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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 in silhouette, holding a glowing, wireframe brain. The background is a sunset with a sun low on the horizon. A network of white dots and lines is overlaid on the scene, suggesting a digital or neural network. The text "MESSAGES FROM OUR BIOHACKING TEAM" is written in large, white, bold, sans-serif capital letters across the lower half of the image.

# MESSAGES FROM OUR BIOHACKING TEAM

# A LETTER FROM THE EDITOR

In a time where it was believed we were stronger than our neighboring countries invading others without mercy, the war between Russian and Ukraine delivers a very real sense of disbelief and utmost empathy. As humans, we are designed to help those being persecuted, for the sake of loving, which is the ultimate mission of why we are here. In whatever way we can, we should strive to help those in Ukraine, whether its through donations, housing for refugees, presence for assisting aid, etc.

We must also ask ourselves, why did this happen? There are a multitude of reasons why, but the importance lies in the root of the issue. Personally, I believe it has to do with how one person, or group of people, see each other and the utter lack of respect that has been cultivated within our society. Each and every one of us understand that the human being is a creature capable of rational thinking and by his own free will, can choose to follow the moral code imprinted on his heart,

leading to increased charity and love in the world, or choose the other path of continual sin and wrongdoing, leading to evil and destruction. But its more than just that. As a human person, each one of us has a right to dignity. Dignity in a sense can only really be respected when one person through their own insight and values, recognize his or herself as a real conscious, acting being, worthy of love and respect, and in the same sense, this person can apply this same level of awareness to each and every other human person in the world, seeing them just as they are, a being worthy of dignity and respect.

The ultimate commandant is to love thy neighbor with no exception. In this case, the unfortunate reality is that, besides any of the superficial or historical reasons for the invasion, Russia has completely disregarded the dignity and the realness of the Ukrainian people as actual existing beings, instead seeing them as objects.

Its easy to sit here and pick on Russia since they are in the World spotlight, but this opens up some invitation to introspection and inner dialogue with ourselves to analyze if we are really acting with love towards all of our neighbors in our lives. Change can start with one individual. An individual's manner of neighborly relation can affect the community, the state, the nation, and the World. Never underestimate the power of love that resides in each of us. As biohackers, we must channel this passion of improvement towards the charity and assistance of our neighbors in need. Pray for the Ukraine. Pray for Russia, Pray for the World, and Pray for the strength to carry on with courage to do what is right in the face of evil.

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## ABOUT DALLAS MCCLAIN



Born in the USA, Dallas is a passionate reader of theological and personal development books. He is a devout Catholic Christian and enjoys time outdoors while being a tennis enthusiast. He is the Chief Financial Officer and Editor of Biohackers Update Magazine and the co-founder. He holds a bachelor's degree in Biological Sciences, as well as a TEFL level 5 certificate in teaching English. He is currently living in Orlando, Florida with his wife, daughter and son, 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](mailto:dallas.biohackersupdate.com@gmail.com)



# A MESSAGE FROM COO JEAN FALLACARA

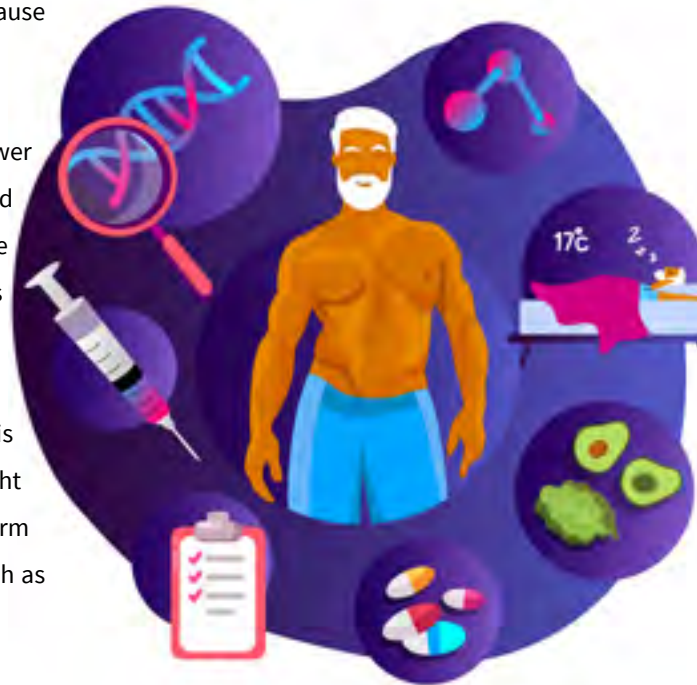
## Metaverse, Virtual & Mixed Reality: a New Era for Biohacking

As the medical industry advances into lipid nanoparticle medicines for oncology and infectious disease management, the Artificial world is taking another dimension. The pandemic has accelerated this development even further because of the sudden increased need for remote collaboration.

In the last decade there is a real buzz for micro dosing, psychedelics, brainpower and anything related to genetics & neuroscience. Virtual Reality, Augmented Reality already gives us access to expanded sensory based cognitive experiences, but the new category of experience that is emerging now is Neural Reality.

When consciousness and the senses are turned inward, Neural Reality is complex and rich with information. And we are back to the basic Biohacks: light and sound effects will be optimized to affect cognitive states in order to perform better, feel better, and potentially cure psychopathological related cases such as anxiety or PTSD...

Stay tuned, because the future is now, the new psychedelic experiences in an fully immersive environment that matches reality is coming sooner than you think!



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## ABOUT JEAN FALLACARA

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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.

Website: [jeanfallacara.com](http://jeanfallacara.com)

Website: [cyborggainz.com](http://cyborggainz.com)





— OUTER

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

*— Neil DeGrasse Tyson*



BIOHACKERS  
UPDATE MAGAZINE

# EVOLUTION OF MOVEMENT

“MOVEMENT IS LIFE”





**W**ho are we? We are by-products of nature, we evolved from nature. Between 3-6 million years ago we started making the permanent transition from ape-like walking to bipedalism, the ability to walk on two legs. One of the many theories behind this transition was to allow us to move from point A to point B more efficiently and effectively, of course this also increased our capacity to survive as we became better hunters. As we look over the ages we see changes in the way we move and adapt and although we have reached a place of great progress the question remains are we always evolving for the best? We first must start with the understanding of what controls movement.

### **A Neurological behavior**

Movement is a behavior and a neurological one at that. The brain controls everything and recognizes patterns, with the cerebellum being the part of the brain that controls coordination, balance and movement. Over millions of years our brains have evolved to better adapt and survive our surrounding environments. Our brain/nervous system controls how we perceive pain, how our soft tissues react to threat or force and how well we can better plan out future reactions to similar situations. The brain takes both external information (exteroception) and internal information (interoception) processes it and then acts with the given info to create movement or any other biological reaction. When studying early ancestors and mammals we discover that they possess a smaller neocortex - the part of the brain which is considered the most recent evolution or development of the brain. This neocortex is a part of the cerebral cortex and regulates cognition, sensory perception and many consider it to be the front seat to our consciousness. The humans of today have a

brain that is 80% neocortex meaning at this time in history we are the most sensory version of ourselves so the ability to evolve movement and our biology as a whole is much higher for better or for worse.

Our brains are plastic - we can shape and mold them anyway we desire through multiple forms of stimulus, referring to this as neuroplasticity. It is important to understand the brain's first response is a very primal one and that is a 'how do I best survive' response. The problem with this mechanism is our brains often do not know right from wrong as this is subjective and these mechanisms can create poor habitual patterns and it is up to us to create a level of safety in order to create adequate change or evolution. Now that we know where movement is created we must understand where the brain sends its signals to create action like a power grid turning on light bulbs.

### **The holistic nets & movement**

Andreas Vesalius, the godfather of modern anatomy broke down the body into 3 nets: the neural net, the fluid net and the fibrous net. The fibrous net being the soft tissue bag that our bones, nerves and fluids are suspended in. More specifically I want to focus on fascia. Fascia possess 80% of our bodies free nerve endings making it one of if not the most sensory organ in the entire human body. We have 12 fascial lines throughout the body, like plastic wrap covering all muscles, bones, organs and even travel down to a cellular level. This fascia is what allows our muscles to move and glide and spans wide margins. For example we have a line known as the spiral line that goes from the inside arch of the foot and spirals through the body like a web and attaches to the base of our skull, mind blowing stuff right? So, what does this have to do with movement? These lines explore many planes and better understanding them allows us to better understand how we should move as



human beings. This fascia allows us to transfer force and energy in a profound way. When we do not promote fluidity and efficiency in this tissue we disrupt our ability to move and function well. With nature evolving us in such way that we should essentially function like a well-oiled self-regulating organism, we tend to ask ourselves where did we go wrong? With a vast majority of general population suffering from pain every day and athletes experiencing higher than normal injury rates, this question is more asked today than before.

### **A domesticated world**

Darwin used to say that we have 2 types of evolution - domesticated and natural selection. In a world where everything has been developed for an easier and more comfortable life we must ask ourselves if everything

we have done is encouraging positive evolution in us or has become a detriment to us. Movement is a key attribute for us as human beings, it is the essence of life yet we have veered so far away from what natural movement looks like. We use what is now considered conventional training methods to build strength, power and endurance such as deadlifts, bench press and running on a treadmill but are these patterns truly the best for optimal functionality? - For me the answer is no. We are essentially teaching ourselves to function like robots. Many books tell us we live and move in 3 planes of motion when in reality we move through 1000's of angular and non-linear planes. We have lost touch with the idea of free movement and play, which we so desperately need to get back to more. Due to our new-age habitual patterns in the gym, we have

increased the risk and rate of injury across the board, seeing younger individuals develop injuries that you would normally see in 40-50 year olds like chronic back pain. We are setting up our youth for failure with conventional methods, modern day shoes and domesticating them to environments not conducive of good health but of chronic fight or flight states and poor habitual patterns. Watch a baby who is able to walk and move more freely, they likely have better gait patterns, better posture and more fluidity despite having a lack of coordination. The same can be seen in nature: wild animals move with such beauty, power and grace but domesticated animals such as a pet dog experiences chronic hip, knee and spine issues; sounds a lot like us adults, doesn't it? So how do we train and learn how to move more efficiently?

## Natural movement

I am a big believer in everything having its place. I am also a big believer that many individuals in society lack the neurological capacity and movement control to partake in excessive amounts of conventional training which can be rather 2-dimensional, in my opinion. One of the most important characteristics we have as human beings is that we are extremely dynamic and nothing about us works in isolation, so it only makes sense that we would create habits and patterns that allow our biologies to do their jobs effectively. Sitting at desks, staring at screens, and isolating ourselves to the indoors is not what we were intended to do and this goes against our evolutionary progress and design. When doing an exercise, ask yourself is this relative, does it translate to my everyday life or specific sport and does it respect my evolutionary design? Let's go back to our ability to walk on 2 legs or our ability to





move forward through space - we call this locomotion, this is a pattern many of us do not focus on in a weight room and a big reason why we see an increase in back pain, knee replacements and even shoulder issues. If we dedicate more time to locomotion patterns I promise you that your body and movement quality will increase 10 fold. I challenge you to play around with crawling, rolling, climbing, throwing and sprinting; all these movements are evolutionary and engrained in our DNA and are also all forms of locomotion. Even if we dive deeper into quantum biology and energetics we see at the fundamental level that we are made up of electrons and energy - so how do we create a level of integrity in a way that creates efficient force transmission during movement and locomotion? How do we tap into our primal movement patterns?

Hint - it comes in waves.

### **Moving in waves**

“Energy moves in cycles, circles, spirals, vortexes, whirls, pulsations, waves and rhythms- rarely if ever in simple straight lines”

- Starhawk

Watch a human run well and you'll notice a pendulum or coiling like pattern, one where energy is reciprocated and recycled back and forth, individuals like Usain Bolt did it exceptionally well. When we study cavemen and Neanderthals, we see they have less spinal curvatures meaning they were more rigid with their movements, thus meaning less efficiency in energy transfer. Human beings of today have become very front dominant due to the fact we do so much out in front of us leading to poor dynamic posture and joint instability.



In actuality, rotation and spiral like patterns are supposed to be our most dominant. As mentioned, we often approach movement and exercise in such a linear fashion, but movement is not linear. Energy in the body is best transferred via wave and spiral like rhythms, this is when we move best and experience less injury because we are working within the mathematics of human movement, the blueprint given to us by nature. Leonardo of Pisa, an Italian mathematician, observed nature and discovered that all nature had possessed a similar spiral like pattern that he would coin the Fibonacci sequence in the year 1202. In math it's known as the golden ratio. When we observe human movement, we see that this same pattern applies as well during walking, running, throwing, breathing and so much more. So again, it comes back to patterns and behaviors, and these patterns and behaviors have been a part of us since our very existence and it seems only right that we respect and appreciate their purpose. The blueprint to good health and good movement is there for us to observe though many of us may not understand how to see it, interpret it or even apply it. Its time everyone learns how to become a functional warrior so we may progress further in our evolution.

### **Back to default**

When in doubt, go back to the basics, focus on fundamental movements. Ditch the weights for a while and listen to your body, consider the idea of play, go for a run on trails, crawl on the forest floor or even pick up a log - don't even think twice just pick it up and carry it 50 meters, let your body flow and connect to the very thing



you came from. Movement and exercise doesn't have to be this singular boring box of redundant exercises, just move the way you were intended to.

Here are some of my favorite tools and ways to train:

1. Kettlebells
2. Clubbells
3. Steel mace
4. Body weight
5. Medicine balls
6. Nature play
7. Sprints
8. Climbing
9. Bands

We are constantly evolving day to day, hour to hour, and everything we do influences a change at a genetic and molecular level, and movement is no different. I pride myself on sharing a perspective of movement and health that maybe others don't always see nor have a lens for. I want everyone to become more conscious of how they choose to move through this life because it may be the difference between thriving and suffering.

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#### ABOUT RAYMOND GONZALEZ

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A Manual Osteopath, Holistic Nutritionist and Performance Specialist specializing in bio/Neuromechanics and Molecular health. Currently living in Guelph, Ontario, Canada with his wife and children. When not spending time with family Ray is exploring and researching the deeper intricacies of human nature and how we can best evolve.

[Instagram: thebio\\_chemist](#)



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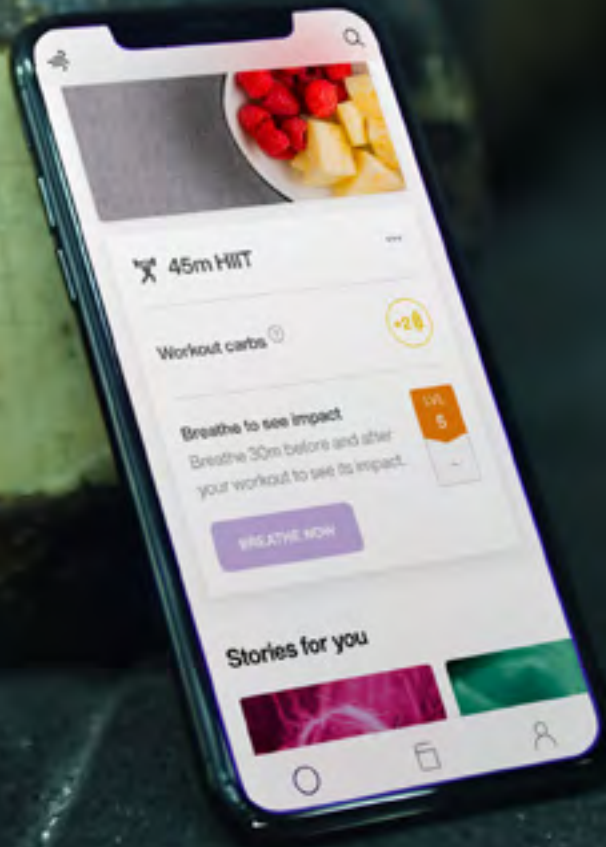
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# WHAT IS BIOHACKING AND WHY SHOULD YOU EMBRACE IT?

Ever since the term biohacking was first coined, there has been a curiosity surrounding the subject. Many fitness experts have begun embracing biohacking to optimize their own health, as well as their clients.

People are a bit skeptical of biohacking when they first hear about it. However, most people have not realized that biohacking is the solution to most of their health problems.

While it won't turn you into a superhero, it can help you live longer, become healthier, and just feel better. In today's blog, we will discuss biohacking in detail.







### **What is Biohacking?**

Biohacking, do-it-yourself biology, or citizen biology are all the same things.

**Biohacking is the process of optimizing a human body using science, nature, and nutrition. Experts of biohacking say that by taking into accounts bioanalysis and making amendments to lifestyle, biohacking can be used to achieve unmatched human performance.**

Now, you may find this a bit complicated and a bit dangerous at first. However, if you have ever tried intermittent fasting, taken supplements to boost performance, or used wearable technology to track your vitals and improve them, you have already tried to biohack yourself! There are many other ways you can use biohacking to improve your physical and mental health. Let's tell you all about that!

### **Before You Start**

Before you begin biohacking, let's take a look at the prep steps.

### **Identify the Goal**

Biohacking can have many goals, and some of those can be life-changing as well. Before you set out to try DIY biohacking, identify your goals and what you want to achieve. An easy way to identify your goals is to opt for wearable technology and see why you feel physically unfit.

Higher blood pressure, faster pulse, lower energy levels, higher saturation? Whatever your problem is, figure that out first and then adopt a biohacking approach to fitness that addresses it. If you have mental health issues that you feel traditional medicine isn't solving, consider biohacking for that too!

### **Try Mindfulness**

The next step to bio-hack your body is to put your brain at it. Many biohacking experts say that the mind-body connection is the basis of a successful biohacking process.

**Once you have identified the goal, try mindfulness to involve your brain as you commit to changing your physical health. This may include committing to a diet, eliminating negative emotions, or taking some downtime to rejuvenate amidst the stressful life.**

### **Start Making Changes**

Based on your goals, it's time for you to change your lifestyle using biohacking. If you are fighting obesity, it's time to find a diet plan based on a biohacking approach. If your problem is insomnia, like one in four Americans, alter your routine to improve sleep.

### **How to Do Biohacking Safely?**

Although there are extreme forms of biohacking, there are safer ways to control your body and revamp its potential. Here are some of the things many people are doing as safe biohacking practices.

#### **Work Out**

Many people adopt a healthier lifestyle to improve their physical and mental health. If you want to start biohacking safely, begin with working out. Now, this doesn't mean that you have to indulge in heavy lifting, rigorous fitness training, or core workouts. You can try squats, running, jogging, and even mild stretches to put your body in the warmup phase. "Change is coming; brace yourself" should be your message to your body.

#### **Eat Better**

Another important thing while attempting biohacking is to make dietary changes. Identify the foods that have nutritional qualities needed by certain parts of



your body. Whether you're improving your memory, trying to gain muscle mass, or reducing weight. There are different foods for different body needs, and you need to pick and choose wisely.

### **Sleep More**

62 percent of adults worldwide say that they are not sleeping well. This, in turn, is the cause of many physical and mental health issues the world is facing currently. To optimize your body and benefit from biohacking, improving sleep quality is essential for you. No matter what your goal is, getting sufficient, quality sleep is important for your biohacking to go successfully. There are many ways you can improve your sleep, and you should consider what works best for you.

### **Reconnect with Nature**

Nature is one of the most crucial elements to support a human's health. Unfortunately, technology has altered our lifestyles and driven us away from nature. However, try earthing, meditation, emphasizing touch, and connecting with nature in every way possible. This will help you retune your body's clock and benefit from the biohacking approach.

### **Why Try Biohacking?**

Biohacking to experience exceptionally high human performance may sound unrealistic. However, here are some of the reasons you should try it out:

### **Physical Fitness**

By making changes to your biological system through biohacking, you'll be able to enjoy an unprecedented level of physical fitness. Your vitals will be improved, blood sugar levels will be optimized, and your body will get rid of the constant exertion. Want to hop the stairs like a teenager in your 60s? Try biohacking!

### **Mental Health**

Biohacking gains include reduced anxiety, lower symptoms of depression, and even prevention from Alzheimer's. If you are struggling with mental illnesses and want to try a different approach towards fitness, consider biohacking.

### **Cognitive Stability**

Biohacking can provide many benefits for people suffering from attention deficit, poor memory, impulsiveness, and confusion. In case you're suffering from cognitive difficulties, biohacking your way to health is a great idea!

- The Cyborggainz Media Team





# THE ROLE OF BIOHACKING IN ANTI-AGING

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**T**he market is filled with anti-aging products and procedures. From expensive anti-aging creams to processes like Botox, the list is endless! But what if we were to tell you there's a technique that doesn't require you to spend thousands of dollars on anti-aging products? Moreover, this technique can also help you avoid old age diseases like hearing loss, back and neck pain, diabetes, dementia, and more.

Are you intrigued to learn more? Let's dive deep into this technique that biomedical experts call biohacking.

Most biohackers agree that biohacking is a way to slow down the aging process and keep people healthy for a long time.

## **Reverse Aging Using Biohacking Techniques**

Anti-aging biohacking uses many techniques to reverse or slow down the aging process. And the best part is that it's a scientifically approved method, unlike many anti-aging creams or processes that aren't backed by science.

However, anti-aging biohacking doesn't provide you with immediate results. You must follow these techniques consistently for youthful-looking skin and an energetic body.



Here are some simple yet effective biohacking tricks to reverse the signs of aging.

### **1- Eat the Right Foods**

You might have heard the common phrase, “we are what we eat,” and biohacking experts agree. Many biohacking techniques consist of changing your eating habits, and anti-aging biohacking is no different. Here are some kinds of food you should eat for a healthier body, sharper mind, and younger-looking skin.

#### ***Whole Grains***

Replacing white flour in bread, cake, and biscuit recipes with whole-grain flours will delay aging signs. This happens because whole grains have selenium minerals, protecting the skin from harmful Ultraviolet rays and assisting the digestive system. Selenium also prevents mental decline, improving your cognitive function.

#### ***Lean Protein***

You may have noticed people who have wrinkly skin at a young age. Most of these people have a low protein intake.

**Protein creates the building blocks of collagen in the body, and people who don't consume protein through food, don't have enough protein to create more collagen. This leads to wrinkles at a much younger age.**

Therefore, we recommend taking protein from sources such as eggs, lean meat, and fish.

#### ***Food Rich in Vitamin C***

It's common knowledge that vitamin C is an effective element against the aging process, which is why almost all anti-aging creams contain vitamin C.

Vitamin C acts as an anti-oxidant and moisturizes the skin.





To get more vitamin C, you can consume vitamin C-rich foods, like citrus fruits, tomatoes, and leafy greens.

## 2- Detox Your Body

Detoxification is another great anti-aging method to remove toxins from your body. But what exactly is detoxing? Through detoxing, you can remove impurities from the blood. However, allowing your body to cleanse itself takes a lot of time. Most detoxing processes take at least seven days to work.

**Detox diets and drinks improve blood circulation, lead to healthy body organs, and eliminate toxic elements through the liver, kidneys, and intestines.**

Start by drinking two to three liters of water every day. You can also add lemon, orange, cucumber, or mint, as they're all strong detoxing agents. Moreover, you can also switch to organic food like fruits, vegetables, and grains. You can also avoid processed foods to speed up the detoxification process.

## 3- Reduce Stress

Do you know that stressing too much can cause premature aging? Therefore, you should invest your time in techniques that will help you reduce stress. Here are some simple stress-reducing tricks to follow.

### *Meditation*

You already know that meditation helps your body and mind become more peaceful. But do you know that meditating regularly can also slow down the aging process? Through meditation, you can remove all stress from your mind and get in touch with your inner self. With a mind free of worries, your body will automatically feel less stressed, slowing down the anti-aging process.





### **Create To-do Lists**

Another reason we feel so stressed all the time is the stress of handling various daily tasks. But do you know what can help? Biomedical experts recommend creating a to-do list every night before going to bed can greatly lower your stress levels.

This trick has two benefits: first, you can unload your mind, and second, you can reduce morning stress by prioritizing your tasks.

### **4- Work On Getting Wealthy**

You might be surprised to hear this but having money has a lot to do with reversing signs of aging. Looking young is expensive, and if you have the money, you can buy organic food, a gym subscription, and nutritional supplements.

Moreover, people who don't have to worry about paying rent, bills, or fees take less stress, which keeps them younger for longer. If you don't have the constant anxiety of meeting ends, you can live longer and healthier!

### **Learn More Anti-Aging Hacks Through Biohackers Fitness Training**

These biohacking anti-aging tricks were just the basics. If you're interested in learning more tips on how to train like a cyborg that stays young, you can follow serial entrepreneur and biohacking expert Jean Fallacara.

Moreover, you can also read his book, "Neuroscience Calisthenics: Hijack Your Body Clock" to know how anti-aging biohacking works. Reach out to us for more details on neuroscience calisthenics strength training to slow down your body's aging clock!

- The Cyborggainz Media Team

# DEBUNKING 7 BIOHACKING MYTHS

**Y**ou may have heard people talk about the benefits of biohacking all around you, but some biohackers (not all) often exaggerate many of those effects. On the other hand, people who refuse to believe in neuroscience or biohacking create myths about biohacking, considering it ineffective. However, if you're interested in biohacking, you should only follow the advice given by biohacking experts.



Below are some biohacking myths and bares the truth. Scroll down to get your facts straight before becoming a biohacker.

### **1. Biohacking Allows You to Gain Complete Control Over Your Mind**

Okay, if you think that biohacking is some kind of magic that will allow you to decide what your brain thinks, you might want to rethink this!

*Yes, biohacking allows you to declutter your mind and improves your focus on the things around you, but it surely can't make you limitless!*

However, biohacking can help you improve your mood, boost blood circulation, help you focus better, and ultimately help you become a better version of yourself.

### **2. Biohacking Requires Too Much Effort and Money**



Many people avoid getting into biohacking because they think that it costs a lot of money and requires too much effort. However, this can't be farthest from the truth as biohacking techniques are really simple to follow. An example of following a biohacking strategy is getting enough sleep daily, which requires no effort or money at all.

In addition, other biohacking techniques like eating healthy or indulging in physical activities also require little time and effort. Spending time with your friends, interacting with nature, and spending time doing your favorite hobbies are some other low-effort biohacking techniques that don't cost a penny!

### **3. Biohacking Gives You Immediate Results**


Many people believe that biohacking gives them immediate results. Therefore, they get disappointed when sleeping or eating better for a couple of days doesn't improve their mental and physical health.

However, following any biohacking strategy does require dedication. These processes require time and effort to work their magic. Therefore, we recommend following multiple low-effort biohacking strategies initially and sticking with them to get effective results and a healthier mind and body.

### **4. Biohackers Are Obsessed with Living Longer**

Well, who isn't? Unless you're someone who's done with life, most people like to find ways to live longer. Scientists and researchers have also spent billions looking for the secrets to having a longer life. Therefore, this myth isn't exactly wrong. But, biohackers aren't obsessed with living longer; they prefer living healthier!





According to many dedicated biohackers, living long without being physically and mentally healthy is unnecessary. The complete truth is that most biohackers follow biohacking strategies to improve their health and feel happier, increasing their chances of living longer.

Therefore, if you're someone who wants to extend your lifespan, you know what to do! Try biohacking yourself for a longer, healthier life.

### **5. There's No Difference Between Biohacking and Medical Treatments**

Another biohacking myth that many people believe is that biohacking is the same as medical treatments or health advice. This leads them to pay no attention to biohacking techniques. However, biohacking differs from traditional medication. Some

people argue that habits like sleeping on time and eating plant-based food are old health suggestions turned into biohacking strategies. And we completely agree!

But what differentiates biohacking from traditional medication is the mindset behind the activities. The biohacking mindset of improving our bodies and taking control of our minds without visiting doctors regularly is what biohacking is all about. Unlike medical treatments, biohacking follows no traditional processes, and there are no generalized rules.

### **6. There's No Scientific Evidence Backing Biohacking**

Many people believe that scientific research doesn't back biohacking techniques. However, most biohacking techniques are backed by tons of background scientific research. An example of a biohacking strategy is exercising regularly, which has many scientifically-

proven benefits. Biohacking experts say that exercise can improve physical and mental health, reduce risks of various diseases, and help relax your mind. And it's no secret that science says the same thing!

The same goes for other biohacking strategies like eating minimally-processed food and connecting with nature, which is backed by scientific research.

However, some advanced biohacking techniques like bathing in an infra-red sauna or meditating have little scientific research behind them. But biohackers who have used these techniques claim that they are effective and do boost moods and reduce anxiety.

### **7. Biohacking is Unethical, Unnatural, and Dangerous**

Many people claim that since biohacking is a way to control your own mind, it goes against nature's rules. Many people have tried extreme biohacking techniques like complete blood transfusion, and we understand that this has raised some concerns.

However, the truth is that humans have tried to alter nature since the beginning of time. Human resilience and curiosity led us to where we're today. An example of major nature-based changes is the invention of agriculture, which transformed humans from hunters to civilized people. Therefore, many myths and the stigma surrounding biohacking comes from a fear of change instead of actual issues.

Most biohacking techniques aren't unethical or dangerous. Due to the recent advancements of biohacking, there are no legal repercussions or medical rules that term biohacking dangerous.

When you can't separate the facts from the myths, you'll be confused about choosing the right biohacking strategies to follow. Therefore, we recommend following recognized biomedical experts and authors like Jean Fallacara, a highly-skilled neuroscience calisthenics expert.





# DON'T WASTE TIME WITH INEFFECTIVE HACKS:

## TESTING THE EFFICACY OF YOUR LIFESTYLE REGIMEN

**A**s self-proclaimed biohackers we all love to explore how various interventions and protocols, from the simplest and basic to the most novel and progressive, can help our minds and bodies function better and more efficiently

But the thing about biohacking is that what works for one person may not work for you. We know that all of biohacking is, ultimately, an  $n=1$  experiment. So, while an intervention or hack might be supported by a confluence of the scientific literature, the only way to truly know if it works

is through you applying it and testing it on yourself.

Some of this can be predicted through identifying genetic differences, but lifestyle and other factors also play a role. And it's important to include a person's specific goal in the equation— in other words, what gets positioned as overarching “best” or “most effective” may not be best or effective in your case, with your specific genetic make-up, and with your specific lifestyle and goals.

While it can be tempting to rely on things like “I feel better, I'm looking better, or I'm thinking more clearly” to gauge how well a hack may be working, you should apply the same scientific rigor to analyzing the actual physiological impact of each intervention as you do towards figuring out whether it might be worth doing in the first place.

To objectively determine whether a hack works for you, your testing method should meet these five criteria.





## **1. Choose Scientifically Supported Metrics Designed to Actually Support your Goal**

There's no shortage of ways to self-quantify, and the days of having to go to a doctor's office for certain tests or evaluation tools are long gone. You have the ability to track everything from sleep (including specific cycles like REM sleep or deep sleep) to heart rate, urinalysis, and even blood biomarkers on your own time and turf.

But just because you can measure something, doesn't mean that you should. For example, tracking REM sleep may be a trendy data point to measure, but it's not the most insightful metric to help you achieve a goal of deadlifting 400 pounds. However, tracking sleep would be beneficial if your goal is to promote recovery and prevent injury.

## **2. Make Sure it's Repeatable and Reliable**

The metric you are testing against needs to be proven to be repeatable (i.e if you test under similar conditions, you can be certain the results are a true measure of change, not just "noise" introduced by the testing method itself).

Wearable fitness devices have been shown to consistently track things like number of steps taken and heart rate (of course reliability may differ by brand and by specific use). If you are tracking compliance to a goal of walking 15,000 steps per day, a wearable device may be a good way to help you track your progress.

However, some testing metrics aren't necessarily reliable, even if they are marketed that way. Stool tests that evaluate your gut microbiome—the collection of microorganisms that reside in the gut—are an example of that. The results of this test endeavor to say what types of bugs make up your microbiome, and some strive to even indicate if they are a beneficial or potentially harmful species. However, research shows

that the same microbiome test, even from the same person done at different times of the same day, can have different results.

You need to pick a method of testing that removes “noise” and confounding variables as much as possible.

### 3. Ensure the Metric Can be Impacted by a Biohack

If you know that a metric matters towards your goal, but there isn't a consensus in the research on how to impact it, it's not ultimately helpful.

For example, we can measure telomere length with reasonable reliability, but there is not yet consensus on what actions directly impact that. A shorter telomere length is linked to aging and a shorter life expectancy. And, while there is emerging evidence suggesting following a Mediterranean diet may increase telomere length, there are likely many other contributing factors, and you won't know for sure what contributed most to the shorter telomere length.

The Gut microbiome, as mentioned earlier, is not only difficult to consistently measure, but also has little research yet to identify specifically which nutritional interventions will directly target certain species of microbiota.

### 4. Easy Access to Testing

You also need to make sure that whatever you're using to test your biohack is easily accessible so you can test on a regular basis and identify any needed adjustments. Back to the telomere example: measuring telomere length is currently not easily accessible for all people across the globe. If your goal is endurance or body composition improvements, VO2 max testing or hydrostatic weighing are extremely reliable and



repeatable, however need to be done in a lab setting and take some time to complete, which means if you set those as the test of your hack's efficacy, you need to consider convenience.

### 5. Provides Relevant Feedback Over Time

You want to pick a measure that matters as you apply changes and gives you actionable insights with a clear path forward based on the results.

One-and-done tests like DNA can be great for learning something once, but if you want to improve, you also need to know that you can test the impacts of your lifestyle regimen at regular intervals to keep moving forward and improving year after year.

As a longevity scientist, here's what metrics I personally use to test my lifestyle regimen

For me, as a lifelong student, researcher, scientist, and self-experimenter in the field of longevity, I've arrived at blood testing and looking at my blood biomarkers—objective indicators of health status—as my primary trackable metric. It checks all the boxes: It's scientifically valid, repeatable, reliable, and actionable.

It can tell you for certain how all your unique inputs—DNA, environment, diet, supplements, and exercise—are working together to positively or negatively impact you at a precise moment in time and offer a roadmap for making changes. Importantly, decades of research tell us not only how each blood biomarker relates to health, wellness, athletic performance, and longevity, but also how to change it through lifestyle interventions.

Blood testing is also easily accessible for many people at their doctor's office or through direct-to-consumer labs like the company I co-founded, InsideTracker. You can test at regular intervals to track progress and have the positive feedback loop of seeing improvements. Of the many metrics self-quantifiers track, I believe blood biometrics are the most often-overlooked and one of the richest, most actionable datasets we have available.

I also look at physiomarkers—like resting heart rate, heart

rate variability, sleep quality—because I'm motivated by seeing those respond daily as I apply changes to my nutrition and training regimen, experience day-to-day lifestyle stressors, or test out habits like meditation, red light sauna, and cold exposure. These physiomarkers also provide longer-term feedback as you track averages over time. For example, if you started a new endurance training regimen, endurance training can lower average resting heart rate, which is beneficial since a higher heart rate is associated with more adverse health outcomes with age.

I find the mix of long-term, blood deep changes and daily positive feedback keeps me dedicated to my biohacking lifestyle in both the short- and long-term.

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## ABOUT DR. GIL BLANDER

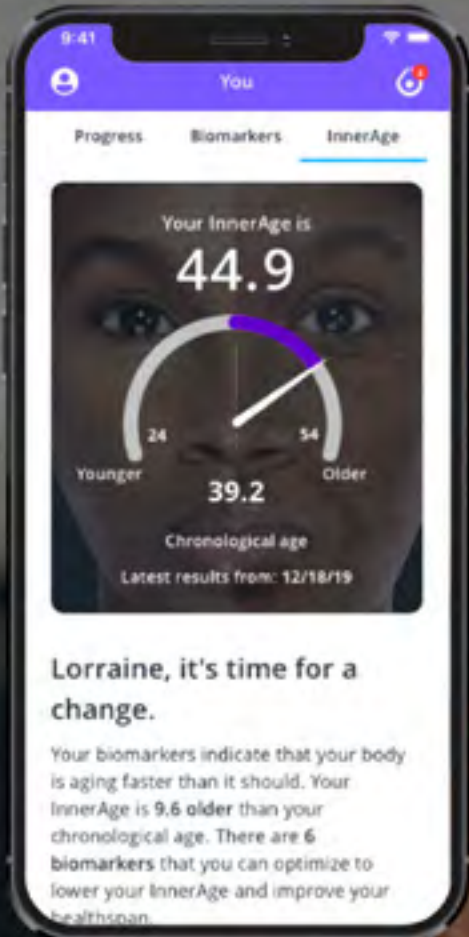


Dr. Gil Blander is an internationally recognized expert on the biology of aging, with a PhD in biology from the Weizmann Institute of Science and postgrad research on aging at MIT. He is co-founder and chief scientific officer of InsideTracker, a company on a mission to help people add years to their life and life to their years by analyzing blood, DNA and lifestyle data to create science-backed, personalized Action Plans of nutrition and lifestyle recommendations for human optimization.

Website: <https://www.insidetracker.com/>



START INSIDE



# The top 5 biomarkers for longevity

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If you're looking for ways to extend your healthspan and slow down the aging process, the keys to health and longevity run in your blood.



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

***— Matshona Dhliwayo***



# WHAT IS HBOT AND WHY DOES IT MATTER?

Like nature, I try to take the path of least resistance, so my entire adult life I have searched for the short cuts for longevity and optimal health, those science based practical and esoteric biohacks that exploit the synergy between man and nature.

In terms of life changing biohacks, I did not have to go too far.

If anyone ever asks you to tell them what the most important thing in your life is, I want you to know this question is a trap. I know because I often ask it, “what is the one thing you can’t live without?” I’ve gotten many answers, the usual is “my children,” “my family,” and “my bank account” ..., I must repeat it to myself a lot, because no one ever seems

to understand the question, because I keep getting the wrong answer. “What is the most important thing to you in your life, that which you cannot live without, and it’s not subjective?”

It’s oxygen! The 8th element. 8 protons, 8 neutrons, 8 electrons. Oxygen is so important to respiration that life cannot be imagined without it. Wouldn’t you agree?

As much as we are mostly water, if it’s live or die, we can go without it for a week or more, but a few minutes without O<sub>2</sub> and we turn blue. We breathe in oxygen in the form of O<sub>2</sub> and breathe out carbon dioxide (CO<sub>2</sub>). This fact most of us learn in kindergarten.

How does this oxygen thing work?



Each breath stimulates the life processes of each and every cell in your body. Pulmonary respiration, i.e., breathing, makes O<sub>2</sub> available for cellular respiration which uses food broken down to hydrogen and O<sub>2</sub> to produce ATP, metabolic H<sub>2</sub>O, CO<sub>2</sub>.

Together hydrogen and oxygen are the spark, fuel, and fire of life. Just like everything in nature is starved for food, it is also starved for oxygen. So how do we get more oxygen?

Proper breathing is one, and that means breathing slow and deep into your diaphragm with ease and silence. The ancient Vedic science of Pranayama passed down for thousands of years as an exact science is devoted to teaching the many facets of proper breathing. In more contemporary development, HRV (Heart Rate Variability) researchers in Eastern Europe discovered eleven breaths per minute to be the optimal rhythm for heart coherence and a

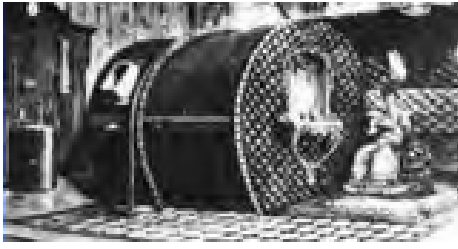
parasympathetic state, (nature and nurture). Better heart coherence means lower resting heart rate; lower resting heart rate is a cornerstone of health and longevity.

But even if you breathed perfectly, when it comes to oxygen, there is a physical limit to what you can breathe and retain.

This radically changes as pressure is applied. If we want to increase the maximum physical volume of oxygen that can be dissolved in our blood, all we need to do is increase the pressure.

This is where HBOT (Hyperbaric Oxygen Therapy) comes in. HBOT is a medical and wellness treatment in which a subject sits in a pressure chamber where the ambient pressure is higher than the atmospheric pressure.





The way it works is the earth's atmosphere weighs down on us with a specific amount of pressure. Standing at sea level you experience 1 "atmosphere" of pressure. When you descend 33 feet underwater, for example, the additional amount of pressure your body is exposed to is equivalent to another "atmosphere." The rule is when talking about pressurized environments, we "count" the fact that everyone starts at sea level, which is 1 Atmosphere Absolute" (1 ATA).

So, at 33 feet underwater, you are at 2 ATA. Thus, HBOT sessions are called dives.

Recently there has been a resurgent interest in HBOT chambers for medical and general health use. This is largely credited to a recent Israeli study that showed HBOT therapy increased telomere length and reversed the age of the cell.

It can hardly be believed, our good fortune, to have so many next level radical life extension technologies coming out in the 21st century, but HBOT is not one of them.

Apparently Sumerian kings from 3000 BC sat in special hyperbaric chambers to live for thousands of years; sorry I am making that up, but HBOT does go back to 1662 when one Nathaniel Henshaw, a British doctor and priest, invented a system of organ bellows with unidirectional valves to change the atmospheric pressure in a sealed chamber he called the Domicilium. He claimed it was a remedy for many afflictions. Nobody knows where he got the idea, maybe he was a time traveler from the future? The future we are now in coincidentally.



The therapeutic benefit of HBOT lies in its ability to drastically increase partial pressure of oxygen in body tissues. The O<sub>2</sub> partial pressures achievable using HBOT are much higher than while breathing pure oxygen under normobaric (normal atmospheric pressure) conditions. This is achieved by an increase in the O<sub>2</sub> transport capacity of the blood. Under normobaric conditions, O<sub>2</sub> transport is limited by the red blood cells hemoglobin oxygen binding capacity.



Very little oxygen is transported by blood plasma at normobaric conditions. Because hemoglobin is nearly saturated with O<sub>2</sub> at atmospheric pressure, this transport route is exhausted for exploitation. O<sub>2</sub> transport via plasma, however, is significantly increased using HBOT because as pressure increases, so does the solubility of oxygen.

Nearly two-hundred years lapsed before interest in HBOT resurfaced. James Watt, inventor of the steam engine, designed an HBOT chamber for a physician in Paris in 1834. It was called “Le Bain D’air com-Prime” (the compressed air bath) and went to 4 ATA. These doctors were pushing boundaries!

Another fancy design featured an antechamber to allow a physician to enter and exit without disturbing the pressure.

By 1837 in Lyon, France, a twelve-seater was built to treat all sorts of pulmonary conditions using pressures of 2-4 ATA, reporting increased circulation to organs, cerebral blood flow to the brain, and production of feelings of well-being.

In 1860 the first medical HBOT chamber in North America was built in Oshawa, Canada with one installed in New York the following year for the treatment of “nervous and related disorders.”

In 1877 a Frenchman named Fontaine pioneered performing surgery in an HBOT chamber, later copied with immense success in the 20th century in Amsterdam by pediatric cardiac surgeon Ite Boerema, whom many cite as the father of modern-day hyperbaric medicine.

In 1885, C Theodore Williams published his “Lectures on the Compressed Air Bath and its Uses in the



Treatment of Disease” in the British Medical Journal. Even then you can say HBOT was well on its way.

And this was just in time for futurist entrepreneur and Lawrence, Kansas local Orval J. Cunningham. In 1920 Cunningham patented a HBOT “High Pressure Hospital” train.



Although the train never made it off the drawing board, “The Tank” did. It was a multi-person chamber Cunningham used with alleged success in treating victims of the early 20th century pandemic known as the Spanish Flu.

The roaring twenties welcomed novelty and innovation and our boy Orval was at the front of the line. In Cleveland he healed a rich carriage maker named Henry Timken, who subsequently gave him the \$1.5 million dollars to build his hyperbaric magnum opus.





Cunningham's Oxygen Sanitorium was five stories tall with three hundred and fifty sealed windows, there was a library, a cigar lounge, and other amenities. This 900-ton HBOT "Epcot Center" operated for a rare moment of time, 1928-1937. Coincidentally, the biggest HBOT chamber today is the 22 ton, 32' long and 14' wide unit at the Utah Regional Medical Center.

As WWII approached, the US Navy took an interest in HBOT for treating decompression sickness and gas embolism, it is still considered the definitive treatment for these conditions. HBOT chambers treat decompression sickness and gas embolism by increasing pressure to reduce the size of gas bubbles, to improve the transport of blood to tissues. After elimination of bubbles, pressure is gradually reduced back to 1 ATA.

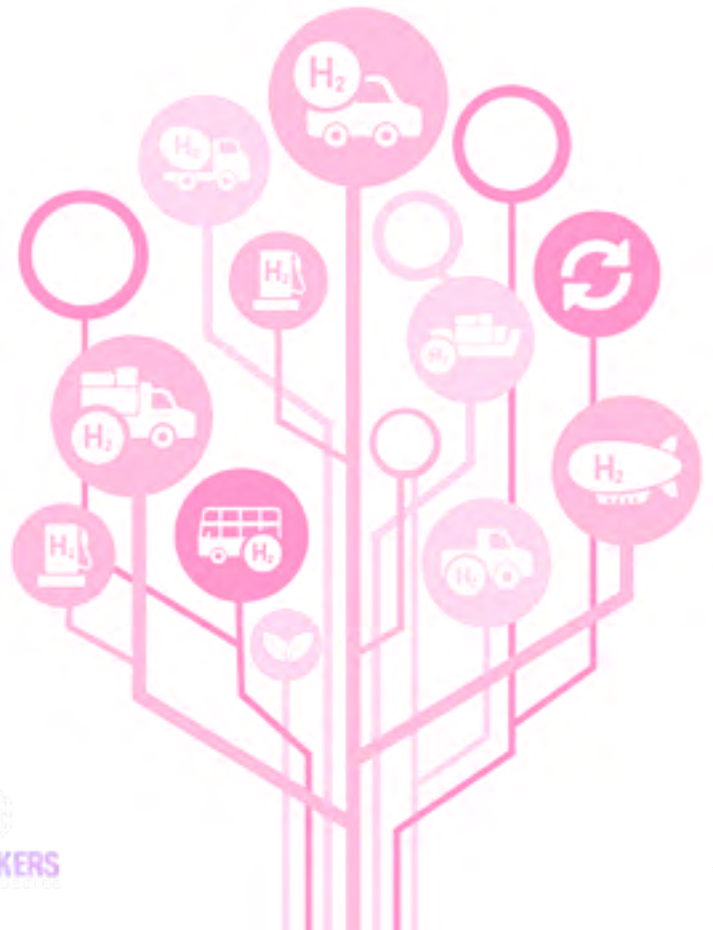
Modern HBOT pioneers in the 1950's and 60's treated many conditions from pulmonary defects to neurological conditions, cerebral palsy, stroke, MS, autism, infections, carbon monoxide poisoning and many other pathologies. HBOT therapy gained even more popularity when President John F. Kennedy used it to treat his sick young son.

In the 1970's major medical institutions such as Duke University, New York Mount Sinai Hospital, Presbyterian Hospital, Edgeworth Hospital in

Chicago, Good Samaritan in Los Angeles, St. Barnabas Hospital in New Jersey, Harvard Children's Hospital, and St. Luke's Hospital in Milwaukee created HBOT wings.

In the 20th century HBOT has been called the Cinderella of Allopathic Medicine since it was not taught in medical schools and had no pharmaceutical companies' interests, yet it simply could not be denied.

Fifty years ago, in 1972, American College of Hyperbaric Medicine co-founder and executive director Richard A. Neubauer set up the Ocean Hyperbaric Neurologic Center in Florida exclusively for HBOT in the management of various central nervous system disorders. He claimed that injured neurons are capable of surviving years or decades after the original injury and could be re-activated with HBOT and that the greater the number of "idling" neurons, the better would be the patient's response to HBOT.[1]



In 1976 it was discovered by Hollback and Wasserman that HBOT therapy optimizes O2 and glucose metabolism in the brain. [2] The human brain uses 20% of the entire body's oxygen and calorie intake, despite only accounting for about 2% of an adult's body mass. No wonder that in 2002, a US Army study showed HBOT can repair white matter damage in the brain. [3] In 2006 Thom discovered HBOT causes stem cell mobilization. [4] In 2010, Godman discovered that HBOT activated 8101 genes, resulting in reduction of inflammation and increase in growth in body tissues. [5,6] God man indeed!

In 2011, Stoller treated the first retired National Football League (NFL) player for chronic traumatic encephalopathy. [7] And in 2012, Harch et. al, proved HBOT's efficacy for concussions and PTSD. [8]

In the last twenty years HBOT became increasingly embraced by professional athletes, not only for injury recovery but mitochondrial optimization. Football quarterback Joe Namath credits HBOT with curing his decades old neurological damage from head trauma on the field. In 2012/13 he underwent over 100 treatments. This was validated by 'before and after' SPECT scan analysis which led to an FDA approved study on HBOT and the founding of the Joe Namath Neurological Research Center in Jupiter, Florida. Maybe he should sell hyperbaric chambers on TV and not just reverse mortgages.

Famous athletes that swear by the benefits HBOT include the most decorated swimmer of all time Michael Phelps and number one ranked tennis star, winner of 20 Grand Slams, Novak Djokovic. For the last ten years the NFL and other professional sports leagues have embraced HBOT for increasing injury recovery time.

In the future, elite athletes will have hyperbaric chambers in their homes to maximize their performance, decrease injury recovery time, and increase the longevity of their athletic career. And many non-elite athletes will follow.

And now we come to the age reversal study of 2020. 358 years after Nathaniel Henshaw's Domicilium was invented and promoted as a health panacea, a Tel-Aviv study revealed HBOT can halt the aging of blood cells and reverse the aging process. Interest in HBOT has surged ever since.

Research led by by Dr. Shai Efrati, founder of the Sagol Center of Hyperbaric Medicine at the Shamir Medical Center in Tel-Aviv, found a unique HBOT treatment protocol can reverse two major processes associated with aging and its illnesses: the shortening of telomeres (protective caps on the ends of all chromosomes) and the accumulation of old and dying cells in the body. Immune cells from the participants' blood showed a lengthening of up to 38% in telomeres, and a decrease of up to 37% of senescent cells. "Today telomere shortening is considered the 'Holy Grail' of the biology of aging," says Efrati. "Researchers around the world are trying to develop pharmacological and environmental interventions that enable telomere elongation. Our HBOT protocol was able to achieve this, proving that the aging process can in fact be reversed at the basic cellular-molecular level."

The typical effective HBOT protocol is 60-90 minutes per day, 5 days a week for 3 months at a time.

As I write this, Star Date 2022, from my research, personal use and experience I can unequivocally say that regular HBOT use leads to true next level health optimization. Hyperbaric oxygen therapy is an overnight sensation 400 years in the making!



  
BIOHACKERS





HBOT is FDA approved and used clinically for many serious pathologies. [10].

Biohacking nerds will be pleased to find out oxidative stress markers tumor necrosis factor-alpha, interleukin-1beta, neopterin, myeloperoxidase, and malondialdehyde are severely reduced by HBOT. For the gut obsessed, you too will be pleased to know HBOT assists to improve and normalize stomach acid and reduce digestive dysbiosis. HBOT also prevents 75 percent of all major amputations that would otherwise be necessary for diabetic wounds. A 450% increase in complete recovery in patients with traumatic brain injury receiving HBOT vs. standard intensive care is also widely recognized as a major benefit.

The author has incorporated HBOT therapy into a “metabolic supercharge protocol” which includes deuterium depleted water, a ketogenic or keto adapted diet, supplemental molecular hydrogen, marine plasma, key supplements, light, and magnetic therapy. This is a metabolic water optimization strategy. The more optimized the metabolic water in the mitochondria, the more efficient the production of ATP, and longer life for your mitochondria, the more mitochondria, the more ATP, (the energy currency of our biology).

A new theory points to cell signaling, even more so than O2 uptake, as the reason HBOT works so well. Immediately after an HBOT session you experience a temporary relative internal hypoxia, vasodilation, and increased Superoxide Dismutase (SOD) signaling which regulates glucose, improves angiogenesis (new blood vessel formation), and enhances production and quantity of stem cells.



Modern HBOT chambers for personal home and wellness clinic use have vastly improved. Newer hard-shell chambers are computer controlled and dive from 1.2 to 2 ATA (the recommended safe limit for personal use) at programmable speeds. They must comply with NFPA-992012 Edition Chapter 14 Code in the USA and European 1997 CEN pressure vessels 97/23E standards as well as the 1998 ECHM recommendations for safety. They also utilize non-hazardous oxygen concentrators for 93%+ pure O<sub>2</sub> vs. refillable compressed oxygen tanks. The latest HBOT chambers feature hinge-less pressure-sealed doors, antifriction bearings, antibacterial and moisture wicking upholstery, and constant circulation of air to keep carbon dioxide levels balanced.

This latest generation of chambers can be operated with both supplemental oxygen (for 1-2 hour sessions) and/or with simple ambient air for longer sessions, to be used comfortably for sleeping. This requires ambient room O<sub>2</sub> to be maintained at 23-26% and CO<sub>2</sub> at 2,500 ppm or less.

Breathing air (without supplemental oxygen) at 2 ATA will result in increased O<sub>2</sub> levels by a factor of 3 allowing you to store oxygen in blood plasma and lymphatic fluid. (Consider your hemoglobin is

saturated before you enter the chamber). A lifestyle intervention that creates this radical an increase in oxygen makes it, in this author's view, the second most important biohack after deuterium depletion.

If you are fortunate enough to own or have access to the current generation of 2 ATA HBOT chambers, you will find that regular time spent inside this metal pressure vessel with an oxygen cannula in your nose for hours at a time is highly worth it!

Unfortunately, as free, and fundamentally primal as breathing oxygen is, getting more of it inside us than nature allows at 1 ATA requires we must pay for it.

One day people will recognize that it is just as important to own an HBOT chamber for their well-being as it is to own a car. Until then expect wellness HBOT clinics to spring up like health clubs and yoga studios where you will expect to pay from one hundred to three hundred dollars per session depending on how deep and how long you plan to dive.

Right now, having your own HBOT chamber is a great luxury, but if you've made it, this is your one chance to live it. As Buddha said, "pain is inevitable, but suffering is optional."



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## ABOUT VICTOR SAGALOVSKY



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



# REWIRING THE BRAIN: NEUROPLASTICITY EXERCISES



**N**europlasticity exercise sounds fancy and trendy, with a hint of pseudo-science smell. However, it is sound and simple: frequently commit to an engaging and challenging exercise.

According to experts, repetitive negative thoughts can result in mental illness and interfere with neuroplasticity processes. The good news is there are neuroplasticity exercises that can improve well-being and ‘rewire your brain’.

### Find Clarity

Rewiring your brain with neuroplasticity means changing your behavior. When starting with these changes, don’t forget to find clarity.

You must know your end goals and what you want to accomplish. Dig deep and self-reflect, or else you’ll end up procrastinating.

### Set Meaningful Goals

Once you’re clear on what you want to accomplish, it’ll be easier to set your goals. Partake in activities that’ll compel you to use the motor, auditory, and visual parts of your brain. You’ll get a full mind workout.

### Do Mnemonic Exercises

Doing mnemonic drills such as rhymes can pave the way to new positive pathways in your brain. This is because they improve the connectivity in the parietal network of the brain.

### Feed Your Brain, Not Just Your Stomach

Your brain might be just a small part of your body, but it utilizes 20-30% of what you eat. It’s important to be wise about what you eat. Instead of snacking on candies, snack on blueberries, avocados, and nuts.

### Take a Power Nap

Obviously, the ideal sleep is 8 hours, but it isn’t always

easy to get it. A good night’s sleep can set you up for an improved mood and a better day. However, if you can’t, try an afternoon nap. It will help enhance your neuroplasticity potential, and you can tackle your day with renewed vigor.

### Learn a Language

Have you considered studying a new language? Learning a new language can boost gray and white matter. A study revealed that intensive language study could increase the density of gray matter in the brain. This controls your language, attention, memory, and more.

Another study also revealed that it improves white matter, which facilitates creative thinking skills and communication. You can study a language at any age and improve your reading comprehension.

### Remember: Take Small Steps

When diving into neuroplasticity, take baby steps. Have trouble keeping up with your goals? Break them down into smaller achievable tasks. Be consistent, and you’ll get there! All you need is consistency and a growth mindset.





# NUTRIGENOMICS: PROVIDING A FOUNDATION FOR PERSONALIZED HEALTH

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**N**early two decades ago, the completion of the Human Genome Project unlocked the powerful potential of genomics, specifically nutrigenomics: how nutrients can influence our genetic expression

Nutrigenomics has gained popularity with biohackers



Nutrigenomics has gained popularity with biohackers and frustrated patients alike, as an effective tool for personalized diet modifications. However, many people are unaware of how targeted nutrigenomic testing can pinpoint the root causes of persistent health concerns.

Those new to the world of nutrigenomics often assume that learning about their genetic information will doom them to predestined health issues outside of their control. While some conditions are genetically determined, many health issues are not destiny, even with a family history.

**The majority of the population is surprised to learn they can often influence gene expression and take control of their genetic destiny. Welcome to the power of nutrigenomics.**

### **What is nutrigenomics?**

Nutrigenomics explains how nutrients communicate with our genes. Nutrigenomics studies nutrition and its effect on genetic predispositions related to specific enzymatic pathways. Nutrigenomic testing can help determine where an individual requires additional support in nutrition, lifestyle, or supplementation strategies by revealing gene variations associated with metabolic weaknesses. By looking at an individual's genomics or SNPs (single nucleotide polymorphisms), we can support areas of weakness and suppress areas of risk.

Think of nutrigenomic testing as your personalized blueprint to optimal health and wellness.

### **Benefits of nutrigenomic testing**

Have you ever heard the phrase "Test, don't guess?" Nutrigenomics isn't just about associating one gene per symptom or filling your cabinet with supplements. Utilizing nutrigenomic testing can help us choose which approaches, whether diet modifications, nutraceuticals, or both, may provide the most robust changes and which will not.







For instance, in the case of food intolerances or risk for vitamin deficiencies, nutrigenomics can provide insight into the root cause, ultimately saving the patient time and money.

The results often reveal information about the most basic cellular function, like autophagy (how our cells manage waste and recycle essential compounds), detoxification, or immune response.

**Although testing is simple with an easy-to-use cheek swab, patients often feel overwhelmed and misled by the numerous testing choices available to them. While testing is a valuable tool, professional guidance exponentially increases effectiveness by providing patients with interpretations of their results along with tailored recommendations and strategies.**

My company, Habit Method Health, offers a streamlined experience for nutrigenomics, eliminating the guesswork for the patient. At Habit Method Health, when we work with one on one clients we begin with a detailed case review covering their medical history.

Unlike one-size-fits-all testing, we use the information shared to build a customized nutrigenomic panel covering over 12 lifestyle and health factors. During the one-on-one review of the results, clients often report how validating and relatable they find the information, finally having a “why” for their health concerns. Gaining insight into clients’ daily activities, habits, and expectations allows me to provide personalized education and sustainable recommendations. I translate between patient and practitioner, accelerating the patient experience by combining education and advocacy.

Habit Method Health’s detailed approach to serving clients developed more out of necessity than intention. I struggled for years, even after obtaining genomic testing, to find a provider to interpret my results and execute a protocol based on the findings. Had this level of guidance





been available to me, I may have been able to avoid a decade-long struggle back to wellness.

### **My Personal Connection To Nutrigenomics**

I spent the first seven years of my health journey in and out of hospitals and clinics, searching for a diagnosis. I naively believed that a label for my symptoms would lead me to a cure or tell me what magical pill to take. Sadly, even after seeing more than thirty-seven doctors and receiving multiple diagnoses, I was left without any answers or recommendations, often being told “there is no treatment” for my strange array of symptoms.

Desperate to resolve the issues that left me debilitated on the worst days and frustratingly uncomfortable on the best, I tried every medical modality offered to me. Like a game of whack-a-mole, my life and treatment consisted of retroactively searching for answers to the newest symptom while struggling to balance day-to-day life. Every time I thought I had a handle on my symptoms, a new one would pop up and send me into a dizzying tailspin. Once I began a protocol based on my nutrigenomic information, I achieved a level of remission most doctors said was not possible.

It quickly became apparent that nutrigenomics was the key that turned the lock.

**While nearly everyone stands to benefit from exploring their genomics, I have found testing most effective for individuals struggling with chronic or undiagnosed health concerns, autoimmune conditions, hormonal changes, infertility, anxiety or depression, metabolic dysfunction, and gastrointestinal issues.**

Testing is equally beneficial for individuals whose goals include longevity, anti-aging, human performance, and nutrient optimization.



## Don't treat the gene

Some SNPs are highly associated with a single pathology, but it is not the norm.

Common wrongdoing in genomics is testing and treating a single SNP, as in the case of MTHFR. MTHFR (Methylenetetrahydrofolate Reductase) is an important enzyme in the methylation cycle that helps the body process vitamin b9. It also impacts how well methylation occurs in your body.

Methylation is a critical vitamin b conversion responsible for over 250 cellular processes, including neurotransmitter function, mitochondrial energy production, and immune function.

Over the last decade, MTHFR has become popular with consumers who regularly confuse this variant as a type of diagnosis. Estimates claim that 50% of the population has this variant, yet most are unaware it is only one piece of the puzzle. To understand the impact of a single variant, it is necessary to see the pathway from start to finish. In the case of MTHFR C677T, it is advisable to include information on, at minimum, folate receptors (FOLR1, FOLR2), and the entire cobalamin (B12) cycle. When we can identify a patterned analysis across a multitude of SNPs, the results indicate where, when and what support is most effective. Simply put, when we can address upstream functions, we resolve downstream symptoms.

## Choosing a test

### *The benefits of provider grade testing*

When it comes to choosing a test, most professionals recommend the quality of SNPs over quantity. Medically relevant data is far more effective if you want to optimize your health. Consumer-quality tests focus on ancestral SNPs or entertaining information like whether you think cilantro tastes like soap. Yes... There is a gene for that.

Consumer DNA kits have become increasingly popular, with over 29 million Americans obtaining testing by 2022. A small portion of the people who request to work with me have previously purchased testing, usually from the two most popular consumer companies, but are at a complete loss in utilizing the information. Currently, there are hundreds of platforms capable of converting raw data into a template report. On the downside, results can look like binary computer code or offer oversimplified diet and exercise advice with no link to precision medicine, lifestyle factors, or current symptomatic expression.

Clients have repeatedly shared feeling discouraged, sometimes duped, after purchasing these tests, despite hoping for clear and concise direction.

For safety, most consumer testing requires the expunction of large portions of medically relevant data to avoid confusion of risk instead of diagnosis.

The most concerning and frequently asked question on consumer versus provider testing is patient privacy. Consumers often assume their genetic data has the same protection as other medical information.





Unfortunately, that is not the case.

In 2020, 23andMe announced they had sold customers' data rights to develop a drug based on users' DNA. While most testing platforms claim to anonymize the data before sharing it with pharmaceutical companies, challengers say it is insufficient protection. According to a 2021 article from the American Medical Association, The Food and Drug Administration classifies these tests as medical devices, but they also are a mechanism for massive information-gathering. The AMA states they have plans to work with federal agencies to strengthen the privacy safeguards for consumer testing.

At this time, testing through a vetted provider offers the highest level of privacy, medically relevant information, and personalized guidance.

**Nutrigenomic information may also help us understand why some supplements and medications may not produce the desired outcomes or why someone cannot tolerate certain medications as in the subfield of pharmacogenomics.**

## Pharmacogenomics

For patients requiring medication, pharmacogenomic testing may provide insight into the most effective medications with the fewest side effects, ultimately reducing the usual trial-and-error process.

Pharmacogenomics is the study of how a person's genes affect their response to pharmaceutical medication. It combines pharmacology (the science of drugs) and genomics to develop an accurate method of determining medication specifics that are tailored to a patient's genetic makeup.

"Pharmacogenomics has become a powerful and effective tool in helping patients avoid adverse reactions. We continue to gain insight into effective dosages, and titration issues which can be life-changing for a patient.", Patricia Gonzales Pharmacist- D and nutrigenomic counselor.

## Why is it important?

In the United States, prescription drug reactions rank fourth as a leading cause of death. Nearly 840,000 hospitalized patients receive medication, resulting in 2.74 million serious adverse reactions.

Pharmacogenomics identifies specific genetic variants that can influence a drug's metabolism, drug-to-drug interactions, side effect potential, expected efficacy, and clot risk. Roughly 48% of 170 million Americans taking drugs, experience adverse reactions, specifically the elderly and those taking multiple medications.

Patricia explains how Pharmacogenomics can impact the patient's experience: "I have found pharmacogenomics to be incredibly valuable for both patients and clinicians. Pharmacogenomic testing is the most beneficial tool we have to prevent adverse medication events. One of the most effective clinical applications I have encountered is for the prodrug codeine. Codeine, in order to produce clinical effects must be converted or broken down to morphine by enzymes in the liver. If a person is genetically

unable to do so, taking codeine, no matter how high the dose, will not bring about pain relief or cough suppression. Without pharmacogenomic data, a patient may face months of ineffective drug trials, continued symptoms, and increased medical costs, before finding the best fit for that individual."

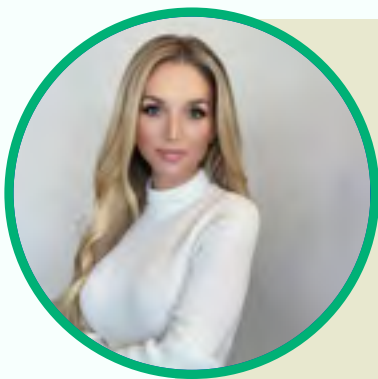
**Nutrigenomics highlights utilization and prioritization of required and or necessary nutritional resources in effect, offering guidance into the root causes of underlying symptoms. This "order of operations" can lay the groundwork for the appropriate nutritional support, timing, and dosage.**

It's likely that within ten years genetic tests for disease markers, and possibly even whole-genome sequencing, will be as routine as a blood draw is now. As research continues to advance, the study of nutrigenomics provides increased insight into each of our unique designs.

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## ABOUT RIAN OVERCASH

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Rian Overcash is the owner of Habit Method Health, innovative wellness consulting, and a certified nutrigenomic counselor.

Habit Method Health offers clients and providers a streamlined experience for custom nutrigenomic testing and concierge guidance. Acting as a liaison between patient and practitioner, her company

accelerates the patient's experience by combining education and advocacy. Rian, and her team of professionals work closely with clients to share genomic findings, education, and bio-individualized support.

To learn more about nutrigenomic guidance and testing please visit [www.habitmethodhealth.com](http://www.habitmethodhealth.com)





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# AN INTERVIEW WITH YOUR MITOCHONDRIA

**T**he human body's cells consist of mitochondria, which are known as the powerhouses of these cells. These tiny, complex, elongated structures, known as organelles, have an inner and outer membrane through which oxygen, carbon dioxide and water pass. Mitochondria are responsible for breaking down nutrients and converting it to energy. They are found in abundance in every cell and are heavily concentrated especially in cells that require an abundance of energy.

Recently I had a chance to sit down for an interview with one of the trillions of mitochondria in the human body

who generously took time out it's busy schedule to give us this rare and valuable perspective. In this interview, I was given an unprecedented insight into the mind of our mitochondria. Some of you may question how I, a relatively unknown armchair biophysicist, am able to get such a rare and privileged interview with the Powerhouse of the Cell. The answer is simple. I'm making it up.

INTERVIEWER: Can you tell me once and for all are you an alien?

MITOCHONDRIA: The question is am I from the Earth or am I alien? It's a complicated answer. What you need to know is 1.45 billion years ago I showed up on this planet looking to get in on the ground floor of something big. And I was willing to work hard for it.

It was very early in Earth's history, oxygen breathing life was still mostly unicellular. Simple lifeforms were just getting started themselves. And these simple lifeforms also had their own massive plans. When we met we realized we had something the other needed and so we made a deal to co-exist and work together.

That's how our genomes became intertwined. And that relationship has lasted almost a billion and half years.

That deal we made is very complementary. The cell fuels mitochondria with nutrients that we break down to protons and electrons to produce ATP energy and metabolic water for the benefit of the cell. This has been a glorious strategy for the evolution of very simple lifeforms to the highly complex ones that exist today. This is the teamwork that makes the dream work.

So, it should be no mystery why humans have two types of DNA. There is nuclear DNA, which is our terrestrial DNA that comes from that first eukaryotic (oxygen breathing) cell, and Mitochondrial DNA, that mysterious organelle of unknown origin providing energy for life which is passed down matrilineally. Mitochondrial DNA allowed humans to trace themselves back to one common female ancestor, what scientists refer to as Mitochondrial Eve.

INTERVIEWER: There is so much to learn about the mitochondria, but if all the time we had together is a short ride in an elevator, what would be the thing you would want to share with humans?

MITOCHONDRIA: Sincerely, if I only had a few seconds to grab your attention, for your own good, I would scream in your face, HELP!

In this current time very few humans are doing right by their mitochondria, the evidence shows that most of humanity are not living a lifestyle that is beneficial optimizing mitochondrial health, so I am here to impress upon you a reason for change.

**“Help me bring out the best in you  
before it brings out the worst in me”  
– Your Mitochondria**

INTERVIEWER: Let's get started with some fun facts so our audience can be better prepared to follow along.



Without Mitochondria it would be difficult for oxygen breathing life to exist. Mitochondria produce and recycle cellular energy known as ATP (adenosine triphosphate) via respiration. Cells, if they require more energy, via mitogenesis produce more mitochondria.

Heart muscle cells have about 5,000 mitochondria. Whereas the sperm cell will have nearly 25–50 mitochondria arranged in a helix fashion. An Ideal cell has 1000–2000 mitochondrial power factories per cell. Is this right?

MITOCHONDRIA: Yes, in fact the reason heart cells have so many mitochondria is they need to continuously pump blood and maintain a circulatory equilibrium. Serving this function requires energy continuously. Lucky for you this respiration never stops, operating 24/7 365 to keep you alive for as long as it can.

You should be aware that neurons, although having no moving parts, have a lot of mitochondria. Neurons are very high maintenance because of the continuous need to re-establish the sodium and potassium gradients after every action potential. Firing neurons requires a lot of ATP.

But since we are on the subject of trivia, the greatest concentration of mitochondria in the body, one should



know, is in the retina. Specifically in the rods and cones, within a highly specialized part, called the inner segment. It is stacked with nothing but mitochondria.

Each rod has several hundred mitochondria jammed into this portion which is closest to the outer segment where light creates signal. The cones have even more mitochondria than the rods. There is no tissue in the body that has a greater concentration of mitochondria. Vision requires the highest density of energy production the Universe can create. The visual cortex is the height of sensory evolution, and it has no energy to waste.

INTERVIEWER: Fascinating. It's too bad Mitochondria can't just work the same forever. Can you explain why is it that so early in our youth we peak in terms of mitochondrial health and ATP production, and after our 20's we experience a gradual decline of mitochondrial energy in the body?

MITOCHONDRIA: Great question! It all has to do with what we are all made from! Mitochondria and everything else with flesh and blood and a central organized nervous system is mostly water.

98.8% of the molecules that make up the body are water! The average adult human body contains 45 liters of total body water. And the mitochondrial DNA in partnership with your nuclear DNA have collaborated to run a perfect and efficient vessel. Did you know the average human body recycles and transfers 1900 gallons of water every day to produce ATP? Most of this water is constantly recycled metabolic water.

Metabolic water is very unique, unlike most of the fresh water on the planet which contains 150 PPM of deuterium, metabolic water has 10-60 PPM of deuterium. The less deuterium, the healthier the mitochondria and the more ATP is produced.

INTERVIEWER: Deuterium. What is that?

MITOCHONDRIA: Deuterium is the mitochondria's worst enemy.

Deuterium is a naturally occurring element, also known as the second isotope of hydrogen. It is in fact a heavier version of the very first element hydrogen that makes up 75% of the Universe. The nucleus of deuterium contains a proton just like hydrogen but also has a neutron of



equal mass which normal hydrogen does not. Thus 99.8% of hydrogen in the Universe is the simple kind, one proton, one electron, and it is called protium. The rest is deuterium hydrogen, and because of the extra neutron it is twice the mass.

Both protium and deuterium combine with oxygen to form water. And this the root of our problem. In normal water, about 1 molecule in 3,200 is HDO (one hydrogen in 6,400 is in the form of D), and heavy water molecules (D<sub>2</sub>O) only occur in a proportion of about 1 molecule in 41 million (i.e. one in 6,4002). This amount of HDO in water is the equivalent of about 3 drops in every glass of water. This is significant because HDO changes the weight and the charge of the water molecule and thereby changing the physical and chemical behavior of water.

The deuterium concentration of water varies by latitude and altitude. Generally, deuterium content is lower near the north and south poles, towards the middle of continents, and high above sea level. The oceans and coastal areas have levels of about 155 parts per million (ppm). Concentration of deuterium in living organisms varies between 110-155 ppm. HDO has been gradually increasing on the planet, and the more there is the worse it is for the mitochondria.

Those areas on the planet that have naturally less deuterium in their water, even by a delta of 10-20% gives the local population a huge advantage in terms of health and longevity. In fact, when this was first observed with the Yakutians of Siberia in the 1950's, it was discovered they had 324 centenarians per million people, whereas the average in Europe and Asia was only 8 people over 100 years of age per one million.

The average 120 lb. human if you rung them dry like a chamois would give you 70 lbs. of body water. This total water in the body contains 1.1 grams of deuterium. It doesn't seem like much, but it is the bane of our existence.

There is 4-6X more deuterium in our blood plasma than glucose, magnesium, calcium, potassium and the basic







nutrients needed for life. This heavy hydrogen known as deuterium wreaks havoc on the mitochondria from the day of birth to the day of death. The damage is primarily done within the inner membrane spaces where cellular respiration happens, where complex enzyme nano motors produce the ATP energy we need for life.

INTERVIEWER: Is this a relatively new discovery?

MITOCHONDRIA: Yes, even though it was known from the 1930's that deuterium is the anti-life element, the breakthrough in the understanding of the actual mechanism by which deuterium damages the mitochondria was first discovered in 2007 by Prof. Dr. Abdullah Olgun, a medical doctor, biochemist and pharmacologist from the Department of Biochemistry and Clinical Biochemistry at Gülhane School of Medicine in Ankara, Turkey.

His discovery, presented in Biological Effects of Deuteration: ATP Synthase As An Example was the first time anyone showed how deuterium damages the mitochondria, right in the last step of our ATP energy generating mechanism called the Electron Transport Chain, in the ATP Synthase nano motor.

Did you know that 130 lb. person produces and recycles 160 lbs. of ATP per day? That is the power of the mitochondria! ATP Synthase nano motors are fueled by hydrogen protons, spinning at up to 9000 RPM, and perfect efficiency to collectively creating and recycling more than your own body weight of ATP.

There is one deuterium for every ~6,400 proton transfers in nature .At 1,500 protons/second transfer velocity the nanomotor would break down every ~4.26 seconds (6400/1500) in environmental water. So about every five seconds deuterium chokes our ATP producing in the trillions of ATP Synthase nano motors. This interferes in our energy production system. It's a cumulative effect that is one of the main reasons humans age.

The deuteron (proton + neutron) has no place feeding into the motor that only expects a simple proton. So it





jams the motor causing it to stutter and breakdown almost as fast as it is created, and this Olgun explains in *Deuteronation and Aging*, published the same year in the *Annals of the New York Academy of Sciences*. It implicates deuterium as the primary cause of aging. The mystery of how deuterium damaged life was finally revealed. A select few have grasped the significance of his discovery. However, most scientists are yet to comprehend the Nobel Prize worthy significance of Olgun's breakthrough in biology.

### **Power Hungry? So are your Mitochondria!**

INTERVIEWER: That is some seriously heavy stuff. So what does your day look like when you are aren't busy blowing our minds with knowledge?

MITOCHONDRIA: My day consists mostly of eating. In fact, I eat non-stop. If I may confess, I am the reason why everything in nature is always hungry and why everything wants to eats everything else. My appetite knows no bounds! I have a difficult job to do and I need constant nutrition to make it happen. I'll make the cells all the cool energy and click metabolic water they need, just keep the food coming! And if you want to keep me super healthy, the best thing you can do is reduce the constant burden of deuterium on my ATP Synthase nanomotors.

Every time a deuterium hits these nano motors it causes them to stutter, torque and jam. This wear and tear eventually destroys the delicate phospholipid membranes holding the motors in place, and then protons start to leak, motor slows down, a panic ensues, signals are sent to shut down the motors, then the production line, and eventually the entire factory. As mitochondrial factories shut down, the cumulative loss leads to the eventual inevitability of not being able to make enough energy to run the cell. At that point, apoptosis ensues, or the death of the cell.



This insolvency and liquidation is final. The once thriving cell with thousands of mitochondrial factories, and billions of nanomotors is scrapped and demolished to exist nevermore.

INTERVIEWER: Since we now know high deuterium levels have been linked to complex disruption of cellular processes and 60+ years of clinical research points to the systematic destruction of mitochondrial function as the primary risk from excessive endogenous deuterium in cells, what can we do to lessen the impact of deuterium in the mitochondria?

**MITOCHONDRIA:** Two simple interventions exist to limit the deuterium induced damaged.

The first is to consume water that is lower in deuterium. With regular consumption of deuterium depleted water allows one to naturally reduce the content of HDO in the human body due to isotopic (H-D) exchange. It is believed that this deuterium depletion process is accompanied by an increase in the functional activity of cells, cell tissues and organs as well as the normalization of metabolic processes, energetic invigoration of the body, and a more rapid recovery after strenuous physical exercise. Failing of the body's natural deuterium depleting processes gives the opposite result; cancer, metabolic and neurodegenerative disease.

The second simple intervention to keep your mitochondria in peak form is to follow a ketogenic diet.

Three respiratory pathways make ATP energy, depending on the nutrient and availability of oxygen.

Glycolysis (w/o oxygen) creates: 2-4 ATP.

1 glucose molecule creates: 34 ATP.

1 ketone body creates: 104 ATP,

When we exercise, for every 2.4 lbs. of fat burned 1 liter of deuterium depleted water is created. So in fact, fat is the best fuel.

**“Life is just an electron  
looking for a place to rest”  
- Albert Szent-Gyorgi**

INTERVIEWER: That's great! There is one thing that has been bothering me, and that is if Nature likes to take the path of least resistance and conserve energy in the simplest way possible, why is it the Krebs/Szent-Gyorgi





cycle is so complicated? Does it have something to do with deuterium?

MITOCHONDRIA: Yes. Indeed. Let's review! The tricarboxylic acid (TCA) cycle, also known as the Krebs or citric acid cycle, is the main source of energy for cells and an important part of aerobic respiration. The cycle harnesses the available chemical energy of acetyl coenzyme A (acetyl CoA) into the reducing power of nicotinamide adenine dinucleotide (NADH). There are ten basic steps in the citric acid cycle. Why are there so many steps that make it so difficult? The blame goes again to deuterium.

Let me say it like it is, when the Earth had less deuterium, lifespans and health spans were much longer. Mitochondrial dysfunction has been linked to the diseases of modernity that are devastating our society. The results of studies of deuterium suggest that it may play a central role in mitochondrial dysfunction

For the first time in human history one can make a conscious decision to stop grinding my gears with excess deuterium. You no longer have to be a yak herder in the Himalayas to enjoy a 20% reduction in deuterium levels. Because of commercially available deuterium depleted water you can reduce the deuterium burden on the mitochondria wherever you are and assist the mitochondria to give you a more vibrant life. After all, Mitochondria exemplifies Nature's primordial definition of synergy, all working together in every cell in the body to perpetuate and optimize life, greater than the sum of its parts.

Take care of them and they will take care of you.

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#### ABOUT VICTOR SAGALOVSKY

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

# litewater

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The background features a central bright light source that radiates outwards, creating a series of concentric, glowing lines and a dense field of smaller, distant points of light. The overall color palette is a mix of deep reds, purples, and bright whites, giving it a futuristic and energetic feel.

# CORE

*The turning point in the process of growing up is when you discover the core of strength within you that survives all hurt.*  
*- Max Lerner*





# MARK DIVINE

EXCLUSIVE INTERVIEW

*Former Navy SEAL  
Commander, American Author,  
Podcaster, and Founder of Unbeat-  
able Mind and SEAL FIT*

*Mark Divine is an American author, podcaster, and retired Commander in the Navy SEALs. He was an honor graduate and his military service spans about 20 years. So from this experience he created SEALFIT and Unbeatable Mind, and he's also worked on many best-selling books. He holds a bachelor of science and economics MBA, a black belt in two disciplines of karate, and he is also a certified public accountant.*

*The article below is not a full transcript of Mark's answers, but rather a condensed version for a better reader experience. If you'd like to know all his answers and explanations, please visit our website to listen to the entire podcast episode.*

## **Can you please expand on what your ultimate mission, what your ultimate vision is in life? Like what is your calling so to speak?**

My vision is a compassionate, peaceful and prosperous world and I also strongly believe it's achievable by scaling consciousness and we're at a very unique point in our history where we can leverage technology and there is a



growing sense of individual responsibility to be the change we wanna see in the world, (credit to Mr. Ghandi), but we've gotta do that at scale. So my mission is to transform a hundred million people by 2025 through this integrated, vertical development program that we've developed at my company 'Unbeatable Mind', which started out at SEALFIT with a program to create more effective, more world-centric and more compassionate, special operators. And that program has been extraordinarily successful.

I've been training Navy trainees and other special operators through SEALFIT since 2007 with a 90% success rate getting them through the pipeline training programs with a smile on their face and as exceptional leaders, notably to a point where the SEAL community and the Air Force and other special ops communities are actually implementing the Unbeatable Mind training into their pipeline training. And we use skills. We use hacking skills. We don't call 'em hacking because I think they're more like developmental tools that are long term, transformation, many of which come from Eastern systems, but have been adapted and modified for the Western kind of character. So things like breath-work and visualization and concentration training, attention control, monitoring or mindful awareness of our thoughts and emotions, and curating positive internal dialogue.

We know that you have to start as an individual. You have to start with these tools to work with them on your own, but we found that when we can bring these things into a team and train them together as a team that you start to get exponential results. And so I look at the future and I see teams of teams all develop, looking at their work and their purpose in life as first developing themselves to the highest level possible as a human being, which then leads to expanding care and concern and compassion and inclusiveness, and then delivering those new human being skills in a service-sense to make the world a better place through their work.

That's what I'm all about. This all started with Zen meditation in 1985, when I went down to New York and was working on my MBA and CPA. I got into the martial arts with a very serious

grand master who happened to be a Zen master as well. So I took up Zen and that was really the main thing I got out of karate. I had to unlearn a lot of my karate skills when we went in the SEALs, but the Zen skills served me extraordinarily well and I never stopped training.

I kept trying to learn more and figure out how the mind worked. And how do you expand the mind and consciousness and how do you utilize your whole body as a mind? And that work, which I've done through Unbeatable Mind, primarily has really had a profound effect, not only on myself, but all my clients and it really is the sum total of my life's work.

Some people say, I don't think everyone has a life purpose and its just to be happy. And my experience is that we all are put on this planet for a specific reason and it's gonna be very, very different and varied and it's unique to every individual, but it's very important to uncover that or discover it. And you can do that by a process of meditation and introspection, but also through combining that with trying different things and getting that experience-based learning.

When I was in my twenties I was in a merchant career as a CPA in public accounting. Through the meditation process, I uncovered that that was not a right fit. That was not my calling, but I was meant to be a warrior. And I tell that story in my book, "The Way of the SEAL". And so I went and became a warrior with the special operations community and the SEALs, but later on, you know, that began to change from just being a warrior, to being a leader. And then from being a leader to being a teacher.

And so I'm still a warrior, right. And if there was a World War III, I would put down my pen and pick up the weapon for sure or, however I could best serve, but the warrior would come back to the forefront, of course. But right now at this stage of my life, the teacher, and even the spiritual, the spiritual development aspect, which is bleeding into my teaching, has really come to the forefront. So, in the biohacking community, one of the things that I think people need to be sensitive to is some of these practices that are posed







as hacking; to hack your mind, to be more effective from a biological perspective, to improve your performance through breathwork like Wim Hof or increase your your capacity to perform better in a sporting event with visualization.

One of the beautiful things about a long term meditation practice is it develops great humility. I don't really care about how big my following is. And I'm not saying it's bad. I'm just saying, be conscious about how you are using these tools and how much time they're taking from your life and whether you're doing it to pump your ego, or you're doing it through service so that you can serve more people. They're very different energies, you know?

Your ego is like a wild stallion. It is beautiful. It is powerful. And it'll kick you in the face and lead you to disaster, right? You can just keep chasing the ego's desires and attachments for more and more and more, certainly because eventually more never makes you happier. More, never makes you more compassionate or peaceful or empathetic and it never leads to less regrets. And so what we need to do is tame that ego. So that like taming the wild stallion, it's still beautiful. It's still strong, but now it's in service to something else like the stallion's now in service to its its owner, and the ego is in service to your spirit, your higher self, your concept of God or whatever you wanna call it.

And that does not actually kill the stallion. It actually makes the stallion more beautiful because now you've disciplined it and it's in control. And now that stallion can still be wild and beautiful, but it's not gonna hurt anybody, especially you. So your ego is like that meditation and these practices when done diligently day-in and day-out for "the purpose of taming the ego and opening up to your beautiful inner qualities, which is your spiritual self. That's a profound practice and it does lead to great humility.

So what we teach is that your body is your mind. And so if you wanna expand your mind, if you wanna train your mind, if you wanna operate at the whole, the highest level possible that you can access in this lifetime, you've gotta bring your body with you. You've gotta train and optimize your body. You gotta train *your brain*.

You've gotta clean your brain and use supplements for your brain. And you gotta hydrate and clean your body. You've gotta train your body physically. And there's a certain way to do that effectively. And I'm much more of a Yogi in the sense that body and mind go together; where the body leads, the mind follows, where the mind leads, the body follows. The body is the mind, not the brain. The brain is not the mind. The mind exists independent of the physiological organs of the brain, but they work in partnership obviously to make meaning.

I recognize that when I'm really healthy and my brain is working very effectively and firing on all cylinders, that my meditations are much more effective. I'm less distracted and I'm less groggy. And I tend to make much better progress in my mental and spiritual developmental journeys through meditation because my body is fit. I'm not uncomfortable when I sit, I don't get agitated. And so it's extremely important to train the body with the mind.

### **What was the toughest challenge that you've had to deal with in your life and how did you overcome it?**

I'll be completely honest. I came from an alcoholic family with an abusive father. And so my biggest challenge was the emotional development to overcome the shadow side that accrues from trauma. In my Navy SEAL class, I was still a great guy, a great leader, but there was just stuff that I did where I got in trouble; one night it was by drinking too much one night with my team. And I got fired by the Admiral, my boss at SEAL Team 3. It caused me huge pain. I felt really guilty that I had to leave my team behind.

Now, the reasons for that happening were all a mistake and the Admiral apologized and offered me to fix everything. But to be fair it was me that went out and drank with my guys and drank too much. You know, even though I got accused of doing something that I didn't do, it was a mistake in identity. It really was an eyeopener. And I



had to take a hard look at why I had these patterns. I wasn't alone. There's a ton of military special operators who have struggled with binge drinking because its part of the culture and I bought right into it because my family of origin and generations of alcoholism in my family. I could accomplish great things and keep that under control, but it was still holding me back.

So once that happened, I really I didn't stop drinking entirely, but I really got it under control and took a look at it and started doing emotional work and therapy and everything. But I recognized over time, how much it was holding me back. Even having a glass of wine or two during the work weeks. It got up to a point where I was doing it like five or six times a week and I said, you know what? This is just not who I wanna be.

So that to me is the biggest challenge. I don't know, I think most people say, that it was a business deal that went bad. Oh, I've had a few million dollar companies literally ripped out right from under me. And I look back and they were hugely valuable lessons. They were painful at the time, but they're really valuable. But I know that I probably would've made better decisions had I had set the bottle of wine aside earlier in my life. You know what I mean? So I know a lot of people who are super high performers and still drink alcohol and smoke pot and stuff like that. And I'm not judging anyone

because I did it for a long time, but it does hold you back and it holds you back from spiritual development.

We're at a time where it's okay to have a conversation now about therapy. You have a fitness coach, you should have an emotional coach, AKA therapist. And in fact, you'll get more benefit out of an emotional coach than you will a fitness coach, because it's usually the emotional stuff that is holding you back from optimal physical fitness, or being overweight or eating too much or anything like that. So my program is a program of integration and we focus on five areas. We call it the Five Mountains: physical, mental, emotional, intuitive, and spiritual development. And the physical and mental people are always chomping at the bit.

Yeah. I love that and the hacker community loves that. I love to work out, love to do Spartan races and SEALFIT. And I wanna work on Wim Hof, hot cold therapy and I'm gonna do supplements that Dave Asprey does. I'm gonna do all this stuff, but then they don't do any emotional work because it's scary and they don't know about it or they think it's not for them, especially guys. And then they remain ignorant that they've got all these patterns that are from childhood, basically driving their behavior and causing negative reactionary conditioning. And so you react a certain way

and it hurts relationships or you find difficulty connecting deeply or intimately or you find trouble parenting. It just shows up in all these ways.

And it keeps people from living with total peace and equanimity and being able to be really present and also to be humble and loving. I think the emotional development because of those childhood issues for me has been my biggest challenge and it wasn't just quitting drinking that fixed it. I could have quit drinking and kept all those patterns. It was doing the deep, emotional work through things like therapy and EMDR and some very skilled people helping me figure out how to unravel that stuff.

### **How do you get people to still see the grand potential that they can develop themselves in programs like yours? Where do they start?**

Well, there's a few things. One is we start them with very simple practices. And everyone's unique so if I started training with you, I'd do a five mountain assessment where I say, where are you at Dallas, physically? Where are you at mentally? And *on and on*.







And then what we do is we say, okay, we're gonna build a Five Mountain training plan around this. Based upon your assessment of physical, then we're gonna basically maybe tweak your training plan. For some people it's just setting more realistic goals and committing to getting to the gym or shifting from body building to functional fitness or adding yoga because you need more flexibility. It's gonna be different for everybody, but it's not gonna be complicated.

And then for mental, we literally just start people with a breath training. Breath work is one of the most powerful ways to train the mind in a multitude of ways. So we start them with a practice called box breathing, which is a controlled breathing, inhale, exhale, hold in a five count pattern. And that has great benefits for detoxifying the brain and body, and de-stressing. We don't go deeply into the emotional except for them to work with a swim buddy and a team. So we put people together in boat crews and teams.

And so they begin to get direct feedback from their swim buddy, their team and the coach on their emotional awareness. So this begins their emotional development. And then part of our training is to do these crucibles. So we have 6, 12, 24 and 50 hours of pretty hardcore physical mental team training that is with our SEALFIT brand. That actually begins their spiritual development and the meditation practice.

So to keep the answer fairly simple, they begin to do some of these things in a morning routine and an evening routine. And then a couple of drills during the day we call spot drills that are five minutes at 12 o'clock before you go to lunch or another time.

The spot drill could be a walk around the office, breathing deeply and appreciating nature or going up and expressing gratitude for one of your teammates or dropping and doing 50 pushups or 50 squats, or do five minutes of box breathing. Those are little physical and mental biohacks. So that's kind of the first thing, the Five Mountain training plan, chunking it down into rituals and spot drills. And then the second thing is

that we ask them to take a look at their physical workouts, the time that they spend training. And instead of just thinking of this as a physical workout for your body, we're gonna make it an integrated training session. That's gonna affect your body, your mind, your heart and your spirit, right? And so the way we do that is we add breath work, as well as visualization and intention into it.

And also a mindful awareness practice while you're training. This is why CrossFit is not a great tool for us because generally people are leading with their ego and they're totally focused on themselves. Whereas our methodology is to train together as a team, and to have one eye on your performance and your efficacy of movement and then one eye on your team to make sure everything's safe. If your teammate's suffering, you're offering them encouragement and positive dialogue and stuff like that tends to have an incredible effect.

And then after the workout to take a moment to journal and reflect and learn from it and to do a little bit more breathing

and visualization. So that turns your physical training session into a holistic integrated training session. And it greatly accelerates your development as a human being. Secondly, this whole notion of understanding why we do things, we get people to start right away to answer the questions, who am I, and why am I on this planet? And so we have them work on uncovering what they're passionate about, what their core principles are that are gonna guide their behavior going forward, their personal ethos, and what is their purpose in life? And we give some tools and practices to really help uncover their purpose.

For instance, like we talked about earlier, it's more of a beingness. If I had said, my purpose is to be an Admiral in the SEALs, we wouldn't be having this conversation because it wasn't my purpose. My purpose was to be a warrior. The SEALs were a vehicle for that. So we have them begin to work on this sense of that's who I really am and this is what I wanna *do about it*. So then we have them create a mission. So those three Ps: purpose, passion, principles, become





a vision for their future. We have them start to practice that vision in a visualization practice every day in their morning ritual.

And then we have them create a mission, which is their intention to move toward that vision. Any project, anything you do, you always connect it back to the why and you remember that's the intention. Remember that basically your mind works first with perception, second with intention and third with attention. And so we expand our perceptual capability through mental, emotional and spiritual and physical. Through the Five Mountain program we expand our perceptual capacity, and our ability to take more in. You become able to know more through the training then by actually getting clear about our intentions by knowing who we are, why we're on this planet and what we're gonna do about it. We bring that expanded perception and combine it with our intention, and then we bring radically focused attention to every task that we're doing, whether we're training to make ourselves better, or whether we're in a conversation to uplift both of us and the whole team, or whether we're accomplishing a task to move closer, to fulfilling our mission in alignment with our vision. So all of that starts to make a lot of sense when people put this together.

### **What are some of the daily habits or rituals that you do that may or may not necessarily be a part of your program, that keep you in check?**

Well, I developed the program because it's basically what I did. I became my first laboratory rat and it was so effective that I started teaching the SEALs and then I've evolved it. And, so it is what I do. So I wake up in the morning; probably every listener has a morning ritual. You get up, go to the bathroom, drink water, or have a cup of coffee, but most people then pick up their phone and check their email and their schedule for the day and get the kids out. And next thing you know, their brain is just on fire.

And a lot of times it just kicks off that programming, right? And so our mind then goes into default mode and default mode is, okay I gotta do this, I gotta do this. Here's my checklist. And then it gets triggered by this person and that person and this pattern and that pattern. And it turns out by the end of the day,







you've had about a hundred thousand thoughts and they're about the same thoughts you had yesterday. And then it's Groundhog Day every day. And what I do in the morning ritual and what I teach is to just put a big stop on all that. You wake up and we have a practice called first words, first thoughts. So we immediately, regardless of what we are thinking, dreaming, thinking about yesterday or the night before, we immediately take control of our thought processes and make sure that they're gonna be very positive and purposeful.

And so we begin a practice of box breathing and mantra. And the mantra could be like affirmations, a similar thing, but there's mantras of gratitude and we begin to recite them in our mind. And we begin to really think about how grateful we are and then that leads to a gratitude practice. And so this can be really just a minute or two. Deep box breathing, positive dialogue, internal dialogue, being grateful to have another opportunity; you woke up, so it's a huge win for the day already. That's the Warrior's Way, right? Just to be grateful that you have an opportunity because a lot of my friends didn't wake up and we tend to be very grateful that we have this opportunity and to take this day.

We drink water. So I recommend people drink a large glass of just fresh water because your body and your brain are like a battery. And at night you expel a lot of water. And so when the battery is out of water, it doesn't work very well. Same thing with your body, the electrical and the neurochemical aspects of your body need to be rehydrated first thing in the morning. So we do that and then I begin a more formal practice of contemplation and I contemplate my purpose, my passion, my principles, and my vision. I have my vision written down, also recorded. I'll reflect on my vision every once in a while and make changes to it and I reflect on my mission.

Then I make sure that what I'm doing today is in alignment with that. And it's like a last opportunity to make any changes to my schedule. And I clear up what my most important target is; the one thing that if I do that today, then I'm definitely moving toward mission accomplishment.

We've had people do their rituals with their family and it's a great way to really build family culture. So I do a chunk of my morning ritual with my wife.





So, about 30 to 45 minutes of practice together, usually meditation, visualization and silence practice.

Also 12 steps have been great in the past for me, that's another great program for anyone who shares my background with alcoholism or any kind of addiction. The 12 Steps are very profound program.

I used to have a cup of coffee, but now I drink MUD and I love that company. I'm an investor in it. Within one week of drinking MUD, I stopped drinking coffee. It's crazy. It's all mushroom-based and it's like one seventh of the amount of caffeine in coffee. Drinking the earth makes me feel grounded.

Then I have a smoothie and because I'm bit of a hacker and the time I have time is important, I use a product called Daily Harvest, which is frozen fruits, veggies and nuts. And then I supplement that with a product called Ample, which is a very healthy meal replacement, all vegetarian. So I have that with my wife and that's my morning, that's my breakfast.

So around 7 or so, I get to the office and my office is also my training center. I got the SEALFIT gym in there so we can use it for filming and stuff like that. And I'll do a half an hour with yoga, usually with my wife. And then, I'll do some breathing and meditation just a little bit. And then we basically do the SEALFIT operator workout, but we take out the stamina part, which is the longest part of it. So that takes us about 45 to 50 minutes. So that includes a warm up called a baseline, which is pretty rigorous, but it gets the body ready to move.

Then it has a strength component. We focus on primary lifts like front squat back squat, overhead press, strict press or push press, deadlift and bench press. And we just cycle through those. And we do strength work Monday, Tuesday, Thursday, and Friday. And then after the strength work, we do a high intensity interval, CrossFit style workout, but we don't care about the time or about beating anyone. We just kind of train together. That takes us to 9 or 9:30. I

don't take any appointments before 10 in the morning because this training is so important to me. After that I've got a hyperbaric chamber in my gym. And so I take a hyperbaric chamber ride for 45 minutes.

I do that three to four times a week. I love that. I usually just get some deeper work done; planning or writing or schoolwork (I'm now working on my PhD.). And then during the day, I eat a light lunch. Part of my training is caloric restriction and intermittent fasting. So I eat probably about 60% of the food that most people eat and I'm 195 pounds. I'm really fit at 58, but I just train myself not to need as much food.

And then I have an hour block, either a podcast or an interview or a business meeting. I also block time for working on papers and reading for my doctorate. I get to control my schedule because I'm the owner of the business. So I get a ton done between 10 and 4. And then at four o'clock on Mondays and Wednesdays, I do acupuncture. I have an hour-long acupuncture session.









That brings me to the evening sessions and my ritual there is having dinner with my family, with my wife and son. And then we'll do some meditation or go for a walk or read a little bit and sometimes watch Netflix or something like that. And then I go to bed with a very short evening ritual. The evening ritual is some more breathing and what we call a recapitulation. So that's where I look back at the day and I ask, okay, how'd it go? When I woke up, how the morning ritual went, etc.

And then I make a point to clear the air either tomorrow or I do it right then. So I call this my "no regret insurance policy". You don't want to go to bed with any regrets because then you'll be obsessing about it all night. So I like to eradicate regrets in real time.

As soon as I recognize them, often I'll send a text or an email or call or I'll do it in the very next day. And so then I'll ask myself, is there anything I need to learn or any insights I'd like to glean from my sleep cycle? Sometimes there is and I'll just kind of plant that in my subconscious. And then I go to sleep. So I actually take Doc Parsley's sleep remedy. That's what it's called. It's an all natural sleep supplement. I take that three, four nights a week. It's amazing. I have a cool bed, which cools me down to about 68. MUD has a new evening drink that I'm gonna start next week. It's called Rest. The evening mushrooms are to promote restful sleep.

I've seen yogis and martial artists who are like a hundred years old who literally look like they're 60 and they're fit. And

our society has really dumbed down the average for health and for fitness. So much so, that people just don't think it's possible. And they just think themselves sick or they think themselves overweight, or they think themselves old. It's all in the mind, if you just change your orientation to age and aging and longevity, that we can live a long time. And then you add things from Dave Asprey kind of thinking, or David Sinclair; longevity supplements and hyperbaric chambers are part of that.

They've been proven to actually reverse aging. Also its important to remember that "Old" is in the mind, right. I don't believe the body was designed to age the way we age in our culture. I believe it was designed to basically fulfill a mission at optimal performance. And then when you're done, you're done and you just get deleted from the matrix, that kind of thing.

### **What's your advice for people that are going through tragedies or stress brought on from COVID or those types of anxieties brought on by the world, pushing stress on them?**

Well, I would say they should first disengage from news. I haven't had a TV in my house for over 20 years and I don't watch news and it would be so painful, like psychically for me to watch news. I even find it painful to watch a football game because of the commercials. Your brain will tune into whatever energy you're putting in it. It's like food. If you're filling yourself up with all that fear and all that negativity and disasters, then of course you're gonna be anxious.

And the second thing is to stop over-committing yourself. Some people think that we have to be committed to 10

different things and beyond. It stresses everyone out, because there's a limited amount of time, linear time that we have in the physical temporal world.

Most of those people do it because they wanna be seen as being useful or important. If you develop non-attachment to what other people think of you, then you can start disengaging from these things and that leads to a huge opening of space and relaxation and a big load off your mind because you're not running around like a chicken with your head cut off trying to fulfill all these commitments, half of them, you resent. You know what I mean?

Next, do the 80/20 analysis on what you do every day. Recognize that 80% of what you do, isn't leading you to the results you want. So stop scrolling social media, stop talking to people who don't have a direct bearing on your mission, stop wasting time. You'll then be able to focus much better. And then at a much more practical level, the practice I talked about earlier- box breathing; that is the ultimate stress reset. Anytime you feel stressed, you can box breathe in the car. You can box breathe while you're standing in line to get your fricking COVID test box. And what that does is it massages your Vagus nerve and it clears your mind and it keeps you in a state of parasympathetic rest and digest, which counteracts all the sympathetic nervous system activation, which is happening by rushing around and by the negative news and negative people.

I know a lot of people have been impacted very seriously by COVID, but I was never worried about COVID personally because I'm a healthy person and I believe that ultimately we're all energy, right? And so the healthier you are, the higher you're gonna vibrate, the higher frequency you're gonna vibrate and a vaccine or a virus is vibrating at a very low level.



That's why disease is a low vibration. So when you're vibrating at a low level, that's when you're gonna get disease or be ill. When you're vibrating at a high level, this is not gonna affect you.

We live in a very healthy place in San Diego. I don't know anybody who's been affected by COVID in my town because we're all outside. We're walking, we're surfing, we're running, we're working out. We're happy. I'm certain that I've been exposed to it. We just took some natural supplements and I felt fine. I didn't notice anything. So anyways, natural immunity is really important.

I'm a little bit disturbed by this push to get more and more vaccines and boosters because we don't know the impact, right? We haven't studied what the long term impact is gonna be on natural immunity and what a huge disaster it would be if we had to set the conditions up for our body to be vaccinated every year, because our natural immune system got compromised because of it. So I think people need to be very thoughtful with that. I'm not an anti-vaxxer, I got vaccinated with a Johnson and Johnson shot, but I don't intend to get another one. Yeah. And, anyone that



says, 'well, you're, you're, you're affecting other people', No, we've already proven that the vaccine doesn't prevent you from getting COVID. I'm helping people by being healthy. That's how I help people.

Focusing on the frontline defense, the immune system is what we should be looking at. That's number one and if you want the insurance policy, get the vaccine, but don't expect it to prevent you from getting COVID. People have been saying alternative effective natural treatments all along and I hate that they're getting censored, but there are lots of natural remedies to nip COVID at the start, and it works because there's thousands of doctors out there prescribing them. But anytime they talk about it, they get censored for some strange reason, which really disturbs me personally.

**On a lot of your marketing and your books and everything, you present the image of a Wolf. Why?**

So one of the main attributes, that is critical for people, which kind of ties to what we were just talking about is to eradicate negative thinking and negative programming. Some people might say positive words, but you're just left with this negative slime all over you after. Because they're not; they're projecting or they're judging you while they're saying they're happy. So that's all negative and people who are obsessed with news tend to be negative. The brain is wired to be five times as negative as it is positive.

So I started to teach positive internal dialogue and positivity.



So we taught these skills on how to do that. Back to your question, instead of drawing from positive psychology, which a lot of people don't get right away, I use the metaphor from the Native American tradition. It says that there are two wolves vying for your attention in your psyche. One is the Wolf of Fear and the other is the Wolf of Courage.

So in the story the grandfather is telling his grandchild that the wolf that you feed the most is the one that will win the battle for your character. So we gotta feed the Wolf of Courage. And when you feed courage, which resides in your heart through doing good things and being a good person and opening your heart and being compassionate and empathetic and caring about people and caring about the environment in the world, then what happens? You take attention away from the Wolf of Fear. You don't give it any food. And eventually the Fear Wolf just goes away because it starves. So the Wolf pictures I use, show me staring it down. You could look at it as I'm either staring down the Wolf of Fear or I'm staring at the Wolf of Courage and feeding him. And I like to think it's latter.

If anyone wants to learn more about my work, my website is [markdivine.com](http://markdivine.com). My Instagram handle is [@realmarkdivine](https://www.instagram.com/realmarkdivine), and the training that we've been talking about is either at [sealfit.com](http://sealfit.com) -that's the hardcore 50 hour crucibles and 24 and 12, and then [unbeatablemind.com/challenge](http://unbeatablemind.com/challenge) is a great 30 day challenge to get started with the Unbeatable Mind Five Mountain Training.



# DECODING THE ENTROPIC BRAIN WITH LIGHT & SOUND



**T**here is no subject more fascinating than Consciousness and there is no discussion about Consciousness that does not include the Brain. We are incredibly fortunate because now creative Consciousness/Brain research is at an all-time high. It was just a few decades ago that the standard of care for psychological problems was a combination of mind paralyzing drugs, physical restraint, electroshock and frontal lobotomy. It was also taught in medical school that the adult brain simply declines with no hope of positive neurological change.

Just consider any one of these active research domains as an example:

- Brain Neuroplasticity;
- Connectome Harmonics & Brain Network Dynamics;
- Entropic Brain Theory;
- Psychedelic Information Theory & Research;
- Sensory Enrichment;
- Complex Adaptive Systems;
- New Miniaturized Biophilic Wearable Technologies.

Whatever the state of your brain today, it can be better tomorrow. That is the claim of the medically revolutionary field of Brain Neuroplasticity. The obvious question then is...how? Bumper sticker memes like “Fire It to Wire It” come to mind along with “The Brain Changes What Matters”. When it comes to Brain Neuroplasticity, the methods require three core factors and a “secret sauce” fourth factor. A method, regardless of type, requires:

- 1) Sustained attention;
- 2) Marginal demand;
- 3) Open minded willingness/belief;

And the complex neurochemical psycho-emotional “secret sauce”...

- 4) Enjoy!

There is no better way to unwrap this bundle than to start with a brief exploration of Entropic Brain Theory. In my opinion, Robert Carhart-Harris and his team at the Centre for Psychedelic Research, Division of Brain Sciences, Faculty of Medicine, Imperial College London are successfully recognizing the fundamental dynamics of macro-brain activities with studies in the brain as influenced by psychedelic compounds. The research is not to glorify psychedelics but rather to understand the range of adaptive capacities of the brain when energies move it into and beyond critical limits (aka new learning).

Here is the super short synthesis:

The original brain of the early human being went through a remarkably fast neurological expansion. Although there are many theories, no one knows why. 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 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



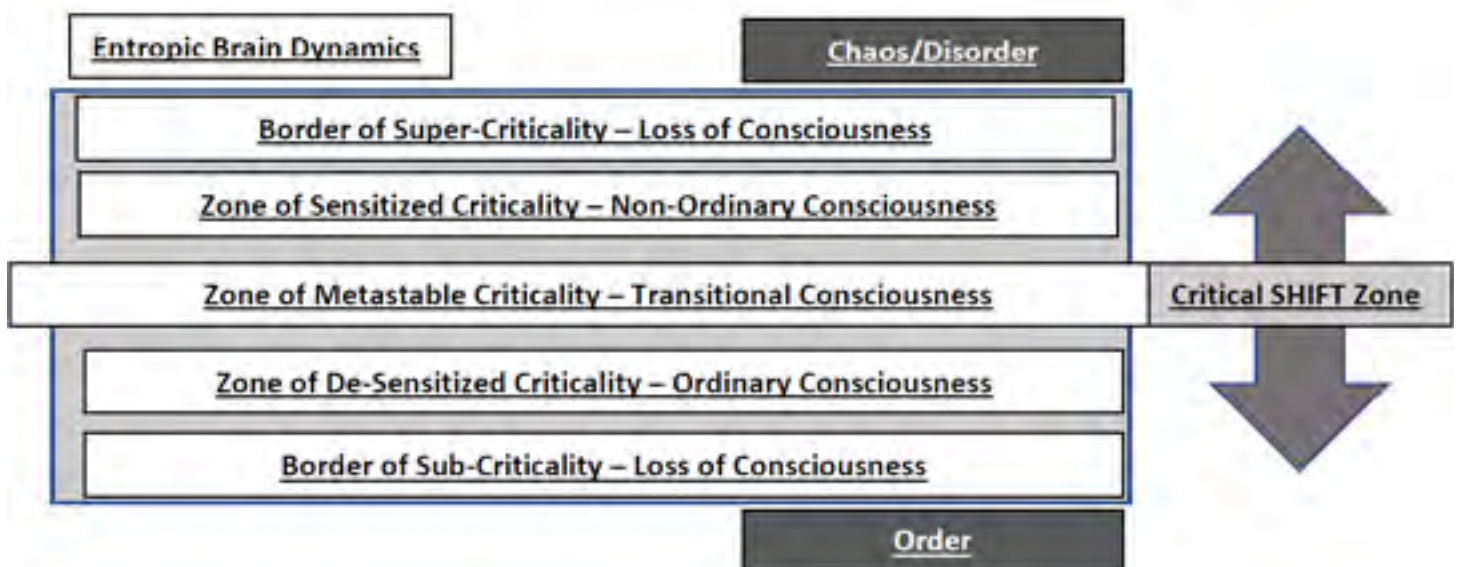
entropic suppression is Secondary Consciousness. Primary Consciousness is characterized with uncertainty, disorder, increased possibilities, new learning and creative insights. Secondary Consciousness is characterized with certainty, regularity, order, predictability and repeatability.

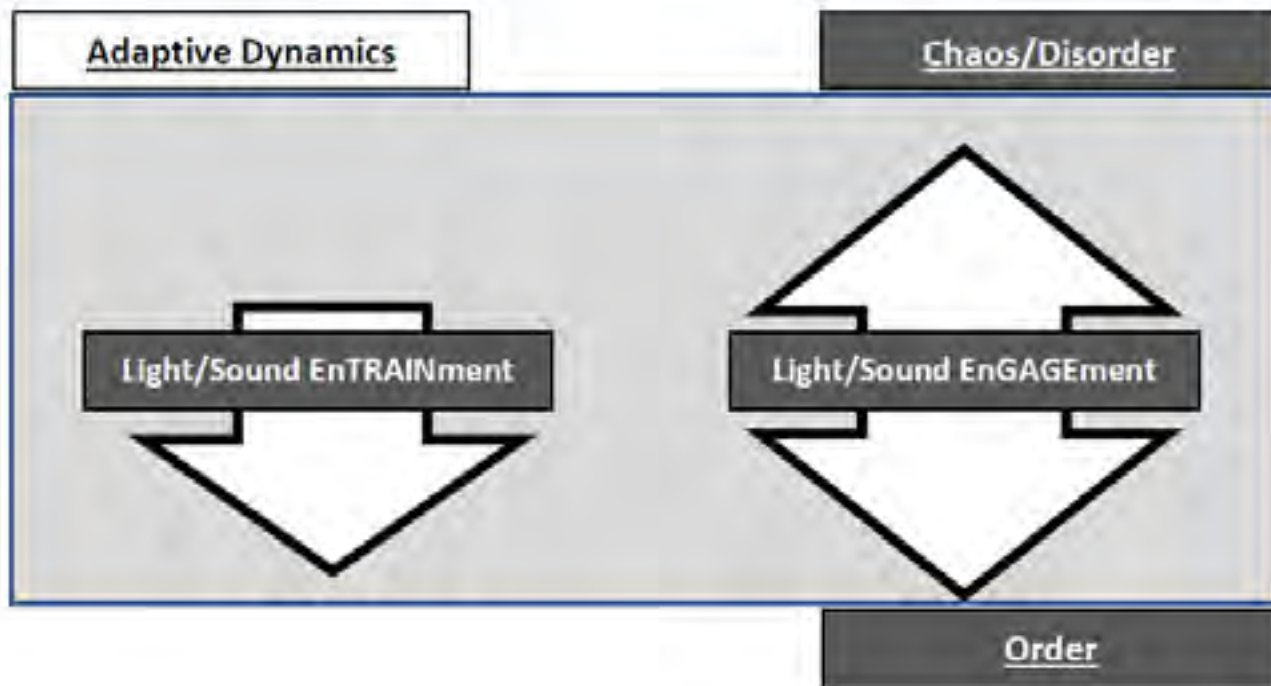
We normally function in Secondary Consciousness because it serves us well for biological survival. We also have the ability to shift into Primary Consciousness and do so every night when sleep invites in our dream states. Waking experiences of Primary Consciousness are more uncommon or “non-ordinary” (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.

An obvious question emerges – how does one trigger a critical shift from ordered common Secondary Consciousness into exceptional expanded Primary Consciousness...and return to Secondary Consciousness with learning and adaptation?

As mentioned above, we apparently make the critical shift every night when we dream. Dream experiences are famously fleeting. Freud called dreams the royal road to the unconscious. There are those that develop lucid dreaming as a way to mine the rich resources that are stored there. If dreams are the “royal road” then psychedelic compounds may be a “superhighway”.





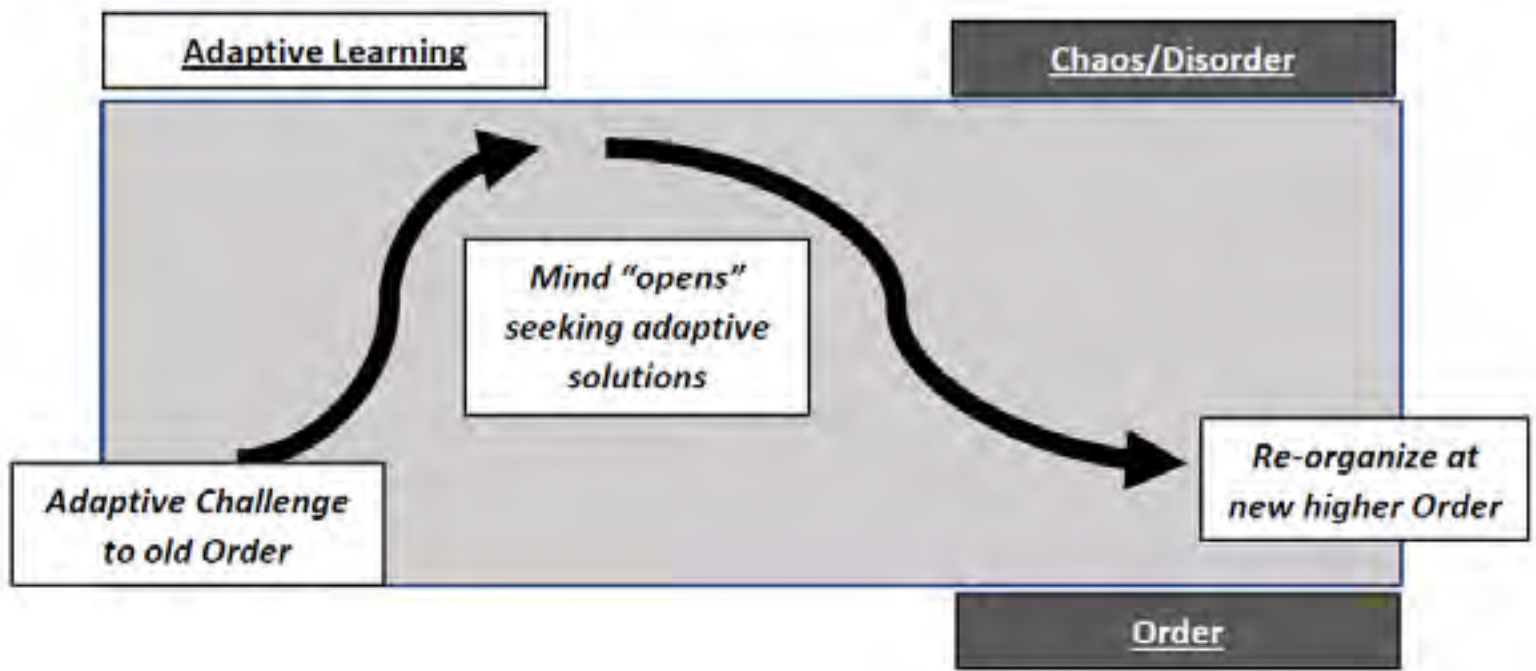
The proposal here in this short paper is that properly designed integrated light and sound stimulation can act reliably as a disruptive psychedelic dynamic and stimulate the critical shift from Secondary to Primary Consciousness.

Crafted Light/Sound experiences can perform on their own to trigger critical shifts or act synergistically with low micro/meso doses of psychedelic compounds. It is easy to appreciate that Primary Consciousness by its very uncertain character is not one singular condition. It varies by degree and along a spectrum of qualia. Risking over simplification, one of the cardinal features of Primary Consciousness is the dissolution of the “mental movie of me” state we call the “self” or the “ego”.

Recent research can help solve this puzzle. One of the key understandings found in brain neurology is that

our brain has a number of neural networks that act to express certain important functions. When it comes to the self/ego/me experience, the Default Mode Network (DMN) is the primary generator of that experience. A critical shift from common Secondary Consciousness into uncommon Primary Consciousness involves the destabilization of the DMN. Psychedelics do this very well (and often, for many hours at a time). Crafted Light/Sound stimulation can also destabilize the DMN and in a more controlled fashion by degree and time of destabilization.

Another intriguing element in the sustained order we call self/ego/me is the persistent presence of the alpha brain waves (8 – 13hz) in certain brain areas. These brain waves appear to be a fundamental feature of the entropic suppression mechanisms that help us “keep our shit together” and in biological survival mode. In the critical shift induced by psychedelic compounds, alpha brain waves are themselves suppressed, leaving the “doors



of perception” (thank you, Aldous) wide open. Again, properly crafted Light/Sound stimulation can obstruct alpha brain wave dominance and support the critical shift into Primary Consciousness.

As a side note – it is fascinating that the intoxicating romance with alpha brain waves and related brain entrainment techniques remain in place and unquestioned in popular culture in the face of the recent exceptional research into applied neurology.

In crafted Light/Sound stimulation, a few core design principles are required when intending to trigger critical shifts in consciousness. Basically, signaling should be templated with a “vector” (or theme). This vector is a technical integration of the well-known “set and setting” psychedelic wisdom and a determined “intentional state”. In this template, there must be periods of “tempered destabilization” that interact with core vectored frequency stimulations. There will also be short





periods of “conflict demands” with returns to “theme vectored” signaling. This may sound a bit strange or complicated. There is actually a generally formulized principle however this short paper can only serve as an introduction.

“Our normal waking consciousness, rational consciousness as we call it, is but one special type of consciousness, whilst all about it, parted from it by the flimsiest of screens, there lie potential forms of consciousness entirely different. ... No account of the universe in its totality can be final which leaves these other forms of consciousness quite discarded. How to regard them is the question, for they are so discontinuous with ordinary consciousness.” (William James, “Varieties of religious experience”, 1902)

“As long as men have reflected about their world, a basic issue has divided them. Some have regarded man’s conceptual models as straight foreword reflections of reality. Others have looked upon these models as a fragment imposed by the limitations of man’s consciousness upon the unlimited variations of his internal and external world.

The eminent philosopher, Henri Bergson, took the latter position, maintaining that the function of our brain is basically eliminative. The nervous system attempts to protect us from being overwhelmed and confused by the mass of irrelevant knowledge available to us. It shuts out most of what we should otherwise perceive at any moment and leaves only a small selection which is useful in practical situations.”

(The Hypnotic Trance, The Psychedelic Experience and The Creative Act, Stanley Krippner, PhD, The American Journal of Clinical Hypnosis, Vol. VII, Number 2, October 1964); (Mind Energy, Bergson, H., New York, Henry Holt, 1920)



Aldous Huxley follows the same view and states:

“According to such a theory, each one of us is potentially ‘Mind at Large’. But in so far as we are animals, our business is at all costs to survive. To make biological survival possible, ‘Mind at Large’ has to be funneled through the reducing valve of the brain and nervous system. What comes out at the other end is a measly trickle.” (The Doors of Perception and Heaven and Hell, Huxley, Aldous, Baltimore, Penguin Books, 1959)



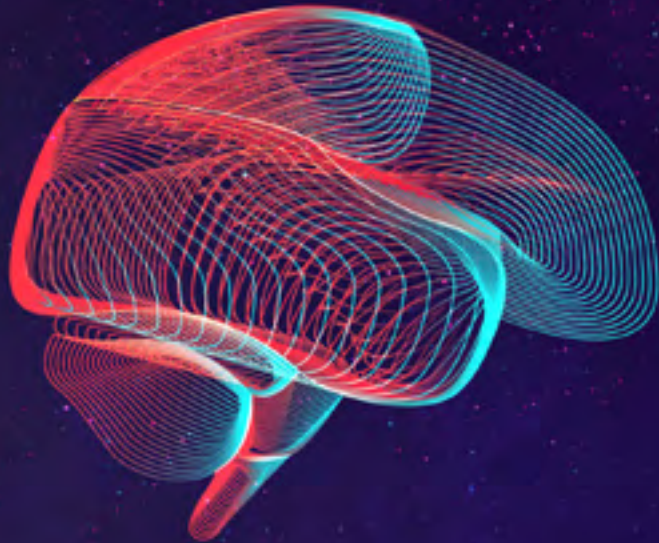
## ABOUT GARNET DUPUIS



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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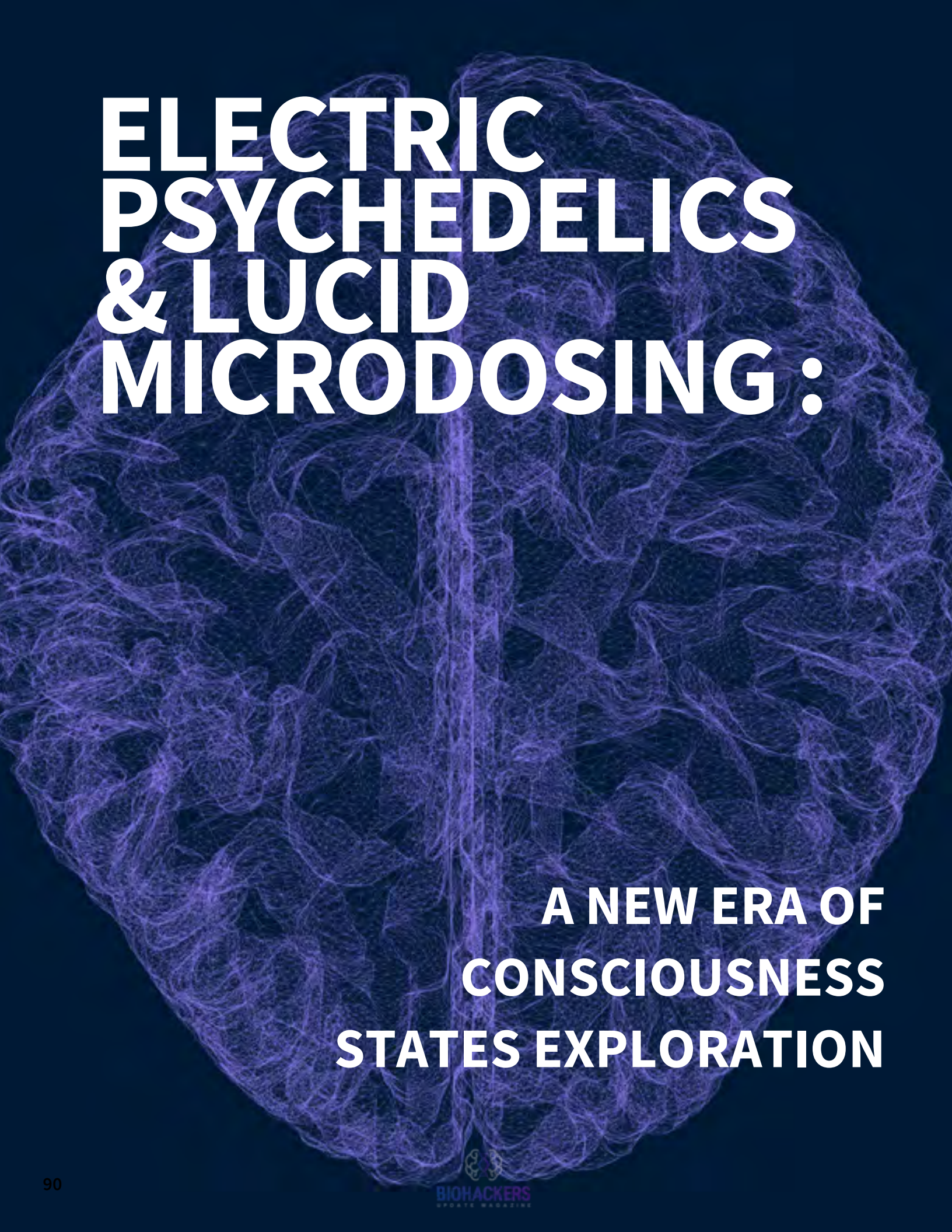
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NOOTOPIA





# **ELECTRIC PSYCHEDELICS & LUCID MICRODOSING:**

**A NEW ERA OF  
CONSCIOUSNESS  
STATES EXPLORATION**

## INTRODUCTION:

Let's start at the roots of the subject. The experience of consciousness itself remains a mystery. Explanations of consciousness range dramatically from the unitary foundation of all existence to an illusory epiphenomenon of physical nerve activity. Whatever the truth(s) may be, the qualities and types of conscious experience are broad and numerous.

Classically, consciousness is categorized as wake, dream and sleep. Anyone with any introspection at all will disagree and point out that only these three are entirely insufficient. Perhaps splitting conscious experience into two very broad categories with many subsets might give us more latitude in which to explore – let's consider then Ordinary and Non-Ordinary consciousness - with Non-Ordinary being of most interest here in this short paper.

Non-Ordinary Consciousness States (NOCS) are sometimes also referred to as Altered States of Consciousness (ASC). The words we use to describe things and experiences are inseparably linked to our culture. This fact is further complicated when we realize that the various states of consciousness themselves are valued and interpreted very differently depending on the era and type of culture in which they are manifest. The same manifest experience can be praised in one time/culture while being considered pathological in another.

The pivotal point here is that although a certain type of conscious experience may be “non-ordinary” or “uncommon” does not make it negative and abnormal simply because it occurs less often in the flow of “ordinary” or “mundane” life experiences.

Non-Ordinary Conscious States (NOCS) are normal – the human nervous system is inherently capable of shifting for periods of time into expanded atypical modes of perception and cognition. To quote William James - “The faculties of our brain are adapted in advance to the features of the world in which we dwell”.

A New Era of Electric Psychedelics and Lucid Microdosing.

## AGENTS & ACTIONS:

Aside from specific “psychedelic” compounds (eg. LSD, psilocybin, mescaline, DMT, etc), there is also the consideration of the Non-Ordinary Consciousness States themselves. Not only is there a varied list of “psychedelic” compounds that act as “agents” to induce a NOCS, there are also many other “agents” that may induce a NOCS.

1) Long periods of darkness are well known to induce phosphenes and entoptic internal visualized light experiences (eg. the “prisoners cinema” of dungeons):

2) Sustained physical stresses and labors are known to induce internal light visualization:

3) Physical injuries, pathologies and diseases are well known to be potential causes of hallucinations and internal light experiences:

4) Social group drumming, dancing and singing could induce uncommon or altered states of consciousness conducive to internal light visualization.

5) Serious sustained hunger and starvation can induce hallucinations and internal light visualization.

6) There are impressive “spiritual/yogic” practices and traditions that have crafted numerous techniques that reliably generate novel, expansive shifts in consciousness.

7) Various plant and animal-based hallucinogens are potent triggers of strong and impressive “psychedelic”





visual experiences and may have been accidentally or purposefully ingested.

The conclusion we can make from the information above is that the human nervous system is primed for NOCS and this end point “action” can be induced by a variety of “agents”. The “agents” themselves do not “create” the NOCS but rather trigger or enable the expression of the NOCS. Which opens the door to Electric Psychedelics and Lucid Microdosing as unique new “agents” that may induce the same intended “action”.

### **ELECTRIC PSYCHEDELIC:**

Properly crafted Light/Sound stimulations have a profound effect on the neurology of the brain. These effects can often replicate neurological changes induced by known psychedelic compounds.

It is known now, for example, that common psychedelic compounds both disable the Default Mode Network (DMN) in the brain as well as suppress alpha brain waves in the visual cortex. The disabled DMN acts to dissolve the egoic feeling of “me” and yields the open sense of “oneness” while the suppressed visual cortex alpha releases the cascade of visual colors and geometrics. Interestingly, properly designed Light/Sound stimulation can achieve the same neurological effects on command and for prescribed periods of time.

### **LUCID MICRODOSING:**

Psychedelic compound based microdosing is becoming increasingly more popular and, with well-designed research validation, holds significant promise for numerous beneficial applications. It is but a small conceptual step to move forward from the Electric Psychedelic premise to Lucid Microdosing applications.



Consider the following:

- 1) Limited low-level stimulation is capable of engaging dynamic adaptive measures in the brain;
- 2) Destabilization of common neural relationships are capable of generating a variety of uncommon states
- 3) The primary visual cortex is highly susceptible to excitation when networks are destabilized especially when combined with alpha power suppression;
- 4) The Default Mode Network which normally maintains the quality of “me-ness” or
- 5) ego-identification is capable of being temporarily destabilized with a quality of “oneness-with-all” or ego-dissolution resulting.
- 6) Neuroplasticity of the brain is an ongoing function even in the adult brain and this positive process can be enhanced in novel ways that are complementary to the measures listed.

In the consideration of our topic in this paper, some foundational concepts regarding neuroplasticity are very helpful in answering questions regarding “microdosing” in any form.

In one popular approach, neuroplasticity is regarded in four interrelated and overlapping stages. The four are:

- 1) Functional Neuroplasticity:
  - a. Takes place in “moments” (seconds to minutes to hours);
  - b. Preexisting under-functioning synaptic connections that already exist are aroused into higher levels of efficient function;
- 2) Synaptic Neuroplasticity:
  - a. Takes place over days to weeks;
  - b. New and different synaptic pathways are created to accommodate new demands;
- 3) Neuronal Neuroplasticity:
  - a. Takes place over months;
  - b. New and different physical nerves (neurons) are

created to allow the new synaptic connections and patterns.

4) Systemic Neuroplasticity:

- a. Takes place over years;
- b. The new physical neurons and their evolving signal connections and pathways are integrated into all of the global systemic metabolic, adaptation and self-regulatory aspects of the organism as a whole. (The “First Language” and Neuroplasticity, March 2018 – Garnet Dupuis – amended July 30, 2021)

For an even deeper look at neuroplastic dynamics that is more directly applicable to the “microdosing” concept and its protocol structures - There are four basic stages or steps that happen as the Brain as a Whole responds to Neuroplastic Change:

- 1) Neuro-Stimulation (the “**input reaction**”); 0 - 2 hours
- 2) Neuro-Modulation (the “**reaction response**”); 2 - 8 hours
- 3) Neuro-Relaxation; (the “**relief response**”); 8 - 24 hours
- 4) Neuro-Differentiation (the “**relief result**”) 24 - 48 hours



It is interesting to note that this timeline corresponds to the classic Fadiman 3 day Microdosing Protocol.

Now let's break these down to better understand.

1) **Neuro-Stimulation** is like giving information/food to a hungry brain. It has an appetite and is hungry for the info/food because it is the way it can keep the learning going and solve the problem.

2) **Neuro-Modulation** now kicks into gear and all of the multiple Brain Networks have an improvement of functions. This decreases the super-sensitivities that have formed as the Brain has been lacking certain Adaptive responses.

3) **Neuro-Relaxation** happens after the Neuro-Modulation does its work by re-setting the "arousal levels" and calming those "super-sensitivities. All the Brain Networks and associated circuits get to "Rest & Restore" themselves. Catching up on sleep is important for brain healing - in deep sleep it's known that the brain undergoes a sort of cellular clean-up process.

4) **Neuro-Differentiation** is the resultant long-lasting stage when enduring positive learning can be integrated into the Stable State brain functioning. Now the new habits take charge. The recovered brain is now in a position to start re-learning lost functions. (The Super-Dynamics of Neuroplasticity - Garnet Dupuis - Amended August 13, 2021)

### Do Neuroplasticity & Microdosing have a Relationship?

There are different types of change as we can see from the neuroplastic information stated above. Essentially, in the simplest view, the changes can be short term or long term. Short term is typically labeled "state change" and long term is "trait change". Semantically, it reflects the difference between the original Greek terms of "elastic" and "plastic". "Elastic" would be comparable to "state change" in that it is a more temporary shift that will likely return to its original ordered condition once the provocative influence is withdrawn. "Plastic" would be like "trait change" that tends to persist once the shaping influence ceases. This dual dynamic is much discussed in



psychedelic forums as it applies to whether a person can maintain and integrate into their life insights experienced when “tripping” or whether the insights simply disappear as in a dream. Elastic or plastic?

The concept of change implies a movement from one ordered state and into another new and different ordered state. Microdosing expects that brain/mind change is possible and this expectation is in alignment with modern neuroplastic principles.

### **Destabilization & Chaos:**

Psychedelic compounds reliably induce an interruption of normal neural organization, disrupt certain key neural networks and permit an unfiltered flood of unpredictable sensory stimulation throughout the brain. In effect, they successfully reduce Order and introduce Chaos for a sustained period of time ranging from 2 to 12 hours.

**It is suggested that we recognize the serotonergic psychedelic substance as a temporary “destabilizer” of ordered processes.**

In full “macro” dose applications, the destabilization is profound with evident modifications in consciousness. In “micro” dose applications which are sub-perceptual, the expectation is that the “glue” of Order and Habit is just slightly softened permitting neural-energetics to proceed along their habitual courses with a mildly increased degree of liberty and choice not typical of their metabolic set points.

**The proposal in this paper is that there are other available neural “destabilizers” which can reliably trigger “microdose” levels of adaptive regulation – specifically, in this case, uniquely crafted Light/Sound Lucid Microdose Experiences.**



### **Tempered Instability:**

The Ordered state of efficient Adaptive Learning, has strong integrity that resists breakdown. The Predictive nature of habitual brain functions makes it very difficult to rearrange neural responses while the patterns remain cohesive. Fortunately, like all CAS (Complex Adaptive Systems), the brain is always dancing at the edge of Chaos and this drift into Chaos can be induced and sustained within reasonable limits. It is when the “filters” weaken and “noise” is allowed to increase that the doorways to new adaptive learning open up. This is the basis of neuroplastic change and rests at the heart of compositional designs and is especially prominent in the **Lucid Microdosing Protocol Collection**.

Using special Light/ Sound signal structures, it is possible to induce and temporarily sustain an unstable condition in the brain. In positive processes, it is critical that the degree and length of the destabilization be controlled to match the neuroplastic capacity of the individual. This is the basis of the term “Tempered Instability” as it respects the relation of the neuroplastic demand with the common neuroplastic capacity of the human brain.



In the composition, Tempered Instability is used judiciously to first “soften the glue” of Order and trigger a positive degree of Attention without pushing it too far into Vigilance or, worse, Threat. Later in the composition, one or more periods of Tempered Instability are typically reintroduced as “message challenges” with the purpose of reinforcing the cardinal new information.

At a foundational level, once the initial Tempered Instability is introduced and the Attention (Attention is the key trigger in any neuroplastic action) has been aroused, the composition immediately introduces the Primary Attractor which carries the signals aligned with the main theme or “vector” of the composition. After injecting the Primary Attractors, the Secondary Attractors are introduced which complement the Primary Attractors. The Secondary Attractors help create a messaging “context” for the Primary Attractors (Central Tenets of Neuro Reality Processes; Garnet Dupuis; July 6, 2018; amended July 31, 2021)

## Tempered Instability & Lucid Microdosing Sessions:

Tempered Instability is a fundamental dynamic of a “microdosing” process using low dose, sub-perceptual destabilization generated by the psychedelic substance. Adequate degrees of destabilization can also be achieved using properly crafted light/sound stimulation techniques.

The degree of Tempered Instability in psychedelic microdosing is managed by the amount of the substance that is ingested combined with the frequency at which the dose is administered. In a Lucid Microdosing composition, the degree of Tempered Instability can be managed more precisely by modifying the light/sound signal characteristics along a number of technical parameters. As in the use of substances, the frequency of the dose is also an important factor.

### LUCID MICRODOSING - PROTOCOLS:

A user may “stack” the Lucid Microdose experience with any preferred compound or, for whatever reasons, use the Lucid Microdose “solo” without any psychedelic compound. There is also the opportunity to alternate with and without.

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## ABOUT GARNET DUPUIS

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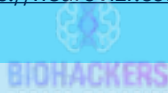


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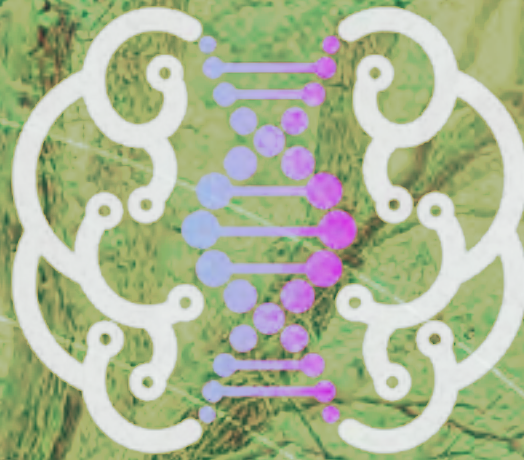
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