanded a counter-measure.

sure that would suppress the entropic expansion and maintain a regular ordered state. Essentially, our brain evolved a “limiter function” for the biological efficiency of survival at the expense of radical exploration.

Fortunately, we kept the key for expansion hidden in our neurological back pocket.

The state involving the early entropic expansion is called Primary Consciousness and the counter-measure entropic suppression is Secondary Consciousness. Primary Consciousness is characterized with uncertainty, disorder, increased possibilities, new learning and creative insights. Secondary Consciousness is characterized with certainty, regularity, order, predictability and repeatability. Generally speaking, Primary Consciousness is related to the Proto-Consciousness described above.

We normally function in well-ordered state of Secondary Consciousness because it serves us well for biological survival. We also have the ability to shift into Primary Consciousness and do so every night when sleep invites in our dream states. Waking experiences of Primary Consciousness are more uncommon or “non-ordinary” (NOCS) and are often labeled as “altered states” (ASC). However just because Primary Consciousness is “non-ordinary” does not make it abnormal. With the appropriate conditions, we humans have the “normal” ability to shift from everyday Secondary Consciousness into periods of Primary Consciousness.

The dance between Primary and Secondary Consciousness is called “criticality”. When enough energetic stimulation is introduced into the brain, the stability of the ordered Secondary Consciousness begins to “wobble” and at a critical point, a shift begins to occur and access to Primary Consciousness starts to open up. Criticality is functionally more of a “zone” than a strict point or line. (Analogy – think of the critical shift from solid ice to liquid water).

So, the basic burning question is why did the brain of the early Homo Sapiens rapidly expand both in capacity and size? No one knows with certainty. One theory that has gained attention is The Stoned Ape. Terence McKenna proposed the Stoned Ape Hypothesis.

McKenna posited that psilocybin caused the primitive brain’s information-processing capabilities to rapidly reorganize, which in turn kick-started the rapid evolution of cognition that led to the early art, language, and technology written in Homo sapiens’ archaeological record.

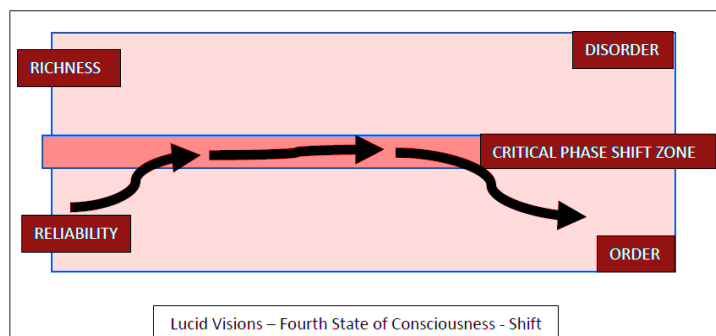
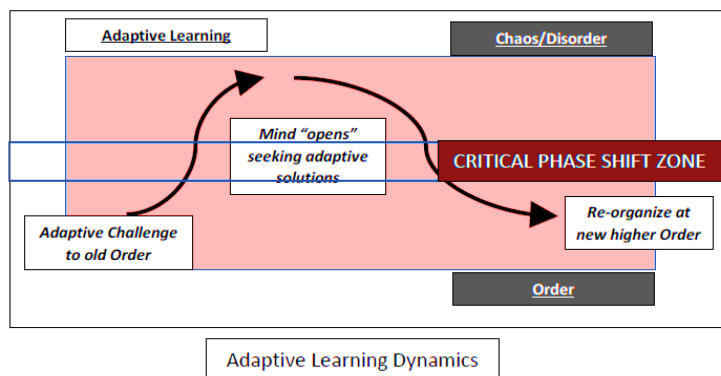
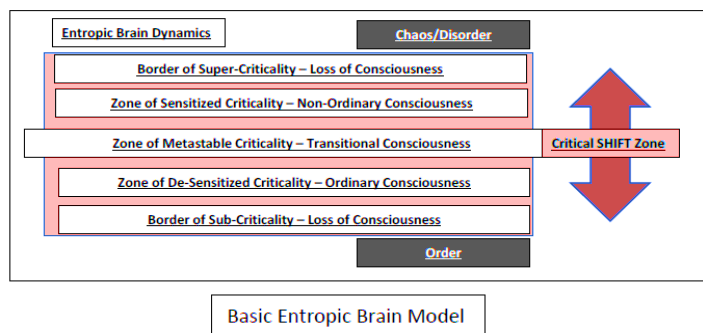
In this paper, another different theory is offered – the Lucid Visions Theory. The Lucid Visions Theo-



ry can stand as either an alternative to The Stoned Ape Theory or as overlapping joint theory.

Consider that all early Homo Sapiens experienced much of their daily circadian cycle in sustained periods of darkness. Depending on the season and especially in higher latitude temperate climates, the daily period of night time darkness would range anywhere from 8 to 18 hours. Shelters would mostly consist of enclosed structures and certainly caves. The only source of light as well as survival warmth would come from open fire sustained over some hours but not constantly. An open flame from a natural source like wood and not disturbed much by things like wind tends to flicker at a rather predictable rate. The tendency regardless of flow rates and size is remarkably constant at about 10 – 12 Hz. These flicker rates seem to calm and almost wipe the mind free of thoughts. Calm and clear – and relaxing. The fire flicker rates are inducing what is technically called The Frequency Following Response. After gazing at the flames for 5 to 10 minutes without distraction, the brain will start to shift to alpha dominance in the visual cortex. The result is mesmerizing “trance-like state” in which sustained staring is enabled. Even closing the eyes will actually increase the alpha frequency amplitudes.

To be clear, the sustained alpha flicker rate of the fire did not cause the emergence of the Fourth State. Quite the contrary, the alpha dominance in the visual cortex is actually a “internal visions suppressor” which is well-known from psychedelic neurological research. The “fire flickering” will help to calm the active mind and nothing more. The mind may then move from exteroception “task mode” more easily into interoception “non-task mode” which is a gateway that opens to permit the emergence of Lucid Visions. Neurologically it is known that the

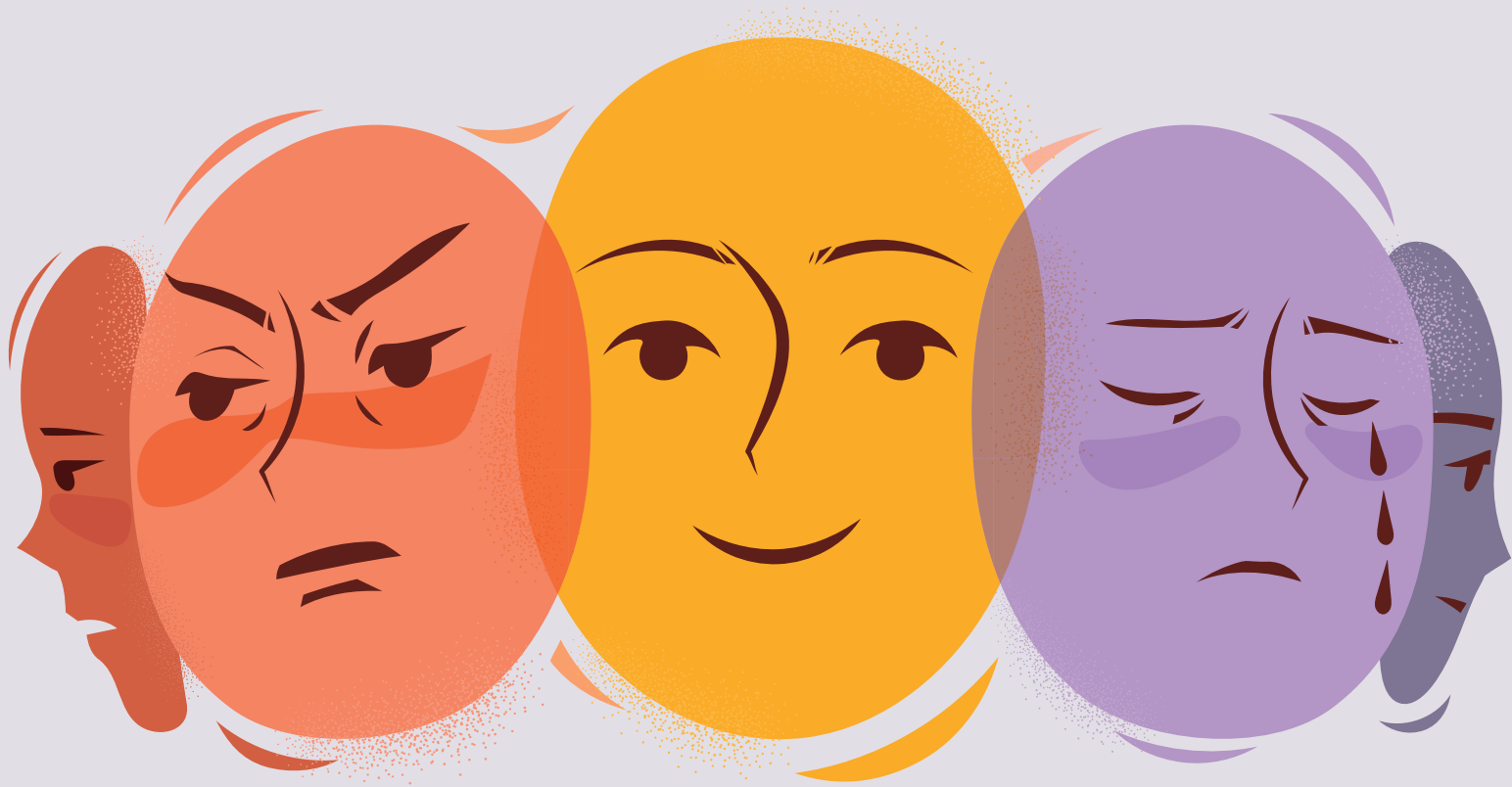


waking dreams of hypnagogia abandon the alpha brain wave activities and move into other frequency ranges.

For a variety of reasons, the periods of darkness would also have mixed periods of waking and sleeping. In the periods of darkness, the waking periods would be a combination of the visual experience of flickering flames of the fire and open-eyed staring off into the absolute blackness of the dark night. As we know with certainty, this is the perfect formula for generating rich and elaborate Lucid Visions of the Fourth State of Consciousness.

Actually, the phenomenon gained a certain legendary status in more recent times and is known as the “Prisoner’s Cinema” – when a person was





confined to a dark cell over long periods of solitary confinement, the prisoner would regularly experience complex “entoptic” (colors and patterns) as well as “eidetic” (faces and places) visual imagery when gazing off into the featureless darkness of the cell. In certain traditional meditation practices, this circumstance is known as a “Dark Retreat”.

The fascinating archaeologist, David Lewis-Williams, explores in elegant detail the probable profiles of the developing Neolithic Mind against the backdrop of the flickering flames of the dark cave. Once the early human being experiences the images against the mental screen in absolute darkness, the urge to capture these patterns and forms as the early cave wall art images seems entirely expected.

To contrast the Lucid Visions Theory with the Stoned Ape Theory seems simple. Every early human would be exposed to the unique neurological influences of the Fourth State of Consciousness essentially every day regardless of their age or gender. The impact must necessarily be profound. Contrast this with the proposal of the Stoned Ape Theory in which an early human would have to ingest psilocybin mushrooms on a very regular basis in order, over many continuous multiple gener-

ations, to make any kind of reliable neurological change of any degree. It is reasonable to assume that ingesting some magic mushrooms would most certainly augment the “fire in the dark” experience. Yet the broad-based regularity across both age and gender of mushroom consumption seems unlikely to impact powerful significant brain changes with any degree when compared to daily circadian exposure to all persons regardless of age or gender.

THE FOURTH STATE OF CONSCIOUSNESS & SCHIZOTYPY:

Technically, the healthy separations between the four states are known as “differentiation” – as in, they are “different” yet enjoy a dynamic interrelationship. In some persons, there is a certain amount of “porousness” between the states so the “invisible line” is perhaps more like a “soft zone” than a strict boundary demarcation. In advancing brain science, this “porous” quality is called “schizotypy” (pronounced – “schi – zo – TYPE – ee”). Schizotypy sounds pretty bad because the word can remind us of “schizophrenic”. Actually, there is a relationship but it must be put in context.

Schizotypy is likely to be a genetic disposition meaning some people have more or less of schizotypy in their nature. It can be put into context as being on a spectrum or a scale by degree. In and of itself, schizotypy is not necessarily a bad characteristic. In the negative extreme, it does manifest as a serious pathology however, in the positive aspect of the spectrum, schizotypy manifests as heightened creativity and insightful analysis.

Schizophrenia could be considered an extreme maladaptation of a basic entropic dynamic mechanism of the normal brain. Along this line of thought, an opposite extreme of a severely fixed and rigid mind set could be considered as a pathological opposite to schizophrenia. Statistically, urban and industrialized societies have both a higher incidence and severity of schizophrenia. Because values can differ greatly between industrialized and non-industrialized societies, we must be cautious to not quickly assign any particular cause to the disparity. The stigmatization of hallucinatory and visionary experiences is much less prevalent in non-industrialized societies so absolute values and attitudes are impossible to apply across all situations. Traditional and non-industrialized societies circumstantially also spend larger amounts of reg-

ular time in darkness, semi-darkness and exposed to the flickering light of fire. These conditions are conducive to Fourth State Consciousness (Lucid Visions/hypnagogia). Such image-rich reverie is highly supportive of the processing of emotionally-charged memories, traumas, creative problem solving and spiritual experiences.

If the schizotypy spectrum is, in fact, real across populations, it may well be a combination of cultural reinforcements and multi-generational genetic dispositions. Persons, for whatever reason, that have a more "porous" zone of Criticality (Entropic Brain Model) will have a higher "daily requirement" of Fourth State/Lucid Visions experiences. Considering that in our normal human Circadian Cycle, we all move into and through two periods of Fourth State every 24 hour period. The transition from waking to sleep is hypnagogic and the transition from sleep to waking is hypnopompic. "Waking dreams" is as natural and purposeful as "sleeping dreams". Interestingly, as our waking dreams become more "lucid", automatically our sleeping dreams also become "lucid".

ABOUT GARNET DUPUIS



Garnet was born and raised in Canada and is a naturalized USA citizen. He is an Integrative Health and Wellness expert, teacher & inventor with specialties in inter-disciplinary methodologies. With a wide experience in advanced technologies, Garnet has taught neuromodulation applications in major USA universities, professional sports teams, the Marine Corp and Naval Hospitals and lectured in European and Asian countries.

Garnet has a broad education including college, university and graduate trainings in Classical and Clinical Homeopathy, Oriental Medicine, Massage Therapy/Bodywork, Hydrotherapy, Remedial Exercise, Biofeedback, Psychology and English Literature.

Garnet is co-founder of Lucid Studios/neuroVIZR, Thailand. He currently resides in the tropical mountain rainforest in Northern Thailand. He is a life-long meditator and practitioner of Tibetan Dzogchen. Garnet is active in wild animal rescue and conservation and has built, manages and funds a sanctuary for SE Asian apes.

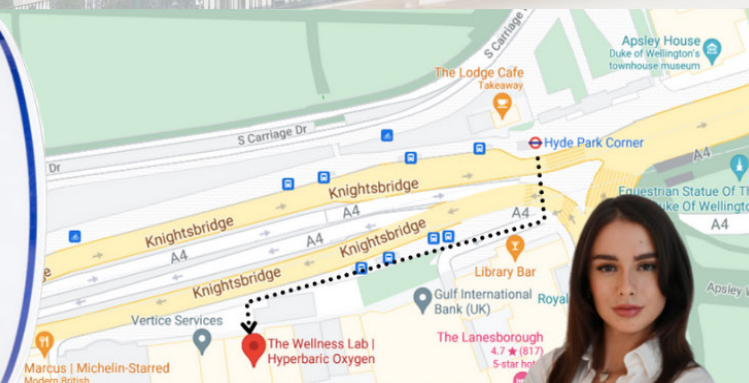
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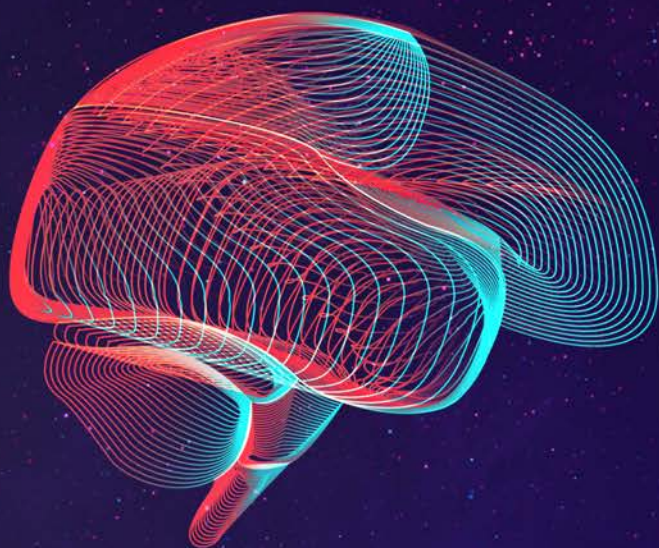
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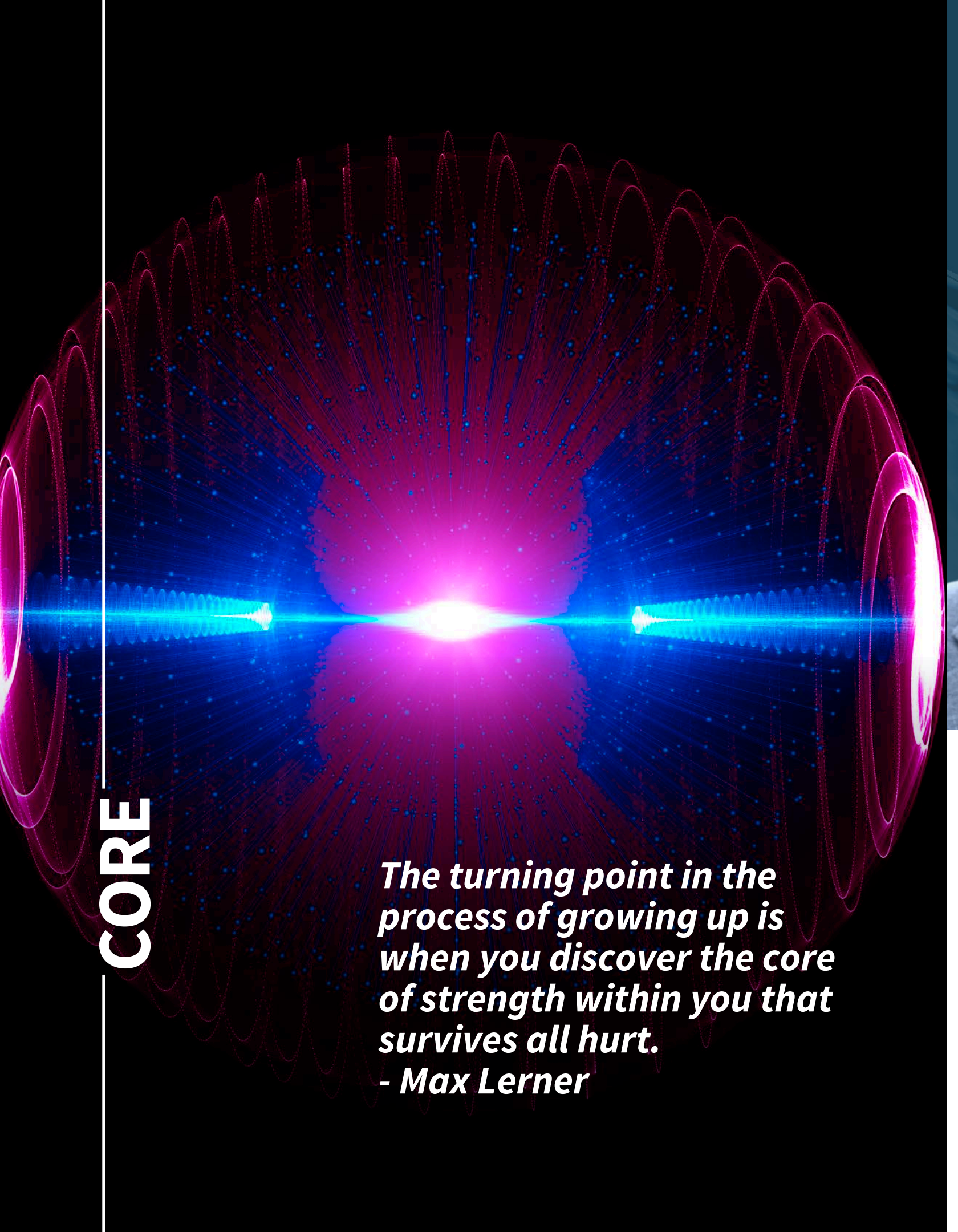
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Victor Sagalovsky & Robert Slovak



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EXCLUSIVE INTERVIEW

**COFOUNDERS OF LITewater
SCIENTIFIC - THE FIRST AND
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DEPLETED LIGHT WATER**

Victor Sagalovsky is the cofounder and CEO of Litewater Scientific, the first and only super deuterium-depleted light water, where he has dedicated himself to the research, development, and production of this rare water.

Victor has researched and studied the benefits of deuterium-depleted water through his theory entitled Endogenous Radiation Damage Theory of Aging. It proposes that our biggest obstacle to longevity is the excess deuterium and other dam-

aging isotopes on the planet and proper mitigation will radically extend our lifespans.

Robert Slovak, an International water scientist, is regarded as one of the world's foremost water experts.

His astronautical and mechanical engineering degrees led him to pursue the research of reverse osmosis. They were among the early developers of RO technology and its many applications.

In 2004, Robert introduced an obscure 1897 medical discovery known as Original Quinton Marine Plasma to the North American market. In 2010, Robert added his breakthrough called "Molecular Hydrogen" (H₂) to the professional medical and consumer market.

In 2018, Robert's decades long interest in deuterium-depleted water (DDW) took a new direction forward with his co-founding of Litewater Scientific, dedicated to providing the most deuterium-depleted water on Earth to the North American market.

He serves as the Chief Science Officer of Litewater and travels widely promoting his passions and educating doctors and consumers alike on the principles of water and wellness.

How did you guys first begin to think about this concept of turning healthy water into a science experiment and business concept?

Victor:

Well, simply for the sheer need of having it for ourselves. Realizing what is missing in our lifestyle, in our diet. And this is something that Robert and I both knew about for quite a long time. Since 2004, I was familiar with Deuterium depletion and Deuterium depleted water. However, at that time it was virtually impossible to obtain it, unless you went to some remote mountain areas to get it naturally or paid dearly to obtain it from the one or two obscure facilities that produced it in very small quantities. So, it was something that for a long time was in the back of our minds.

We concluded that the time was right to inform the health community about the benefits of lowering the body's toxic deuterium level. We also had some synchronicities happen and things just lined up perfectly and we perceived this was a higher-level intervention in human health. Robert and I just felt brave enough to tackle it as a business because we knew that the science was solid. We also knew that it had been the pursuit of many people for a long time - but never successfully in terms of bringing it to market. Both of us had considerable experience bringing health products to market and it was just a perfect alignment that happened at the time it did.

Robert:

Victor and I both knew at this time that the key researchers in Deuterium depletion technology and usage are the Russians. And, of all things, it was fortuitous that Victor spoke fluent Russian. So, this was another lure knocking on our door because he could communicate with the Deuterium depletion gurus who were about to be our teachers. Without a second thought, Victor and I were motivated to get on a plane to Moscow to engage in this new frontier of research and business. I must admit that I didn't realize in the beginning how significant this radical health science is - there's much more to it than meets the eye as some of



your audience will discover. Looking back on what we have learned and experienced with our customers, depletion of the body's endogenous Deuterium is a candidate for the most significant biohack we know of. And we hope to convey that during this interview.

Could one of you start with speaking to what Deuterium is and why it's important to flush it out of our body's 40-50 liters of water to optimize health, energy, skin and add years of active life?

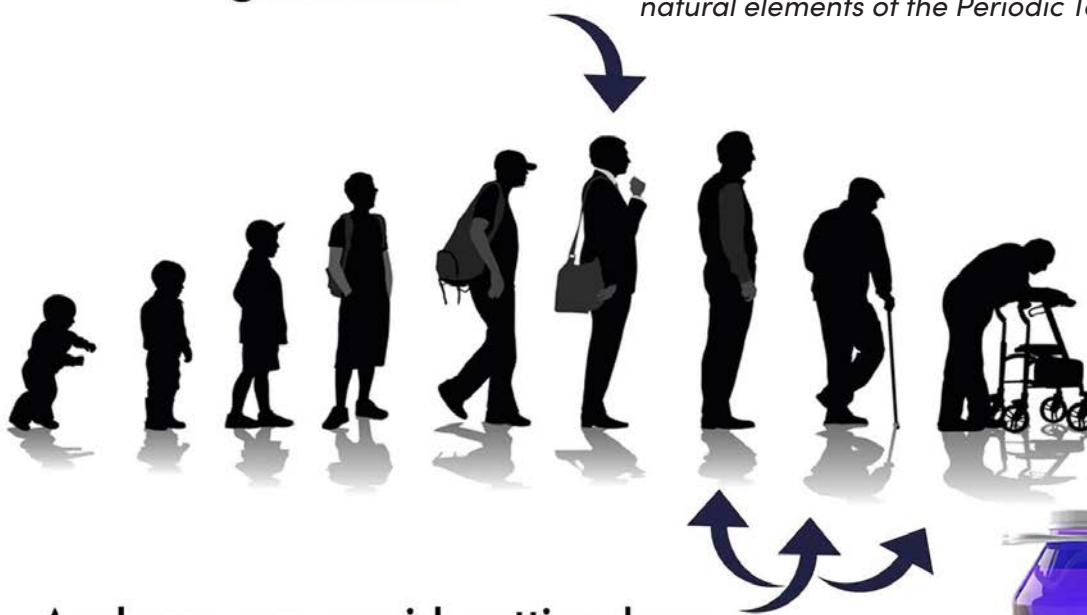
Robert:

Most of us know that water, H_2O , is composed of two Hydrogen atoms and one Oxygen atom. But hardly anyone, including me during my early years of science studies, realizes that there's two forms of Hydrogen atoms (actually three, but we will ignore the unstable radioactive one). The fact is, the Big Bang gave us these two forms of Hydrogen which scientists named

Protium and Deuterium. They are referred to as "isotopes" of the first and lightest element, Hydrogen. Most of the elements of the Periodic Table have two or more isotopes which differ in the number of neutrons in the nucleus. So, to review, the lighter Hydrogen isotope, Protium, has one proton and one electron and the heavier Hydrogen isotope, Deuterium, has one proton, one neutron and one electron. The addition of the neutron makes Deuterium twice-as-heavy as Protium – and this difference results in profound consequences in biology and physiology of life.

About 13.7 billion years ago the Big Bang initiated the creation of the physical Universe. Scientists believe that a proton and neutron were the first particles to materialize. And, in an instant, they combined with electrons to fill the Universe with Hydrogen (Protium & Deuterium) and Helium. Our audience might be amazed to learn that 74% of the mass of the entire Universe is Hydrogen and 24% is Helium – that's 98%! What about the other 2%? It's the remaining 90 natural elements of the Periodic Table!

Start drinking **Litewater** here



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#Geroprotectionperfected





Victor:

That's how it started out 13.7 billion years ago and it hasn't changed much.

Robert:

Yes, and all the wonderful stars in the night sky and the suns of the galaxies of the universe are undergoing nuclear fusion that turns Hydrogen isotopes into Helium. This process is what illuminates and warms the Universe. So, we have lots of Hydrogen atoms (Protium and Deuterium) available and that's what we're going to concentrate on.

Robert:

So, we're just going to deal with the first element, Hydrogen and its two stable isotopes light Protium (with just a proton, neutron, and electron) and twice-as-heavy Deuterium (with a proton, two neutrons, and electron). To simplify things going forward, the capital letter "H" is used to symbolize light Protium Hydrogen and the capital letter "D" is used to symbolize heavy Deuterium Hydrogen. We already mentioned that the universe is filled with more Hydrogen than any other element (74% of the mass of the Universe!). Considering all the atomic and molecular interactions in the Universe, these two forms of Hydrogen, when the conditions are just right, each combine with oxygen and form water, H_2O , and they formed in various configurations. So, there's H_2O , which is two light Protium Hydrogens plus an Oxygen atom (three stable isotopes possible). And then there's HDO , which is a light Protium Hydrogen, plus a heavy Deuterium Hydrogen plus an Oxygen atom. Finally, there's a very, very small percentage of D_2O water molecules that have two heavy Deuterium Hydrogens plus an Oxygen atom. Those are the three kinds of water molecules that exist in the universe. And this is science that most students graduating with university degrees don't realize because we are so used to referring to ALL water as " H_2O ". So, we ask that you don't lose sight of these three configurations of water molecules, H_2O , HDO and D_2O , as we move on to the biological and health consequences of Deuterium.

Victor makes some critical points... Now, these three configurations of water molecules didn't

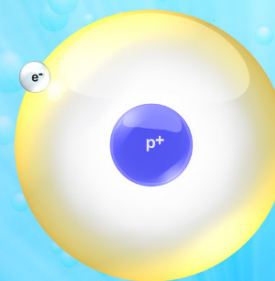
form in equal numbers. The waters of the Universe are predominantly a combination what we'll refer to as "light water", which is the H_2O configuration and "heavy water", which is the HDO configuration. Bear in mind that what we're referring to as "heavy water", DO , even though the twice-as-heavy Deuterium atom is partnered with the light hydrogen atom, it doesn't make the entire water molecule twice as heavy. It's only just the Deuterium atom that's twice as heavy. So, heavy water molecules, HDO , aren't that much heavier than light water molecule, H_2O .

Our audience might wonder how the amount of light water vs. heavy water is specified for all the different sources of waters on Earth. This can be determined using special laboratory Deuterium analyzers. Scientists report that the many sources of water on Earth, from mountain glacier water to seawater contains between 135 to 155 parts per million of Deuterium containing water molecules. In simpler terms, that approximately translates to roughly 5 to 6 drops of Deuterium containing water molecules in every liter of Earth's water sources. You can see why it didn't get a lot of attention from scientists for a very long time. Six drops out of 20,000 doesn't seem like much but let's look closer. When we look at the amount of water, and this is where the clarity of all of this begins. Most of the audience knows that the adult human body is by weight, about 50 to 70% water. But in terms of the percentage of each molecular category (e.g., amino acids, fats, bone, carbohydrates, etc.) that comprises the human body, more than 98% are water molecules! One can conclude, based on these facts, that virtually all of the water in the human body (extracellular, intracellular, interstitial, blood serum, etc.) contains a Deuterium level of about 150 ppm.

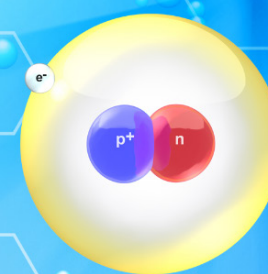
Victor:

So, both light water and heavy water, in those proportions of 150 parts of a million, comprise 98% of the molecules in the human body. What a game changer, because from the standpoint of comparing the quantity of Deuterium with all the other types of molecules that make up the body, the amount of Deuterium ends up

The Language of Deuterium



Protium
Hydrogen 1



Deuterium
Hydrogen 2

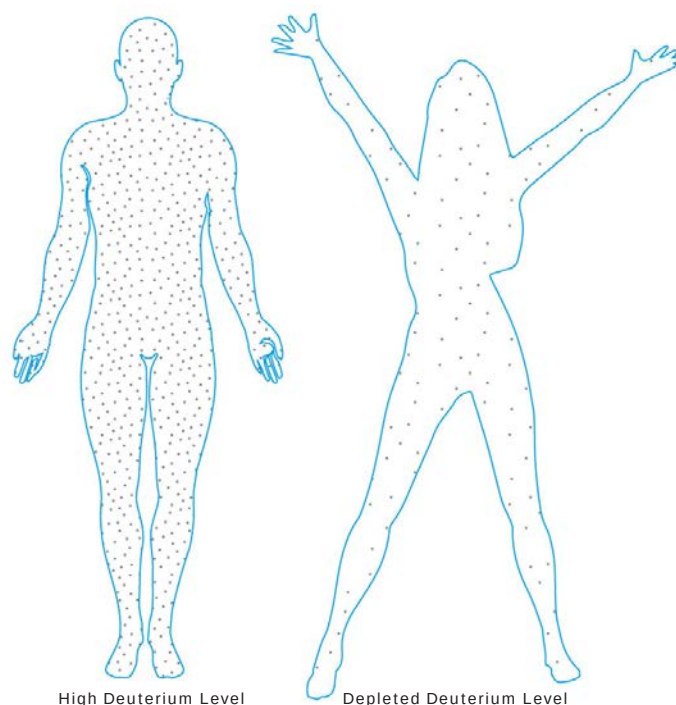
The **extra** neutron in deuterium makes it 2X the mass of normal **hydrogen**.

being much more than anyone would have estimated. It's everywhere; in every cell; in every organ; in all tissues, in all body fluids, in blood serum, etc. It's in everything that is comprising really all animal species and some plant species as well.

So, this was an eyeopener to the Russians. They investigated the biological aspects of Deuterium first. This was because the rest of the developed world in the 1950's - the United States, England, Germany, Japan, etc. - were preoccupied with the military and energy use of Deuterium. Highly concentrated heavy water (HDO and D₂O) is essential in nuclear reactors and atomic bombs. So, while other scientists were preoccupied the Russians chose to investigate the biological ramifications of Deuterium. So, they concentrated on that and began in the early 1960s to do biological experiments. And over the next 50 or 60 years, they developed Deuterium related sciences that no one else knew about.

Robert:

And that's what Victor and I went to find out. It was an eye-opening experience to learn how Deuterium influences virtually every biological and physiological function in all animal species. That's why it's so powerful. There



A body that is significantly reduced in Deuterium enjoys up to six times the Proton Motive Force!

WHY WE DRINK WATER?



are trillions of molecules of water containing deuterium in the body. Victor and I were first fascinated with mitochondria and there's a growing awareness that mitochondria provide the core energy of life functions. Mitochondrial health and mitochondrial metabolism are gradually stealing the spotlight of human health science. And, every day that I'm involved in researching depleting the body's endogenous Deuterium, I realize how it is so abundant that nothing can escape its So, that is what led us down the scientific path to not only understand this and get all the studies, but to be able to produce the water as well. And that was one of our objectives in going to Russia to learn this, production science.

What happens with this Deuterium being in everything? What are the effects verses normal water?

Victor:

I haven't seen the evidence of any positive benefit of Deuterium. The problem we have is the HDO in water, as Robert said, because our body readily transports and accumulates this waterborne Deuterium. While we've focused on water, it's important to realize that most everything we ingest contributes Deuterium to the body (carbs, fats, proteins, supplements, etc.) is a source of Deuterium. Our environment is loaded with it, and it is an isotope that is incompatible with human biology. That conclusion was reached in 1963, when the Russians started investigating the biological effects of Deuterium. Early on, they surmised that Deuterium is completely incompatible with life, but there's nothing that can be done about it due to its ubiquitous presence on Earth. So, they just, they just moved on.

Since then, researchers have learned that if we reduce the amount of Deuterium in the water we drink through the mechanism of what's known as hydrogen exchange, we can release some of the burden of the endogenous Deuterium in our bodies. And this is a natural cumulative effect from the time we're born to the time we die – we're continually exposed to Deuterium as we drink, as we eat, as we go through life. And researchers have learned that the presence of Deuterium slows down biological processes. But slowing down our metabolism and our mitochondria and our ability to produce energy and our ability to replicate and manage the damage and the systems that are in place at the cellular level, Deuterium is only a detriment. So, there are only two ways we can reduce the endogenous Deuterium from our bodies. One is by eating a diet that is naturally lower in deuterium, which is challenging, but some people do it.

But the easy, elegant way, and this is why we were so excited about this, is by drinking Deuterium depleted water, commonly referred to as DDW. And this is not something that's been easily or readily available. So, by having access to DDW, we can easily, without much modification of diet or lifestyle, reduce the Deuterium burden in our bodies. And science has proven, as Deuterium goes down, energy goes up. And that is not only benefit which



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we'll cover later. And, endogenous Deuterium doesn't have to be reduced by very much - just by 15% to perhaps 25%. Even at 10% Deuterium reduction over a prolonged period, you'll have a net energy benefit. Among the other benefits are a reduction of a wide range of aging factors including improved skin, improved mental outlook and improved athletic performance.

By reducing Deuterium in the body, it has been proven that we extend the useful life of mitochondria and their capacity to produce ATP (Adenosine Triphosphate), the body's master energy currency. ATP is the gasoline or the fuel, which is literally Hydrogen. But it takes the right form of Hydrogen to make that fuel a reality - and that is Protium, the light Hydrogen, without the burden of the added neutron. So, by limiting the amount of Deuterium, the heavy Hydrogen, we can increase our chances of having a longer lifespan, improved health-span and fight off some of that damage that happens as we age, because that's the one disease we all have in common.

We're decaying, we're aging and there's a system of entropy in place. And there's not much we can do about this. So, we need to get some lift under our wings and that lift is this simple intervention and profound biohack. This is why Robert says it's the most profound discovery in biology, because it's the only thing that'll put a little lift in your sails as you wind down through life from birth to death. Because Deuterium has been gradually increasing on our planet, all life has created mechanisms to manage it as best as it can. But now it's unmanageable because the levels of Deuterium on our planet over the last hundred thousand years have increased by 15.5%.

That's what the data shows. We want to get back to that point in history where we had less Deuterium and that's when we evolved rapidly, mind you; that's when homo sapiens evolved rapidly to civilization. So, we want to welcome the future by having humanity recognize and adopt this new principle, which is a new standard of water purity. This is where Robert and I really came together on this, especially with his background in water science and water technology. We looked at this and



said, "Wow, Deuterium in water functions just like a contaminant and wreaks havoc with life processes. We believe a new standard of water purity will be to significantly reduce the level of Deuterium. We just haven't gotten to that point yet. It's like in the 1860s, somebody was talking under a whale oil lamp going, gosh, I know it's not here now, but I know that electric light bulb is coming. It's the same thing here. We're really at a pivotal point in the history of how we manage our health and biology.

Robert:

We missed the forest for the trees for a while. And you will probably appreciate this more than any interviewer because your publication is called "Biohacking Magazine". When you look at all the top biohacks that your guests have written about and your staff discusses in your magazine and your conferences, it may come as a surprise that intermittent fasting, dry fasting, keto diets, early morning sun exposure, red light & near infrared light exposure, exercise, sweating, and cold therapies are supportive of depleting endogenous Deuterium! These are proven health enhancements, and we live better lives for it. But the common mechanism that connects these biohacks is the depletion of endogenous Deuterium. This was a revelation and further confirmation that we are on the right track. The pursuit of Deuterium depletion is far more significant than we had realized.

So, people can deplete the Deuterium in their bodies through these biohacks, eating the right foods and also drinking Deuterium depleted water. How effective is the Deuterium Depleted water?

Robert:

Water definitely dominates the depletion capability, but every little bit helps. Because of everything from the scarcity to the cost of Deuterium depleted water, you might as well take advantage of your other biohacks to add to that capability of eliminating the Deuterium. When we said there are 5 to 6 drops of Deuterium containing water molecules in all water



on Earth and what we consume is largely water, the challenge is obvious. If you're on a carnivore diet, for example, there would be 5 to 6 drops of Deuterium containing water in the meat because that animal ate or drank water that had 5 to 6 drops per liter as heavy water, HDO. So, the objective is to reduce some of those 5 to 6 drops of HDO from your total body water. You'd really like to get the total body water down below 120ppm to assure all the potential health improvements: more energy, improved immunity, better mental outlook, life extension, anti-aging, better skin, etc.

Where do we see the earliest signs of these benefits?

Victor:

So, there's two special mountain-dwelling populations in Siberia. They primarily live like Eskimos, and it intrigued a couple of young gerontologists as to why these groups had 324 centenarians per 1 million people and most everywhere else in the Soviet Republic, or in Europe for that matter, there were maybe 10 to 15 centenarians per million. So, they investigated these people and found that they were incredibly healthy with no evidence of chronic diseases. They also didn't have any doctors, medical clinics, or hospitals. They were just simply living like Eskimos. And so, the researchers pursued figuring out why. They analyzed everything from their diet, cultural habits, their religion - everything they

could. They were stumped for a couple years and then they received funding to investigate further. They thought their subject's longevity might have something to do with their water supply, which was used for drinking, food preparation, irrigation, livestock - everything. So, they drilled ice cores to access the frozen glacial water supply and analyzed the water it for many biological and chemical parameters. Then, a fellow researcher convinced them to measure the water supply for Deuterium - a most unusual request. This was in the late 1950's just to put it in perspective. Deuterium had only been discovered in 1931 so it was still very rare for scientists to even consider Deuterium at that time. The analysis indicated that the glacial water, used for drinking, food preparation, agriculture, livestock, etc. was roughly 16% lower in Deuterium than all the other Russian populations they considered. This unexpended finding initiated a new direction in health science, and it led the researchers to another key to the puzzle just around the corner...

When they ran out of funding to drill these ice cores, they said, well, let's just try melting this snow into water and see what that is. And sure enough, it was the same. So, they discovered a little bit about how Deuterium is reduced in those areas because of variations in the Hydrologic Cycle. The team started doing studies with plants and animals to see what would happen when you give them water that is reduced in Deuterium. At that time, they only had this source, this natural source, because there was no way to produce Deuterium depleted water. So they compared this lower Deuterium (by 16%) glacial melt water that was from the mountain territory of the Altai and Yakutia populations and compared it to regular water, which was 150 parts per million.

This early research team made some incredible findings and they published these in 1961. The Americans started doing their own biological investigations in a very different way. They had synthesized D₂O heavy water and fed it to plants and animals at a 35% concentration, which doesn't really occur in nature very of-





ten. And they found that if you give a mammal heavy water, particularly 35% D₂O, they'll die within a week.

So, they've quickly found that this concentrated D₂O heavy water, even though it looks like water and tastes like water, it does not sustain life. If a mammal consumes concentrated heavy water its life will be terminated. At the time, the researchers didn't understand why it acted like a deadly poison, but it appeared to interfere with a mammal's ability to generate sufficient energy for life. Thankfully, concentrated heavy water doesn't exist in nature and it must be synthesized in a lab. Then the Russian researchers pursued what happens when they reduced the concentration of HDO heavy water in natural water from 150 ppm to a lower level. They got profound results. Growing plants doubled in size and they observed the first multi-generational benefits of Deuterium depletion in populations of mice. This was a biological milestone of profound significance. Ultimately, the researchers wanted to determine why the Siberians had so many centenarians, even with their harsh existence, and now got much closer to figuring it out.

Robert:

The indigenous Siberians had the ultimate and rare benefit of consuming not only Deuterium depleted drinking water but Deuterium depleted beverages, produce, grains, animal products – everything – from birth till death.

Victor:

So what Robert is saying is they're living their entire lives with low Deuterium levels in their bodies. Let's say it's about 120, and the general Western population is living with a Deuterium level in their bodies of 150. Now if you project that out to the years and decades and you see the difference in how much energy is conserved and how much energy is truly depleted by having a higher-level Deuterium in your body, it's shocking.

So, we endeavor to have slightly lower Deuterium in our body because to explain it simply, we can say that it's lighter. When we have less Deuterium, we're lighter on our feet, so to speak, but it's true. We just feel lighter. We

exude more energy, we're happier. And when we're burdened down by this Deuterium, it's like having like gum stuck the bottom of your shoe. You're ready to run the race. You've got the best running shoes on the market. And you're trained. You're ready to run and then all of a sudden, you step in some gum. And it slows you down rather annoyingly, really... because we want to achieve the full 120 years that we're capable of.

Victor mentioned the mice and how the effects were seen as multi-generational. It also made me think about the strength of the new offspring versus the strength of older offspring. Are there any other observations of this multi-generational effect seen in more species or humans?

Victor:

Yes. Well, certainly you can observe that in areas of the world where people live that have lower Deuterium. You can deduce some things from just observation. Researchers obviously

use mice in the laboratory because their life cycle is shorter. They found that with mice drinking Deuterium depleted water - One: the mice had a larger litter. Two: they came to maturity faster. Three: They were bigger than those that were consuming regular 150 parts per million Deuterium water. Now, these are mammals, and you can predict that there are going to be multi-generational benefits here. But the benefit is not simply from drinking Deuterium depleted water - that's a contributor, a tool - but the benefit is really from keeping your endogenous Deuterium levels are at the threshold where our biology has evolved to manage them.

We've outrun our biology, and this is my theory of what's happened to the animal species. We've literally outrun our biology because the conditions on the planet have changed compared to how it was when we evolved. So, what happened to us? Well, we got smaller, and our life and our lifespans slowed down. The number of calories we can burn in a lifetime has been severely limited. We've lost our physical stature and we've lost our original lifespan.



We don't know how long man lived a hundred thousand years ago. But when you look at the Bible, it is claimed that humans lived to hundreds of years old.

So, something happened, and we had more Deuterium show up on our planet. It could have been here all along. It could have come here through comet bombardment or inter-planetary clouds of Deuterium. There was also the Biblical flood event that was documented, and it is receiving scientific confirmation. Then, following that, mysteriously, all the patriarchs, their ages, their lifespan went down to a hundred something. So, we some event(s) occurred in our Earth's history that increased the amount of Deuterium on Earth, but our biology hasn't been able to catch up yet. And you can observe this in nature by looking at animals and seeing where the longest-lived animals were geographically on the planet and seeing that some have a Deuterium depletion strategy inherent in their biology.

Look at Antarctica as a perfect example. The water there is locked. It's almost like it was frozen in time. It's a time capsule of the earth, 85 million years ago. That may be why the natural water and ice is only 89 parts per million of Deuterium. And, when you go back in time to that era, what do you see? You see plants that were three stories tall as well as massive reptiles.

Natural fresh water on planet Earth is at 150 ppm right now (the oceans, 155 ppm). So, we've sacrificed a lot through evolution, not by choice, things happen. So now this has come to us because in this age of technology we live in, we can mitigate some of the problems we have on our planet. This is what humans love to do, right? We love to mitigate problems. Sometimes we create solutions for problems that don't even exist, but we're really gratified with solving some of the nagging problems that we have on this planet. This nagging problem of too much Deuterium is undermining health and longevity. We're at the point where technology can provide enough Deuterium depleted water for a small number of people to try out this intervention. Sixty years of science and research points to Deuterium depletion as something that has got legs. It's

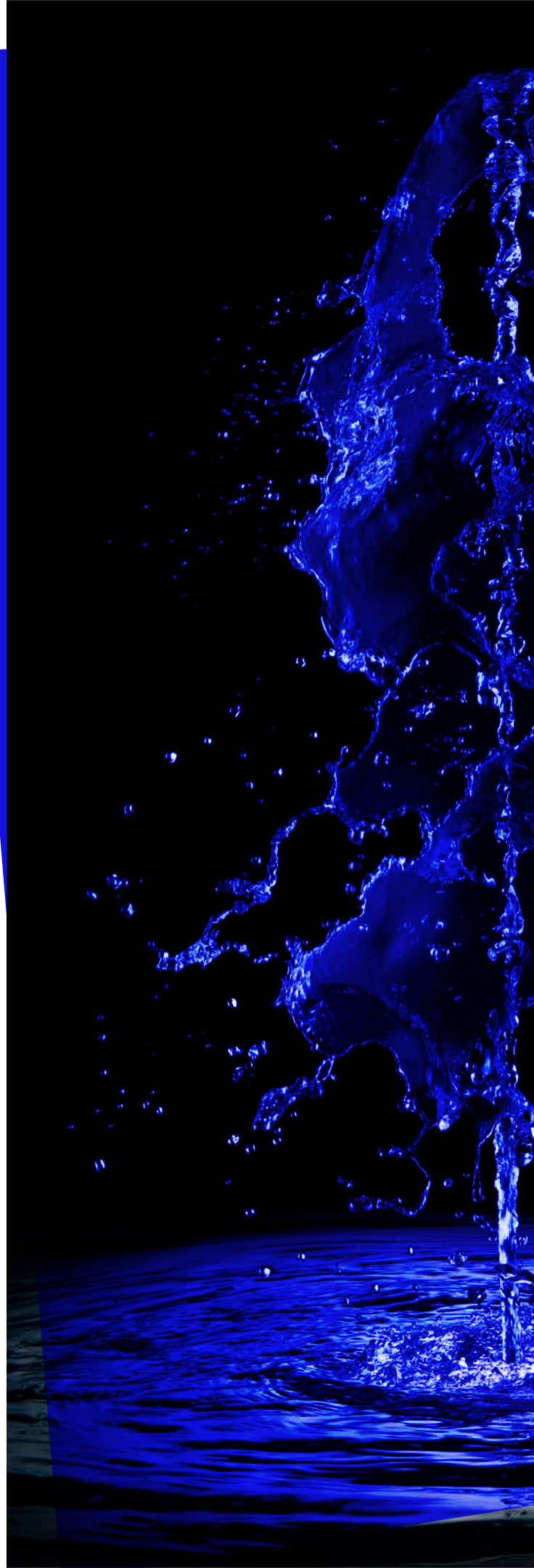


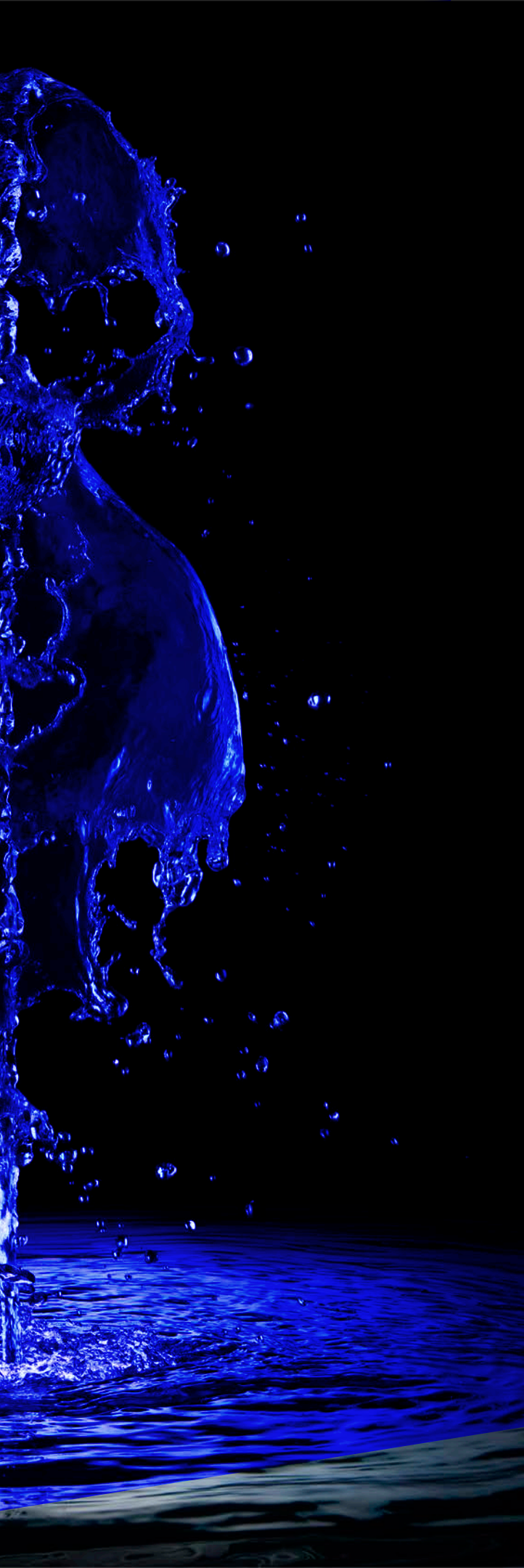
here for a long time. What's especially interesting is that, even though Russian researchers discovered this in the early 1960s, it wasn't until 60 years later that they figured out how it affects our metabolism and how it contributes to aging. So, these things take time. And, when it comes to the timeline that we're on, it's a very slow one.

One of the original young, scientists that was on this project discovered this problem in Siberia in the first place. He went on to become a famous scientist in the Soviet Union and later in life, he wrote a book. And in there, he discusses how the migration of birds is a Deuterium depletion strategy. Because why are they flying thousands of miles down to the tropics where they have a great time, and then they go back up north to Canada or cold climates to give birth, to lay their eggs? Well, because even a 5% Delta in the difference of Deuterium is an incredible benefit to their innate strategy of survival.

Species survival depends on having a better chance and many species of birds fly to a place, far north thousands of miles, to lay their eggs in an environment that has less Deuterium, because they know through evolution, through super consciousness, that they have a higher chance of procreating. And they have a higher chance of their eggs hatching and their offspring being healthier.

And so, this is a strategy we observe throughout nature. Another convincing example is the camel. The camel is physiologically very similar to a horse but can live nearly twice as long as a horse in very harsh environments like a desert where it may not drink water for weeks. How does it achieve this? It survives on a remarkable Deuterium depletion strategy. It burns the fat of its hump to create metabolic water. So, what is metabolic water? Metabolic water is created in our cellular mechanisms and is 50 to 70% Deuterium depleted. So, that's a clue right there that animal species strives to keep Deuterium out of the mitochondria where it can wreak havoc. Simply stated, a camel lives far longer than a horse because it has a Deuterium depletion strategy. You can also see this with whales and other mammals. You see it with plants as well. So, there is a Deuterium depletion strategy in Nature if you





tune in. And now that we know more of what goes on and how it's so vital and imperative to our survival, we start to see it.

You mentioned metabolic water - When we're intermittent fasting, one of the basic biohacks nowadays, is that also producing more Deuterium depleted water from those fat cells?

Victor:

Yes. For just about every kilo of fat that you burn, you excrete approximately one liter of Deuterium depleted water. If you fast, you burn fat first. So, you've produced metabolic water from burning fat. So, when you fast, you reduce your Deuterium levels because you're not drinking water, you're creating it, synthesizing it from the hydrogen of your fat stores. So, absolutely. A Ketogenic diet is also Nature's strategy of Deuterium depletion.

Robert:

So, carbs and grains and sugars and starches - those do not produce metabolic water when you use them for energy. The fats are the key.

Victor:

For example, you've got Palm Kernel oil is 117 parts per million, pig fat is 120 parts per million, olive oil is 130 parts per million. And then all carbohydrates are 150 to 156 parts per million. So, the modern standard American diet or standard Western diet, not only is it heavy on carbs, but it's also not really compatible with our ancestral biology. We were never taught this in the hundreds of thousands of years of our cultural evolution. I don't think there's ever been a precedent. I could be wrong. I don't think there's ever been a precedent to what happened in the 20th century. When they said you have to eat three meals a day, drink a gallon of water, and here's your food pyramid. This is your new religion. That's so counter to our nature. We're not supposed to eat three meals a day. We're supposed to eat when we're hungry, we're supposed to drink when we're thirsty. And we have these natural signals that have evolved in a complex manner from primordial time. But culture and com-

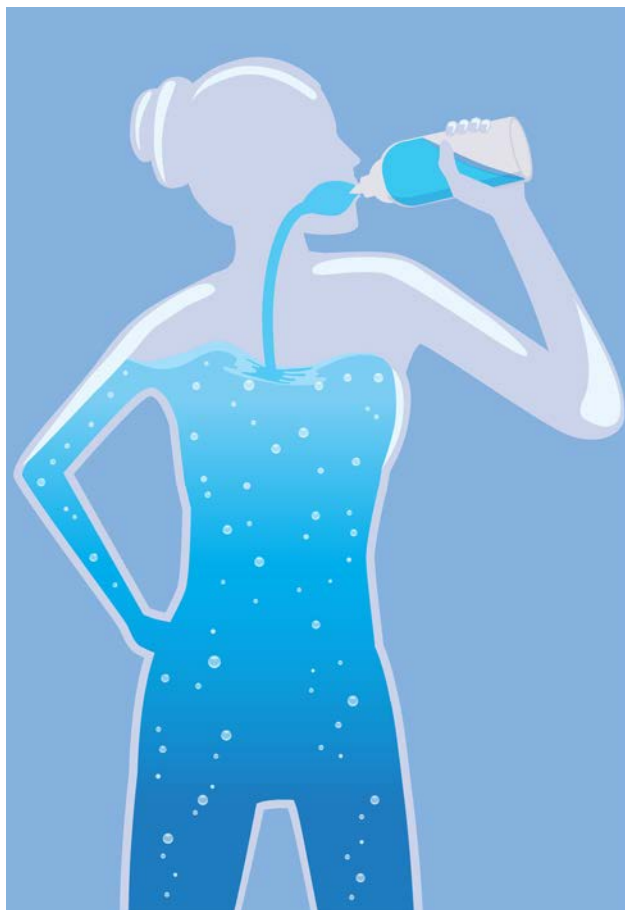


mercialism forces us into this unnatural state, which becomes the norm. And then now look at this epidemic that we have of obesity, of genetic mutation, of everything that gets you to the hospital faster and keeps you there. And then if you do go home, you go home with a bunch of pills you got to take. So, that's not our natural state. And as evidenced by going into Siberia or the jungle and seeing people that don't have a main street or clinic, they're doing just fine.

Right so after a bit more about what all goes into Deuterium and its depletion, I know you guys specialize in the water itself and you have some other products as well. Could you tell me a little bit about your product line and how this is best used to help in addition to the body process that deplete Deuterium levels?

Victor:

I want to let Robert take this one, but I do want to preface this by saying that all the products



that we promote and that we're involved in, have to do with mitochondrial health. If you go back in time 20 years, everybody was talking about antioxidants for the future. You must get your antioxidants up. Now that we have a higher level of understanding, and perhaps the market is a little bit more mature in their education, we come to understand that what we need to be concerned with is mitochondrial health. The products that we want to use, the supplements we want to use, the foods that we want to eat, all should have a benefit to your mitochondria - whether it's the integrity of the mitochondria or whether it's to increase the production of ATP, it's a mitochondrial intervention that we're talking about.

Robert:

So, we offer water that's imported from Russia from most advanced Deuterium depletion facility in the world. It uses a process known as, Vacuum Assisted Fractional Distillation, in which highly purified artesian well water is heated to a vapor state in very tall - maybe three stories high - hollow metal columns. As the vapor rises through a highly proprietary labyrinth of pathways, the heavy water (HDO and D₂O) and the light water (H₂O) become separated very, very, very slowly. The light water ascends to the top of the column and is collected, stored and eventually bottled. Because of its advanced technology this facility produces the lowest Deuterium drinking water available in the world. We produce, export and distribute to North American markets 5 ppm DDW - the lowest that's commercially available - and 10 ppm DDW in various sizes:

- Half-liter glass bottles that are exclusively 5 ppm DDW. These are bundled in 12-bottle packages.

- One-liter glass bottles that are 10 ppm DDW. These are bundled in 6-bottle packages.

- Two-liter plastic bottles (BPE & BPS Free) that are 10 ppm DDW. These are bundled in 4-bottle packages.

Since Litewater Scientific exclusively offers the lowest ppm Deuterium depleted water, customers do not have to purchase in large quantities and pay high shipping rates to achieve their Deuterium depletion goals. There are



only three other facilities in the world that produce Deuterium depleted water and the Litewater DDW plant is the **ONLY** one that can claim:

- State of the Art
- Lowest Deuterium PPM
- Highest Production Volume

Litewater Scientific is currently constructing a facility in the United States to produce DDW with a Deuterium level of 10 ppm. It will take a few years to complete and it's going to revolutionize the DDW industry and make it much more available and economical to everyone. That's our current goal moving forward.

Now that we know a bit more about the products, how would people incorporate this into their routine to deplete the levels of Deuterium in their bodies?

Robert:

The primary key to getting desired results from a program of Deuterium depletion is to

refrain from regular (not Deuterium depleted) water consumption as much as possible and in any form. This might include bottled water, filtered water, purified water, and "habit-life-style" beverages like coffee, tea, energy drinks, etc. Also consider the water used as a food preparation ingredient as when making soups, broths, stews – it should be DDW. Be aware of overheating or extended heating of the DDW because some will be evaporated and lost. Depending on the Deuterium depletion program you have chosen, our Litewater 10 ppm DDW can be diluted up to four times depending on the user's objectives and state of health.

Should some specialized reason for Deuterium depletion arise beyond health support and improvement – like competitive sports performance, greater agility and faster reaction-time, for example, then Litewater 10 ppm DDW should not be diluted more than one (80 ppm) or two (103 ppm) times. And we still suggest adopting those other habits and activities we recommended – eating more fats that are very naturally low in deuterium, eliminat-

ing carbohydrates and sugars and starches, choosing grass-fed meats and avoiding tropical fruits, intermittent fasting, red light-NIR exposure, etc. all make a difference.

Those rules and habits combined with DDW water is probably 80 plus percent of the benefit of Deuterium depletion. One can achieve a very respectable, less than 120 ppm of endogenous Deuterium in the body, in about 3 months. We can verify this for the customer based on previous human studies. We also suggest that at the 3-4 month mark of the customer's program, they submit a saliva sample, and we test that saliva for the amount of Deuterium it has. This analysis reflects the deuterium level of your body fluids. The analysis is performed with a very sophisticated laboratory Deuterium analyzer. Then we give a report to show the customer how well they have achieved Deuterium depletion.

So just thinking through the mind of a consumer, are they continuing with the same regimen after the 3 months, or can they back off a little bit of the depleted water or is it something that is designed to just be a whole lifestyle change from here on out?

Robert:

When a customer strays from their Deuterium depletion program it requires a little discipline to get back on the depletion track by including additional DDW for several weeks and refraining from carbohydrates and fruits. Litewater customers should limit dilution to no more than 1 (80 ppm) or 2 (103 ppm) times during the weeks of recovery.

Victor:

There's a great book called "Deuterium Depletion" by Gábor Somlyai and he's been using this with his patients and clinically in Hungary for 30 years. He lays out some great protocols based on his observation, dealing with over 3,300 human case studies. So, the goal is to just deplete your Deuterium and keep it there. But if you can't keep it there, they found that even two months out of the year, if you're practicing





Deuterium depletion, it has a long-term benefit. In the original studies in Russia, they weren't measuring the Deuterium level in the body like we are doing right now. They were just looking at basic blood markers. And even then, they realized that even one week a month on Deuterium depletion had significant benefits.

So, there's different strategies you can adopt. Surely, it's really good to do this over a long period of time, because now that I've been on this for two and a half years, I can clearly say that the benefit is cumulative and that after a year of being 20% lower in Deuterium than you have been any time in your life, you will know the difference. All I can say is I wish everybody could feel the way I do. And the customers that have been with us for over a year maintain their levels low continuously. The benefits are just phenomenal.

Robert:

Looking back more than two years through COVID, the benefit was threefold – pure physical energy, positive mental attitude during difficult times and a strong sense of well-being. Mental attitude improvement has showed up in several studies to the surprise of researchers. That is an unexpected benefit most everyone is seeking.

I would like to mention three superstars of Deuterium depletion science, and they are Dr. Gábor Somlyai and Dr Laszlo Boros from Hungary and Dr. Abdullah Olgun from Turkey. These are the pioneering researchers who provided and continue to provide the foundational research and information on the mechanisms and benefits of Deuterium depletion. And they have books and/or reports available on the web.

Victor:

The disabling of mitochondria by Deuterium is a core issue. And what that is that we have a mechanical problem in the mitochondria and in ourselves. And that mechanical problem is that Deuterium with its extra neutron is simply too heavy and big. It's twice the size of a normal hydrogen. And we don't have a mechanism for it – it's like a putting a square peg to a round hole, not a square peg to a square hole. Life is clever and figures out all kinds of strategies, but the best strategy is to reduce it out of the body as much as practical so that we don't have this burden. And I highly recommend you get that book by Dr. Gábor Somlyai because it's 30 years of his work and a lot of it is just case studies and covers all the testimonials and all



the things that we don't talk about ourselves. But if you read that book, you'll get a sense of the profound impact this has on people.

At the current rate of scientific and technological growth, where do you see your company Litewater in the next 5 to 10 years in regard to your mission of getting the world's Deuterium levels brought down a notch?

Victor:

There's not much we can do for the health of the world in the next five years. I think it'll be a much longer-term strategy. Our goal is to keep refining and expanding the technology that we currently use and to have a local US source available in the next few years. One of my goals is to get NASA and/or SpaceX involved because we cannot survive on Mars or elsewhere unless you have a Deuterium depleted body.

Robert:

The absence of deuterium is radio protective of people who travel in interstellar space where there is an abundance of electromagnetic energies that aren't compatible with human life. It has also been concluded that the Deuterium in the frozen water on Mars is much higher than what it is here on earth. So that's going to be a problem that will have to be dealt with.

Victor:

Actually, I wrote an article on it, called "The Elephant in the Space Capsule". It's all cited with footnotes, but there's actually 5 to 7 times more Deuterium in the frozen water on Mars compared to what's here on Earth. It's in the 550 to 700 ppm range.

Robert:

I also look forward to seeing Deuterium depleted water being used in popular beverages, just as regular water is now. That would make enhance any category of ready-to-drink beverage.

Victor:

We partnered with a company called H2Bev that Robert is involved with. They make a healthy energy drink called Hydro Shot fortified with molecular hydrogen and a nitric oxide precursor. Hydro Shot has exhibited incredible health benefits. We convinced H2Bev to produce a special version of Hydro Shot made with our Litewater. It uses 100-ppm Deuterium depleted water infused with molecular hydrogen and L-Citrulline, which generates the nitric oxide. We sell this to our customers, and I believe it is the first functional beverage made with Deuterium depleted water

What does Deuterium Depleted Water offer the rising world of Biohacking?

Victor:

It's very compatible with biohacking. Twenty years ago, I was doing mostly what I'm doing now, which is now considered biohacking but that term didn't exist back then. So, in terms of real biohacking, something that we've figured out is what is best for us in terms of humanity, this is it. This is the crown on top of your Christmas tree. When it comes to biohacking, everything else is downstream of this. It's profound because this will improve anything else beneficial that you're doing. There's nothing better

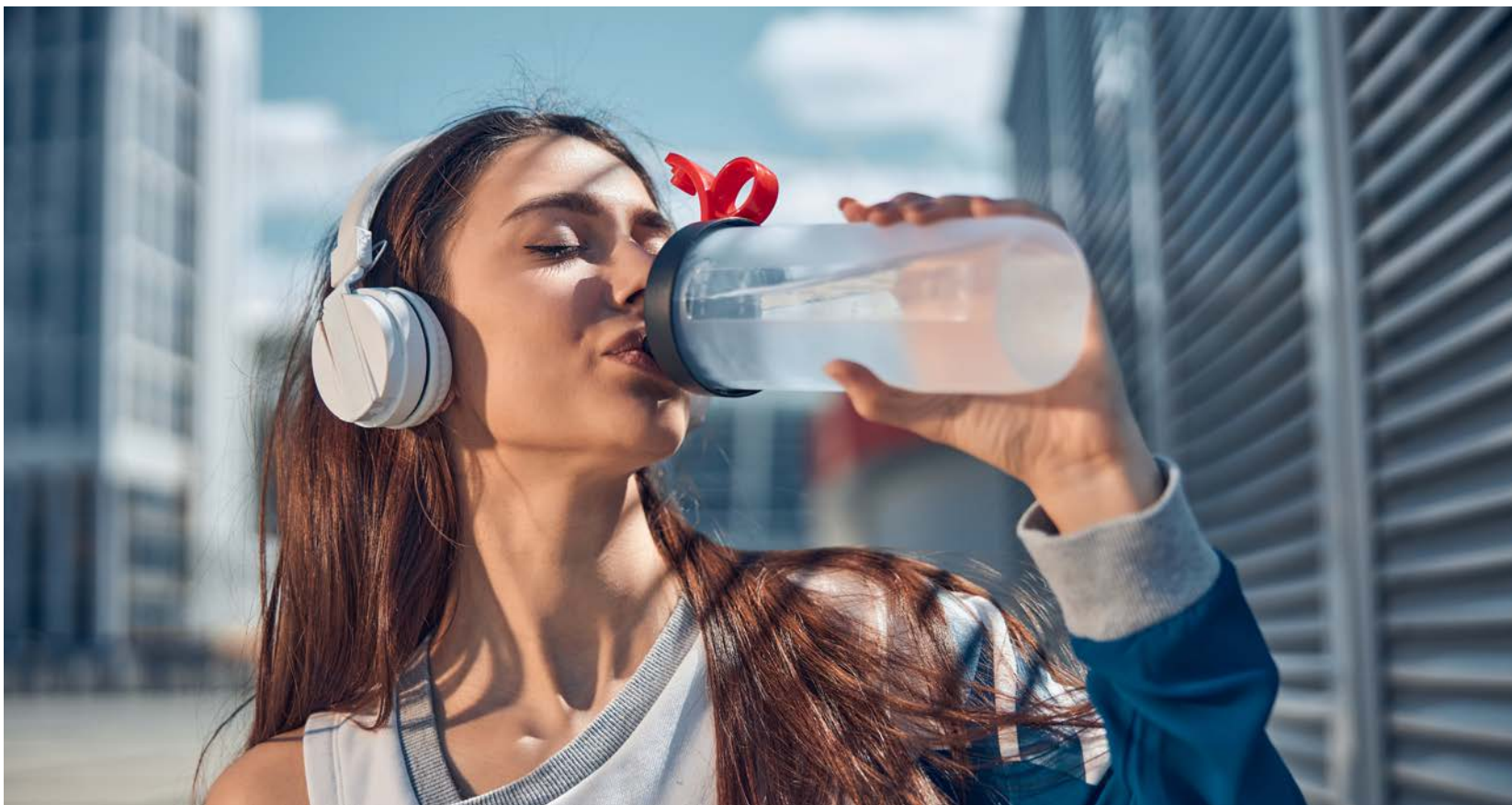
that you can do from a net energy standpoint than to lower the Deuterium in the 98.8% of the water molecules comprising your body.

It's a true biohack that we couldn't do if we didn't have a giant factory with dozens of 40-foot columns working 24-7. So, we're really standing on the shoulders of giants here, because this is not something you just go find in nature. This is recreating the finest of nature. So that's what makes it a real top level biohack.

Where can we find out more?

Victor:

You could find out more about us and our products by going to drinklitewater.com. We also offer testing service for Deuterium, which is deuteriumdepletion.com, or you can get it through our main website. We also host the Deuterium Depletion Summit, where we invite the world's leaders, influencers and thought leaders in Deuterium depletion. For anybody interested in reading some of the studies or an in-depth history of this, they can go to deuteriumdepletion.org, where most of the literature that exists in every language that has been published over the past sixty years can be found, a great resource for any scientists or researchers. So, there you have it.





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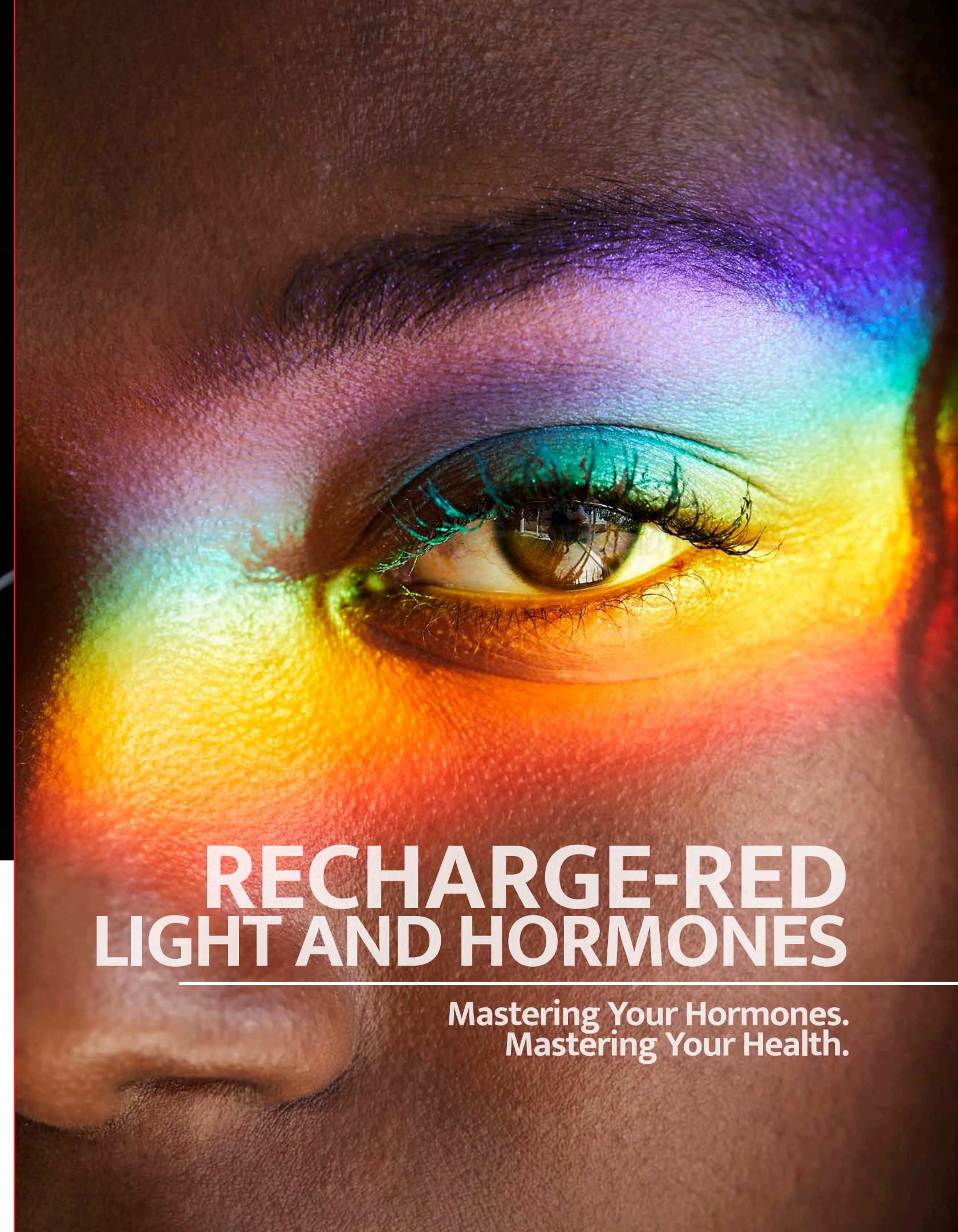
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A close-up photograph of a person's face, focusing on the eye. A vibrant rainbow light effect is applied across the eye and cheek area, with colors transitioning from purple at the top to red at the bottom. The eye itself is looking directly at the camera, and the reflection in the pupil shows a small, dark, rectangular object, possibly a camera lens or a small building. The skin texture is visible, and the overall lighting is soft and focused on the eye.

RECHARGE-RED LIGHT AND HORMONES

Mastering Your Hormones.
Mastering Your Health.

Hormones are your body's way of triggering and halting different biochemical and biological processes. Our body tells us when to sleep, eat, rest, be physically active, or even how to feel, by secreting hormones. Their influence on our lives is enormous.

That is why it is of utmost importance to keep your hormones in balance. Having balanced hormones means being healthy. Unbalanced hormones directly translate to poor health, foul mood, lack of motivation, and a plethora of disorders that can have an impact on your quality of life. In worst-case scenarios, imbalanced hormones cause diabetes, cancer, and other life-threatening conditions.

Therefore, to master your hormonal balance means to master how you optimize your health. Today, as we know more and more about how hormones work, the medical approach is slowly stepping away from using drugs and medicine for hormonal balancing.

Red light therapy is one of the most promising tools for restoring hormonal balance and resetting your disrupted circadian rhythm.

Whilst some serious hormonal imbalance requires hormone replacement therapy (such as insulin for diabetics, or T4 supplement for those with an inactive thyroid gland), in other, milder cases, herbal supplementation and new natural measures could be the answer. Recent science tells us that using red and near-infrared light that mimics the power of the sun seems the most logical way of achieving balance naturally.

Circadian Rhythm: The Rhythm of Your Health

Circadian rhythm represents the sequence of

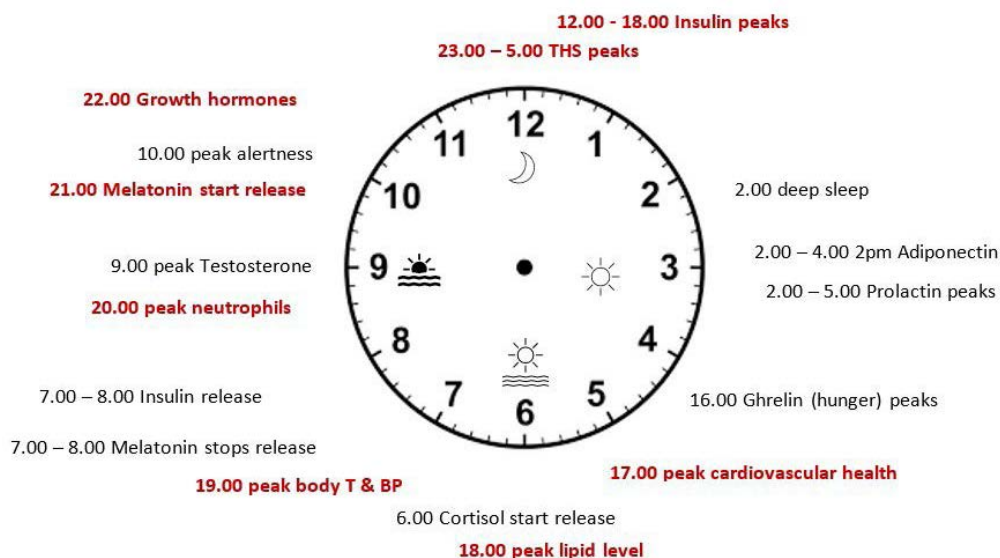


all the changes your body and mind go through during a 24-hour period. For the better part, each of the hormones in your body has its own rhythm. They get released into the bloodstream, reach peak concentration, and then slowly dissolve. These cycles cause some important biological actions.

For example, testosterone levels rise in your body in the morning. It gets you awake and alert. Around 9 am, testosterone is at its peak. That's when you are the strongest and it's the best time to exercise.

Now when it comes to having a good night's sleep, and in order for you not to wake up during the night, your bowel movement slows down significantly throughout the night and is most active in the morning. That is because it follows the life cycle of your serotonin. Bowel movement is slow

Circadian Rhythm is linked to Hormones & Functions



when serotonin is low and it increases in the morning when the serotonin levels rise (Cespuglio et al. 1983)

However, if the hormones are not peaking and dropping at their correct times, that's when the problems begin. One of the most critical situations is when cortisol levels rise at the wrong times. Stress is a common cause of this.

When cortisol isn't "on track" you feel sluggish and can't get out of the bed in the morning, you feel foggy, miserable, and fatigued. It is also the cause of those stubborn inches piling up around your waist. That is because cortisol also triggers ghrelin (which causes hunger) and suppresses insulin (the hormone that helps regulate sugar)

What's Disrupting Your Hormonal Balance?

Our bodies adjust the rhythm of hormone release to the day-night exchange. How do our bodies know if it's night or day? They react to the (lack of) sunlight.

The sunlight comes in all sorts of wavelengths, some of them are more prominent than others at certain times of the day. Red and near-infrared light are the strongest at dawn and dusk. Blue light is characteristic of the middle of the day. That is why we react to blue lights by being alert and quite different from the red and near-infrared spectrum.

It should all work out fine, right?

Yes, if you wake up at dawn, spend a lot of time outside throughout the day, reduce your screen time to a bare minimum and go to bed on time. But, that's not easy today, is it? Our modern lifestyle involves many factors that cause a disruption of our hormonal balance: prolonged sitting, poor diet, lack of sleep, and most of all - a lack of exposure to sunlight.

Natural sunlight is what we, as a species, need to function properly.

All of our biological processes rely on the big and bright clock in the sky. Our hormones and our circadian rhythm depend on it. These days, when we are hidden from the sun for the best part of the day, our body gets confused and our hormones miss their mark.

However, aren't we under artificial light all that time? How are artificial lights different from natural light?

They produce zero near-infrared light. The only light they produce is visible light. That is not enough

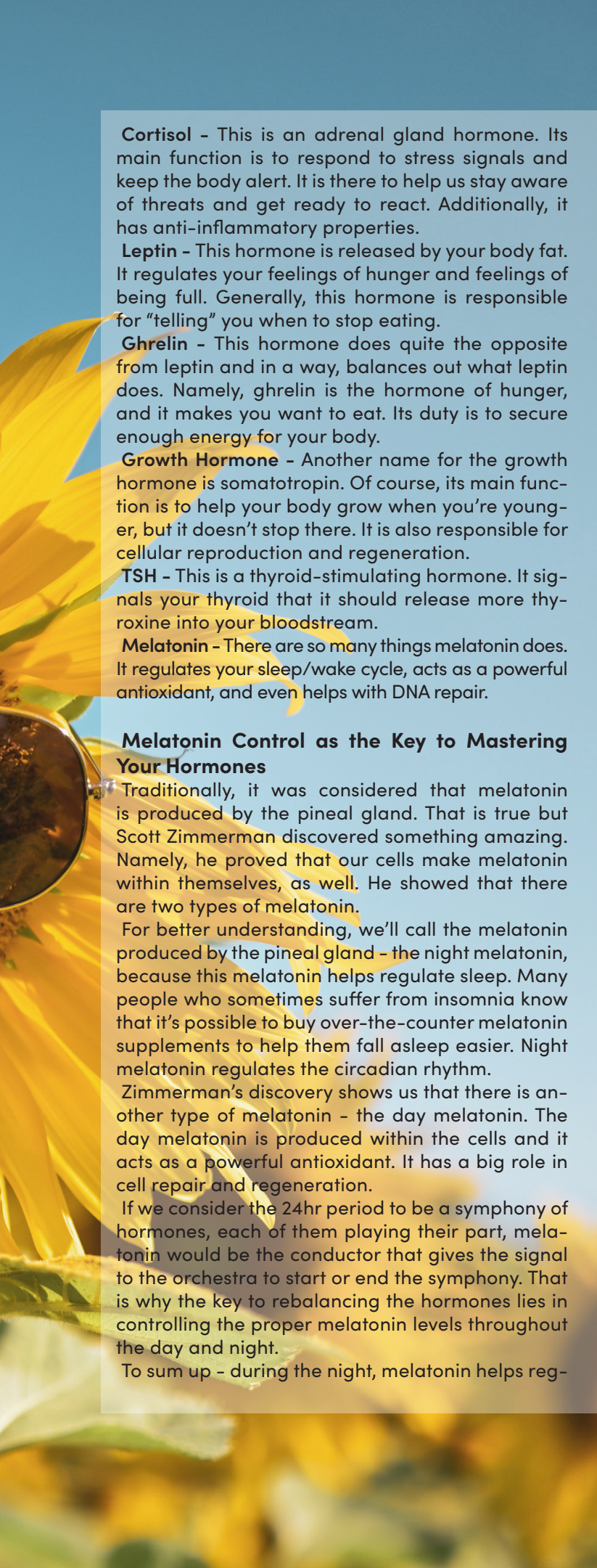


for our hormones to play their part. Hormones get secreted during the wrong periods of the day, or even worse, hormones that should not be in the bloodstream at the same time clash together. As a result, our bodies develop all sorts of disorders and diseases. Even our emotional and mental wellbeing becomes severely affected.

Essential Hormones and What They Do

Circadian rhythm is a symphony of your essential hormones throughout the day. The story of hormones is a complex one. However, to understand the basics in relation to the circadian rhythm, it's enough to look into some of the 'major players.' Here is the list of some of the main hormones and what they actually do.





Cortisol – This is an adrenal gland hormone. Its main function is to respond to stress signals and keep the body alert. It is there to help us stay aware of threats and get ready to react. Additionally, it has anti-inflammatory properties.

Leptin – This hormone is released by your body fat. It regulates your feelings of hunger and feelings of being full. Generally, this hormone is responsible for “telling” you when to stop eating.

Ghrelin – This hormone does quite the opposite from leptin and in a way, balances out what leptin does. Namely, ghrelin is the hormone of hunger, and it makes you want to eat. Its duty is to secure enough energy for your body.

Growth Hormone – Another name for the growth hormone is somatotropin. Of course, its main function is to help your body grow when you’re younger, but it doesn’t stop there. It is also responsible for cellular reproduction and regeneration.

TSH – This is a thyroid-stimulating hormone. It signals your thyroid that it should release more thyroxine into your bloodstream.

Melatonin – There are so many things melatonin does. It regulates your sleep/wake cycle, acts as a powerful antioxidant, and even helps with DNA repair.

Melatonin Control as the Key to Mastering Your Hormones

Traditionally, it was considered that melatonin is produced by the pineal gland. That is true but Scott Zimmerman discovered something amazing. Namely, he proved that our cells make melatonin within themselves, as well. He showed that there are two types of melatonin.

For better understanding, we’ll call the melatonin produced by the pineal gland – the night melatonin, because this melatonin helps regulate sleep. Many people who sometimes suffer from insomnia know that it’s possible to buy over-the-counter melatonin supplements to help them fall asleep easier. Night melatonin regulates the circadian rhythm.

Zimmerman’s discovery shows us that there is another type of melatonin – the day melatonin. The day melatonin is produced within the cells and it acts as a powerful antioxidant. It has a big role in cell repair and regeneration.

If we consider the 24hr period to be a symphony of hormones, each of them playing their part, melatonin would be the conductor that gives the signal to the orchestra to start or end the symphony. That is why the key to rebalancing the hormones lies in controlling the proper melatonin levels throughout the day and night.

To sum up – during the night, melatonin helps reg-

ulate our circadian rhythms, and during the day it turns into an antioxidant.

In both of these situations, the sun plays an important role. It still needs to trigger the production of both day and night melatonin. Again, since we don’t get as much sunlight exposure as we used to, we need to find another way to trigger these essential processes.

This is where red and near-infrared therapy come in.

Red Light Therapy: Natural Way of Restoring Hormonal Balance

The pineal gland produces melatonin as a reaction to the environmental conditions and the state of the day/night cycle. In other words, when your body recognizes that nighttime is approaching, it starts producing night melatonin. This signifies an important mark in our internal circadian rhythm.

Our bodies have evolved to recognize the red and near-infrared wavelengths emitted by the sun as the environmental cue to start preparing for melatonin production. The same result can be achieved by red and near-infrared light generated by red light therapy devices.

When this type of device uses just the right combination of wavelength, irradiation, and energy density, it can help your body recover from over-exposure to the blue light (coming primarily from different screens) and restore healthy melatonin production. Red light from your device will trigger the necessary processes within the pineal gland and stimulate it to produce melatonin.

What about the powerful, antioxidant day-melatonin? Red light therapy helps with that, as well. Zimmerman proved that the intracellular production of melatonin also gets a boost when the body is exposed to near-infrared light.

Once the night and day melatonin production is restored to its natural state, the rest of the hormones fall into their place much more easily. Basically, melatonin restores the circadian rhythm and the rest of the hormones follow its cue.

Even though restoring proper melatonin production with red and near-infrared therapy is enough to help restore the circadian rhythm, that’s not all that it does for hormonal balance.

Both leptin and ghrelin are influenced by red and near-infrared therapy. Specifically, Figueiro et al.

described their experiment in their paper *Light Modulates Leptin and Ghrelin in Sleep-Restricted Adults*. Their experiment showed that leptin concentrations after red light in the morning are much higher than when this exposure doesn't happen.

At the same time, a lack of sleep and lack of proper melatonin levels cause the rise in ghrelin. Consequently, it seems that our bodies try to make up for the lack of sleep with more food. This leads to excessive caloric intake and the possibility of adding on weight and increasing the risks of diabetes.

This study investigated the effects of sleep deprivation on the production of leptin and ghrelin, but also whether the exposure to light of different wavelengths could reverse this sleep deprivation effect. Usually, people who maintain a 5-hour sleep schedule experience a rise in ghrelin and a drop in leptin concentrations.

The study followed subjects for 5 days. All subjects maintained a 5-hour sleep schedule during that period. Right after they would wake up, they were exposed to dim, green, blue, or red light. The results of the study clearly showed that people who were exposed to the red light after their 5-hour sleep were able to reverse the effects of sleep deprivation to some extent.

Experiments like this show that science increasingly focuses on the health benefits of red and near-infrared light. If you type in "red light therapy" on Google Scholar, it will return 3,130,000 results. Not to mention that this number grows if you add "near-infrared" or "photobiomodulation" to your search. However, the scientists are not the only ones with such focus.

People are becoming more mindful of both their health and wellness. They are exploring the ideas of longevity, as well as the natural ways to achieve it. There is a very obvious positive trend of people trying to hack their bodies, supporting them to perform optimally.

Consequently, modern health and wellness technology have to follow these trends. New devices are created to help people thrive and reach these health and wellness goals. Their aim is to offer natural health boosters in an attempt to counter the negative effects of a fast-paced lifestyle.

Red light therapy devices are an evident result of such efforts. They boost immunity, balance hormonal health, promote faster recovery, and effectively relieve pain. Every day, they are becoming more accessible to the general public. That is yet another trend that we should look forward to as it announces a rise in general health and wellness levels everywhere.

ABOUT DR ZULIA FROST



Zulia Frost (MD, DCMac) is Co-Founder, and the Head of Clinical at Recharge Health, inventors of the FlexBeam (<https://recharge.health/>). Driven by her passion for innovative therapeutic technologies and the

energy aspects in healing, she became one of the pioneers in the field of red light therapy. During her rich medical career, she has helped over 10,000 patients worldwide overcome their health challenges.

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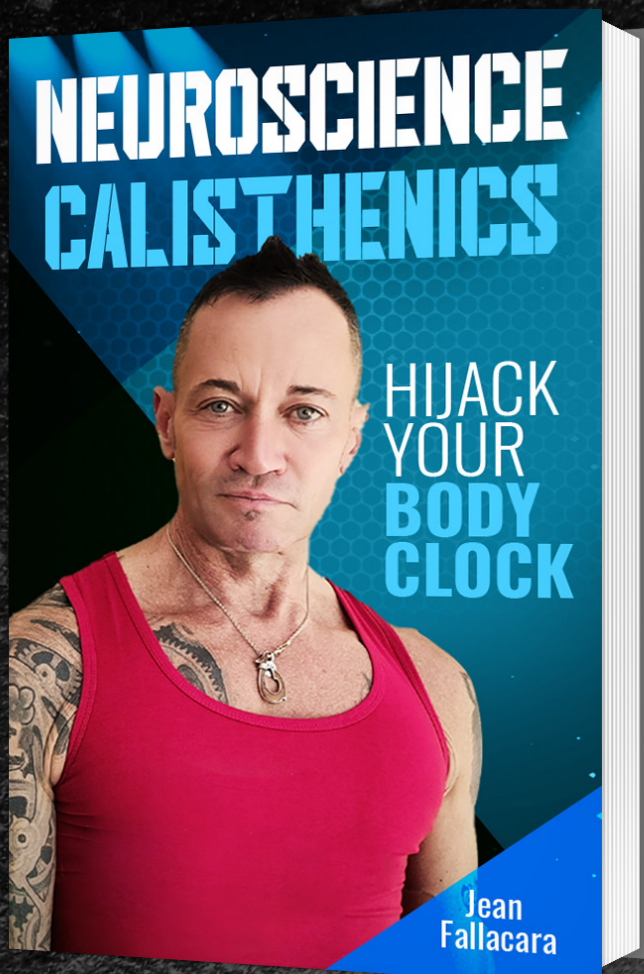
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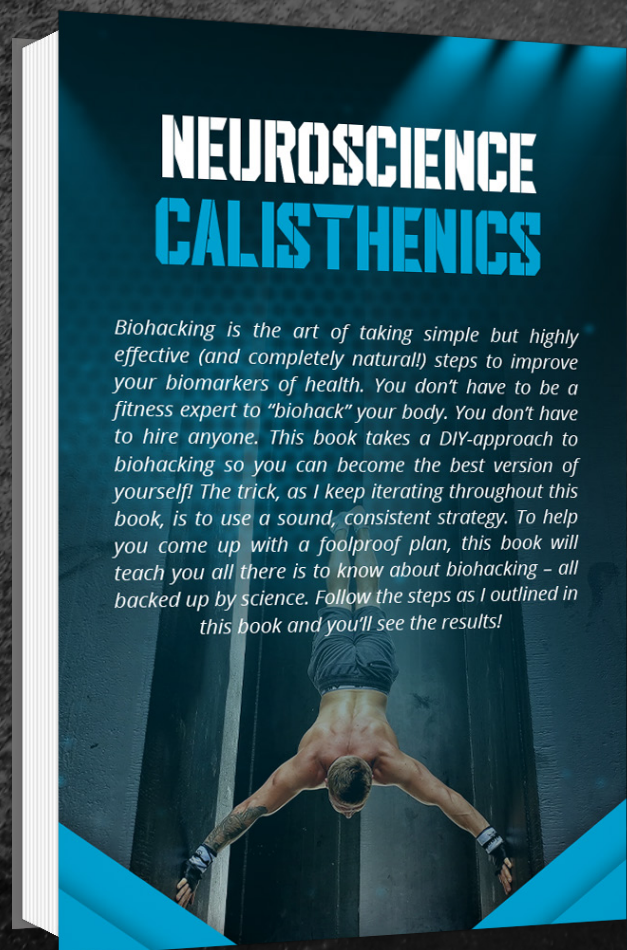
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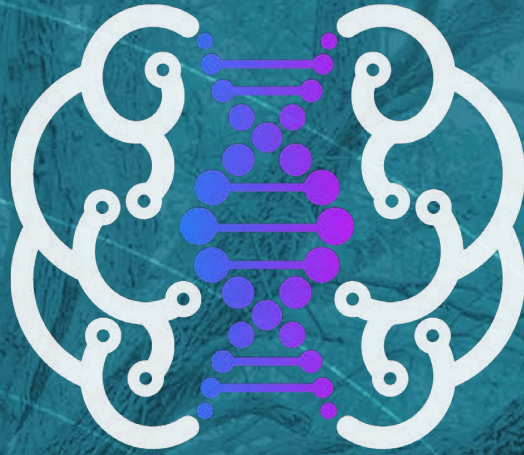
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