

BIOHACKERS

UPDATE MAGAZINE

**L-TYROSINE: DOPAMINE,
MOTIVATION, MOOD, &
MOVEMENT**

**HOW MINDSET AFFECTS OUR
RESPONSES TO FOODS**

**OCCLUSION TRAINING: DOES IT
ACTUALLY WORK?**

**SEROTONIN: IT'S MORE THAN
YOU THINK**

**ZINC AND THE MIND
AND MORE!**

BIOHACKERSMAGAZINE.COM

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Our New Categories

We've revamped our categories to bring you the same great content in a new 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.



MESSAGES FROM OUR BIOHACKING TEAM

A LETTER FROM THE EDITOR

With all of the innovations, studies, and scientific breakthroughs that have happened and are still happening in the world today, one has to stand in wonder at the scale of Science's impact on humanity's optimization and wellness as a whole. The role science has played in our progression as a species has been more than evident and easily, we can see why this is. We were made as curious creatures, wanting to know how and why things work and how to make them better. Think about children, they are practically all little mini-scientists, testing and discovering various ways and method of interacting with their world and environment. This aspect of curiosity is hard-written into our DNA.

Having this science - fueled brains that we do, this makes us eager to discover other ways of optimizing our health, our life, our existence. Thus enters the subject of Biohacking. As biohackers, we fulfil this curiosity of optimization by experimenting and discovering what is brand new or fairly recent in the field of medicine, technology etc. Because of this, often our methods are dismissed and regarded ambiguous, crazy or even disrespectful to science. But this

is not so. Many of the world's most noteworthy inventions were in fact regarded as crazy by the first critics. Rejection and cynical laughs are simply part of the growing process, and most new biohacks are completely within reason of making logical sense while also being backed by scientific study.

Biohackers are any and all of those within the scientific community that are experimenting and trying new things to help serve their health and that of the worlds as well. Although the science behind these new tactics and hacks are perhaps less numerous, there are indeed scientific trials and research in place, so it is important to note that the realm of biohacking can essentially be regarded as the exploratory segment on the line of Science. Science and Biohacking go hand in hand.

So as both biohacking and science continue to progress, let us remember that each of these communities play off of each other, creating new and effective ways of optimizing human beings' health, wellness, and development.

ABOUT DALLAS MCCLAIN



Born in the USA, Dallas is a passionate reader of personal development books and 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 and daughter where he enjoys writing, sports, and nature hikes in his free time. Dallas can best be reached at his email:
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NEUROSCIENCE & BIOHACKING: THE NEXT FRONTIER FOR TECHNOLOGY IN HUMAN OPTIMIZATION, COO JEAN FALLACARA

Our world has evolved rapidly in the last two decades, and even faster in the last 2 years as technology has effectively transformed how we live and work. However there is still one thing that has become even more important in our society and that is health, and how we approach wellness, body, soul and mind optimization.

As a Scientist and Biohacker, I believe that is all set to change thanks to Neuroscience.

Neuroscience is a recent multidisciplinary science that seeks to understand how the various components of the body interact and function together. With better insight into the dependencies within the body, we can better identify the causes of problems.

By combining these ideas with insights from the Biohacking community, my dream is to make both the Scientific and Biohacking community work together and better understand each other.

Whatever effort or sport, whether it's taking supplements or implementing a life discipline, a person is relying on their mind and it is the brain that is controlling what happens. No matter how finely tuned the muscles, respiratory system and other components of the body are, if the brain and nervous system that transmits the signals that control that movement are not functioning at their peak, then the entire body will perform poorly as well.

As with every other aspect of life, technology and science are poised to transform our lives, giving humans new [tools](#) to build the mental and physical attributes needed to take ourselves to a new level.

--[Jean Fallacara](#)

ABOUT JEAN FALLACARA



Born in France, Jean is an athlete, entrepreneur, scientist, public speaker and an Art collector. He is the founder and CEO of Z-SC1 Corp and Cyborggainz 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 Montreal, Quebec with his family where he uses his 20+ years of experience as a business executive.

Website: cyborggainz.com

ARJUN'S STATEMENT

The Biohacking world is divided at this movement between people who believe it is primarily advanced cybernetic and others who think it's another word to going back to nature. If you ask me, the only clear distinction I have seen in the time working in this industry is:

- American way

People in America believe biohacking is Biochemical, revolving around various supplements and other stuff you put in your body to optimize and enhance performance. Diet or what you ingest, is the key component that drives biohacker in this region.

- European way

People in Europe define biohacking very differently. For them, it is Biomechanical and Bioelectromagnetic. Going out in nature, movement, and exposing yourself to natural forces are the driving components of biohackers in this region. Biohackers here are looking for ways to get back to nature or replicate the effects of exposing oneself to nature.

The above-mentioned distinction is just my observation. I believe we need to find a common ground where we can try to advance our healthcare with technology without compromising our connection to nature. Using local resources, your body is accustomed to in order to stabilize health, while using the other resources to enhance and advance fitness. Then again, it's just my observation. The thing is when it comes to biohacking, there is no proper definition and I don't mean the words straight out of a dictionary. What I mean by definition is, what biohacking means to you? Rather than forcing a definition, we need to focus on Bio-individuality. Biohacking is an experience unique to everyone; what works for Dave Asprey may not work for you. The essence of biohacking is in the search for the right definition that suits you !

ABOUT ARJUN CHAUHAN



Born in India, Arjun is the master of all trades, the Chief Marketing Officer of Biohackers Update Magazine and a soccer enthusiast. He holds a bachelor's in commerce and a Master's in Business administration, specializing in marketing and human resources. He has 6 years of

experience in Content Marketing and is always looking forward to gaining more from life. With a passion towards nature, he is currently in the Foothills of Himalayas, in the northern part of India.



— OUTER

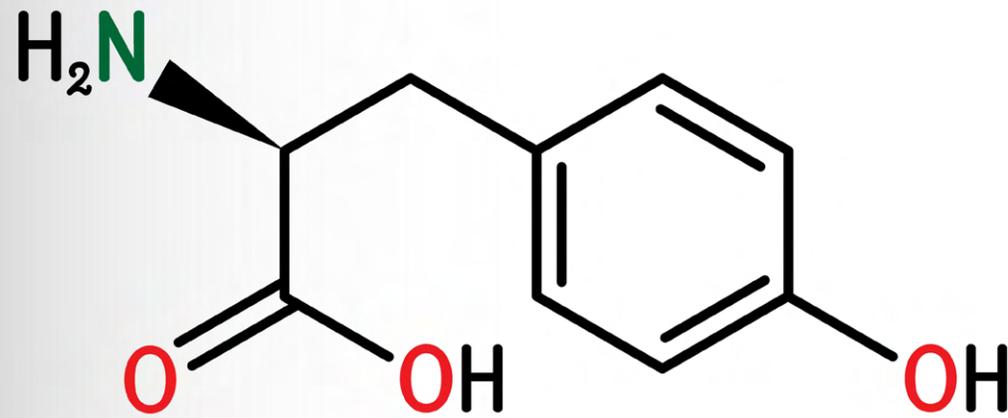
***“We are all connected;
To each other,
biologically. To the
earth, chemically. To
the rest of the universe
atomically.”***

— Neil DeGrasse Tyson

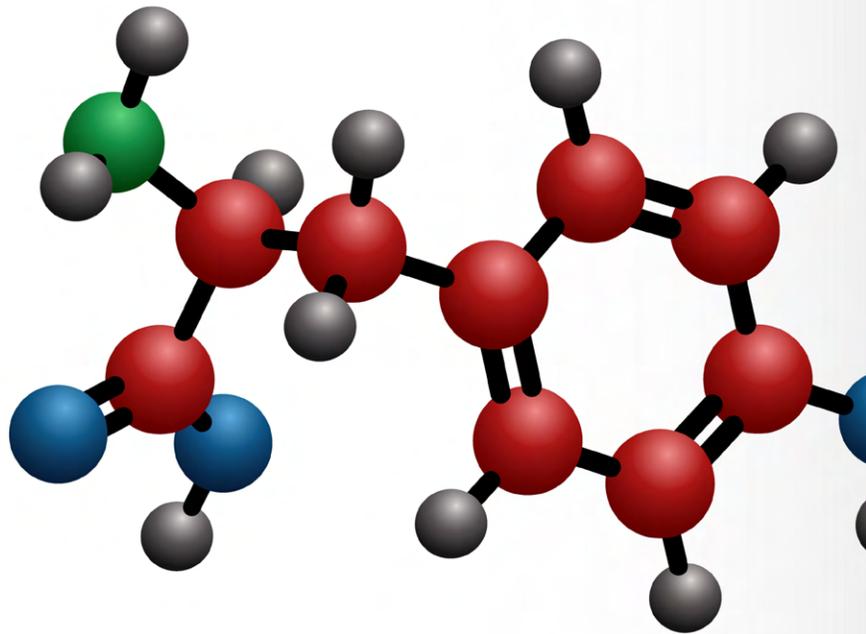


BIOHACKERS
UPDATE MAGAZINE

Tyrosine



L-TYROSINE: DOPAMINE, MOTIVATION, MOOD & MOVEMENT



From seemingly too good to be true weight loss secret to miracle pre workout supplements, L-Tyrosine is found in all our health oriented diets. Safe, efficient and affordable, it is easily one of the most common components of pre workouts after good old caffeine, mostly for its dopamine and adrenaline producing abilities that help us obtain the sought after focus we require for a good workout.

What is L-Tyrosine?

L-Tyrosine is one of the basic amino acids that make up the proteins found in our bodies which can be consumed via supplements or a protein rich diet. It's thought to help you produce catecholamines like dopamine and adrenaline to

enhance your workout experience while reducing stress and improving focus.

What are its effects on Dopamine, Motivation, Mood and Movement?

What's so special about it and why do we repeatedly see it in all of our pre workout's ingredients list? When metabolized L-Tyrosine is thought to produce catecholamines such as dopamine and adrenaline and is often used in the production of thyroid hormones. The levels of catecholamines in our bodies is very efficiently regulated. Therefore increasing the levels of L-Tyrosine through such diets would not necessarily lead to an increase in the production of catecholamines. Though this

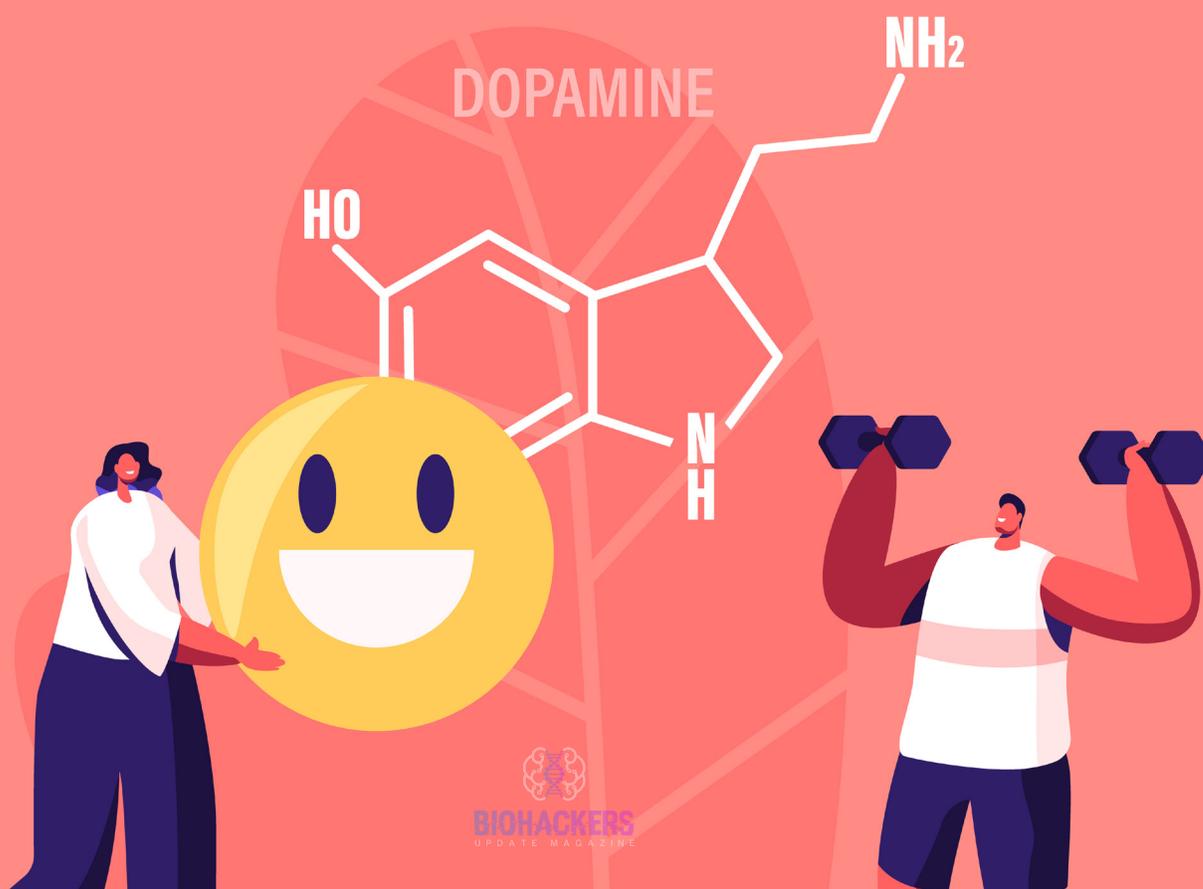
may seem like bleak news to avid athletes, L-Tyrosine still can help improve your workout! Certain [studies](#) have demonstrated that the amino acid could prolong the effects of dopamine and adrenaline by delaying their depletion. Such results have been noted to aid in cases such as cold stress, psychological stress (tenuous workouts included!) and sleep deprivation at somewhat high doses starting at 150mg/kg. Improvements in memory and attention during these stressful episodes have been recorded though it does not lead to drastic changes. So although increasing L-Tyrosine intake doesn't necessarily produce catecholamines, it's still an essential building block to them, supporting your body in the process of creating them, meaning during those tough workouts your mental clarity, focus and perspective of fatigue are effected with the use of L-tyrosine. A [study](#) even noted a significant improvement in global ratings of happiness and moods assessed by the Clyde Mood Scale and Profile of Mood States. Due to it's stress decreasing qualities, the amino acid may further help the body shed stress related weight gain.

How to take it?

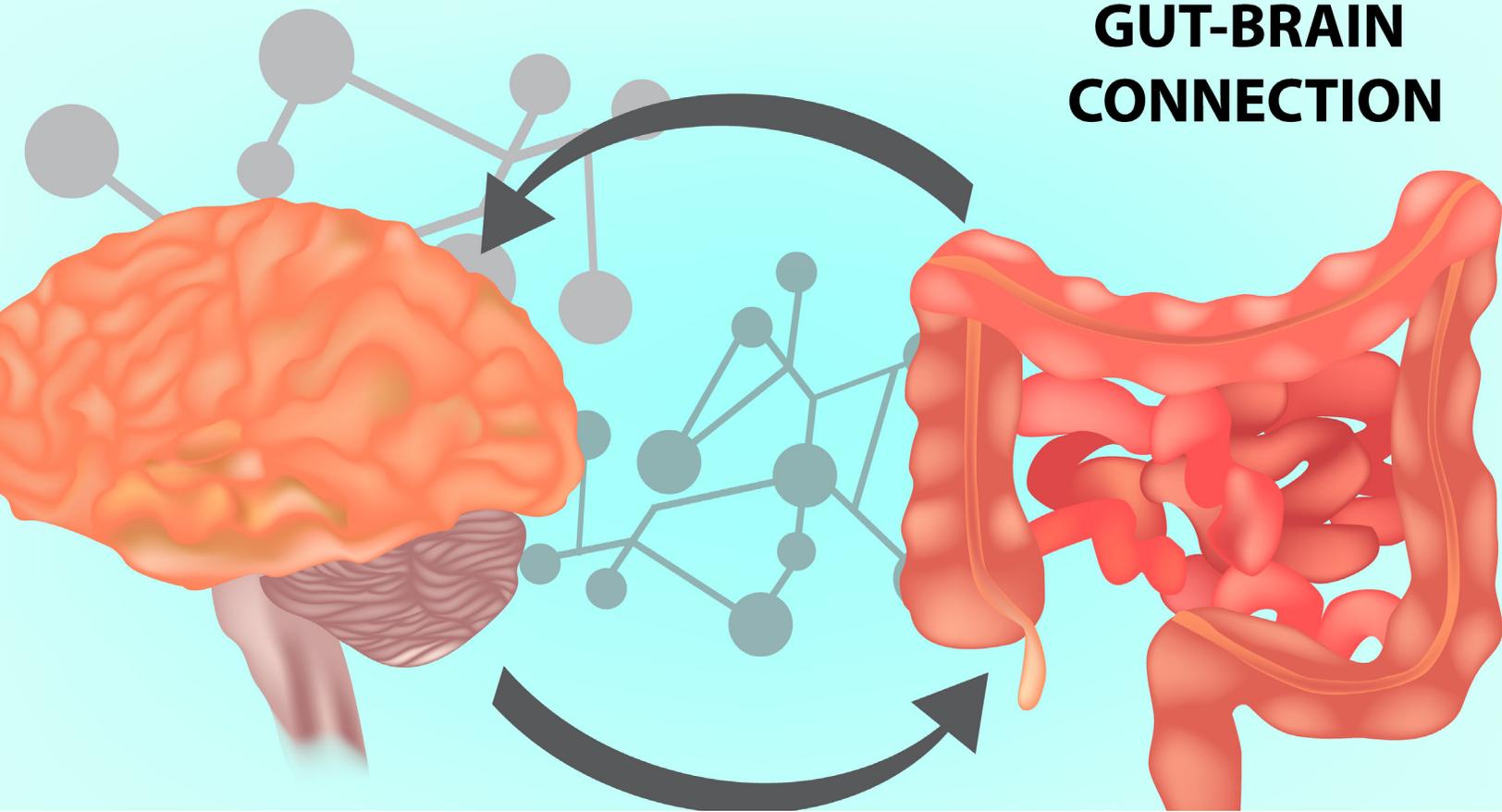
Though L-Tyrosine is considered generally safe with very little side effects, a maximal dose of 1500mg per day is recommended, and an ideal dosage showing most improvement in stress-related issues falls within a range of 100-150mg/kg body weight, a dosage range of 9-13.5g for an individual exceeding 200lbs and 7-10g for an individual of 150lb. For the best results, the supplement should be administered 30-60 minutes before acute stress such as a hard workout without food consumption. Other supplements such as vitamin B6 and folic acid are recommended along L-Tyrosine.

The bottom line...

Although L-Tyrosine may have a lot of misconceptions, the amino acid remains a beneficial supplement for your mind and body. From being an essential building block to catecholamines we desire such as dopamine and adrenaline, to improving mood and happiness and acting as an acute stress reducer, it truly deserves its name in your favorite pre workouts supplement list!



GUT-BRAIN CONNECTION



SEROTONIN: IT'S MORE THAN YOU THINK

Serotonin. We need it. We desire it, and we're all willing to go to drastic extremes to get it. That fuzzy, feel-good feeling that overcomes us upon exhibiting a practice that makes us feel happiness is directly associated with this neurotransmitter and the lack of it results in detrimental effects that affects the human brain in our daily lives.

Serotonin, what is it?

Serotonin is a naturally occurring neurotransmitter that carries signals between neurons throughout the body. Its direct effect on our brain results in mood regulation and memory, and is essentially what makes us feel happy. However, serotonin has vital job functions throughout the entirety of the human body, and is not strictly confined to the brain. In fact, the majority of the serotonin produced is found in the gut, the intestines being the greatest producer of serotonin with its vitality in the process of our digestion.

Serotonin further affects our sleep, sexual activity, bone health and blood clotting.

Guts and Brain

The absoluteness of our body relies heavily on serotonin to work functionally. The neurotransmitter behaves as a regulator for our system. While resting, our body utilizes profoundly a well-known hormone called melatonin, which is critical to the proper functioning of the sleep cycle. We rely on serotonin to produce melatonin, therefore a deficit or an overabundance of the neurotransmitter disrupts the sleep cycle. Low levels of serotonin will make an individual feel a lack of energy, happiness and motivation thus resulting in mental illness such as depression and anxiety disorders. The essential effects of serotonin don't stop there. In the event of an injury, an increase in serotonin leads arterioles to narrow which constricts blood flow. The narrowing of arterioles and constriction of blood flow are prime processes of blood clotting.

Gut derived serotonin circulating at a high frequency throughout the body is responsible for weak bone density and conditions such as osteoporosis. Research suggests that a category of antidepressants called SSRI's is associated with decreased bone density. Finally, serotonin further alters the frequency and intensity of sexual feelings experienced by an individual. Elevated serotonin levels are directly linked with an increase in sexual desire.

Satiety

Serotonin is our very own natural appetite suppressant, working by curbing or shutting off entirely appetite and offering a feeling of satiety (the feeling of fullness one obtains after eating a grand meal) making it a key element in the journey of weight loss followed by many. MIT studies conducted by Doctor Richard Wurtman demonstrate that the building block of serotonin could only enter the brain through the consumption of sweet or starchy carbohydrates that were eaten, therefore, when consuming a snack such as bread or pasta, new serotonin formed in the brain halts appetite, leaving you feeling already satiated. A successful weight loss story therefore heavily relies on the amount of serotonin in your brain to regulate food intake, as well as the moderate consumption of carbohydrates.

Low Serotonin

Low levels of serotonin are closely linked to mental health disorders such as depression, anxiety and other mood disorders, however it is important to note low serotonin levels are not enough by itself to cause depression and that such disorders are multifactorial, meaning there is more than one cause for its occurrence. Low Serotonin levels often are detected due to two reasons, though there are multiple factors possible: The first reason is simply there being too little amounts of serotonin and the second being inefficient use of serotonin. Your body may not be able to support the production of serotonin due to a deficit in nutrition and

vitamins. Low Vitamins B6 and vitamin D levels both result in a decrease in serotonin levels. If your body doesn't have enough serotonin receptors in the brain, or if they are damaged and no longer do their job the way they should by breaking down or absorbing serotonin too quickly, this leads to your body not using it efficiently.

Prozac

Prozac is one of the better known SSRI's often used to treat anxiety or depressive disorders which works by preventing the brain from reabsorbing naturally produced serotonin, therefore aiding in the process of maintaining enough serotonin required for a general feeling of wellbeing. Prozac leaves the patient with a feeling of relaxation, greater interest in life, a decrease in anxious behaviors, greater quality of sleep and appetite, and an increase in energy and focus. Studies strongly point towards it affecting the gut's microbiota, "Previous studies from our labs and others showed that certain gut bacteria respond to serotonin and drugs that influence serotonin, like antidepressants. This is a unique form of communication between bacteria and our own cells through molecules traditionally recognized as neurotransmitters." (Thomas Fung). As 90% of serotonin in our body is produced by the gut for immunity, correct usage of Prozac points to a beneficial aspect on the body.

Be a better you!

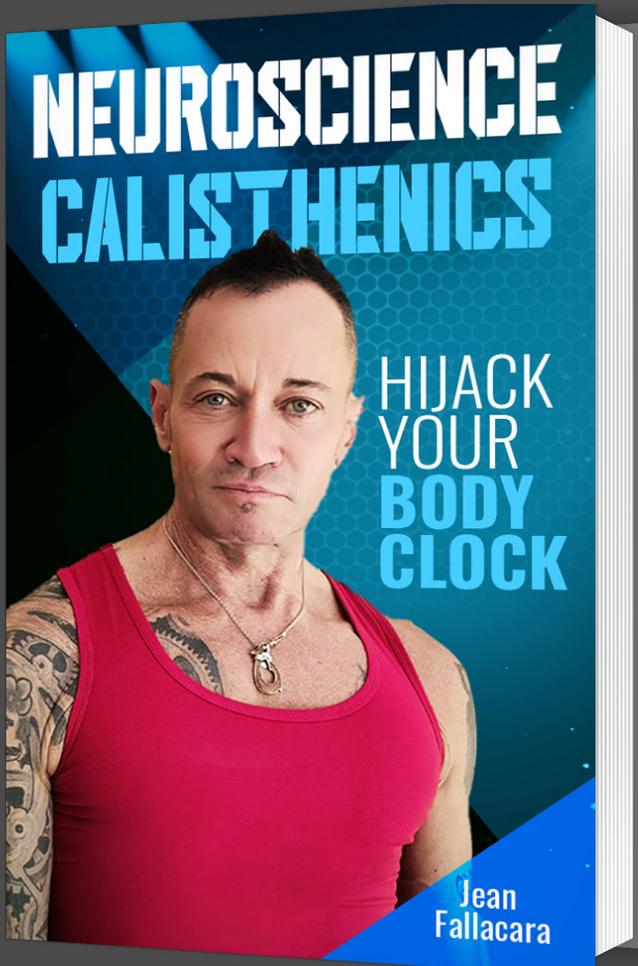
Serotonin clearly has a vital effect on the body, it's role regulating our body in hundreds of beneficial ways. Thankfully there are natural biohacks to improve Serotonin levels! Certain foods such as bananas, beans, eggs, leafy greens, fatty fish, fermented foods and turkey are a great source of the key nutrients required for the production of the neurotransmitter. Regular exercise boosts serotonin levels off the chart, helping to fight not only low serotonin levels but additionally depression and other mood disorders

“A good tip is to spend 10-15 minutes soaking up the sunlight (with sunscreen of course!) which will result in a boost of vitamin D, a key element of serotonin production.”



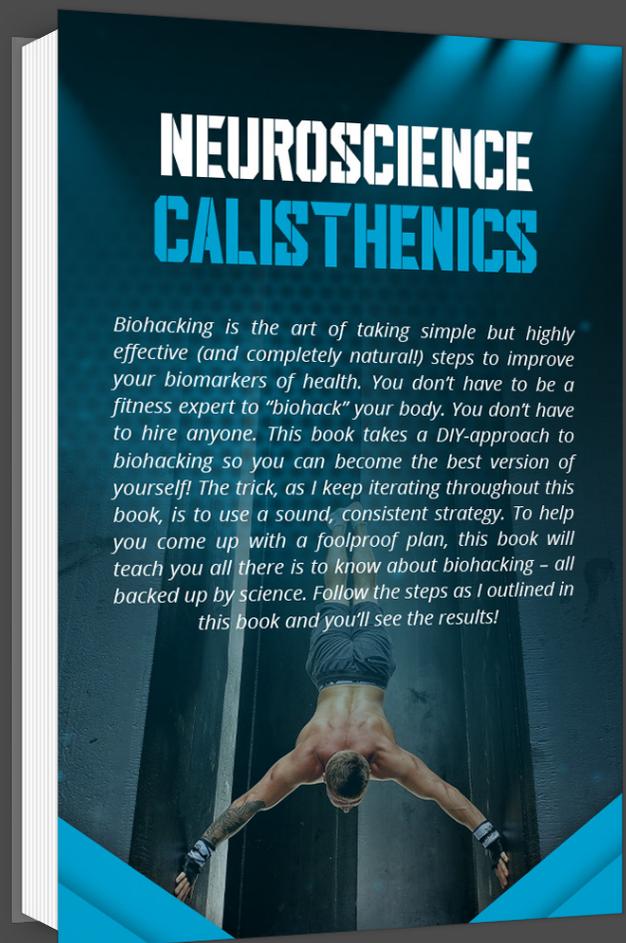
by supporting cardiovascular health. Massages are a oh so relaxing easy method of raising serotonin and dopamine levels and decreasing cortisol, also known as the stress hormone. Light exposure further supports your body in the production of serotonin, as levels may decrease if you experience a lack of sunlight. A good tip is to spend 10-15 minutes soaking up the sunlight (with sunscreen of course!) which will result in a boost of vitamin D, a key element of

serotonin production. Take care of your body, practice a hobby that makes you smile, have a walk outside; be a better, happier you!



UNDERSTAND THE NEUROBIOLOGICAL EFFECTS OF YOUR TRAINING

LEARN ABOUT
IT HERE!





OMEGA-3: OMEGA-6 RATIOS, FISH OIL AND ALLEVIATING DEPRESSION

Omega-3 fatty acids serve a crucial role in our overall wellbeing. Armed with powerful benefits for both the body and the mind, their effects have been thoroughly studied through thousands of meticulous and reliable research studies. Overflowing in health magazines, Omega 3's have earned a grand level of respect and at this point, it's a well-known fact to the population that these nutrients are superstars in terms of healthy foods. Let's take a deeper look into a well renowned

category of omega-3 fatty acids, fish oils, and dive into the multiple benefits.

Fish Oil for Brain Health

Fish oil pulls its multiple benefits from its Omega-3 fatty acid component, which are polyunsaturated fats responsible for the benefits affecting the overall health of the brain and mental

health. Fish oil itself contains two types of the nutrient called EPA and DHA. In our everyday diets, such nutrients are practically exclusively found in fatty fish and oil, which often results in a deficit of these nutrients since most people do not consume fish on an everyday basis, nonetheless fatty fish such as salmon. EPA and DHA are critical for brain development and overall health, showing vital roles in the development of baby's brains. In fact, pregnant [women](#) who consumed fish oil throughout their pregnancy were reported to have their child score higher on evaluations of intelligence and brain functions. Certain [claims](#) even demonstrate the possibility of improvement in mild memory loss. Perhaps the most astounding of fish oil's benefits is its ability to alleviate depression in a time where constant technology and resources are improved in order to find cures for mental illnesses such as depression, anxiety etc. Indeed, certain clinical [studies](#) point towards a link between fish oil and improvement in mental health with effects similar to those of antidepressant medications. However, the greatest improvement was demonstrated to be a combination of fish oil and antidepressants more specifically with fish oil that contained a higher dosage of EPA. With various benefits such as these, giving fish oil supplements a try should definitely be considered by many due to its fantastic effect on brain health.

Fish Oil for overall Body Health and Fitness

The benefits of the miracle nutrients don't limit themselves to aiding your nervous system. Multiple risk factors of heart disease appear to be reduced with regular consumption of omega 3 fatty acids such as fish oil. From preventing plaques that may form in the heart to lowering cholesterol blood pressure and triglyceride levels, they also help by reducing the amount of fatal arrhythmia episodes. By decreasing cholesterol levels the nutrient may as well help to reduce obesity and waist size. Like the brain, our eyes also rely on omega 3 fatty acids for their health. [Studies](#) point towards a high consumption of fish oil improving eyesight. Fish oil is

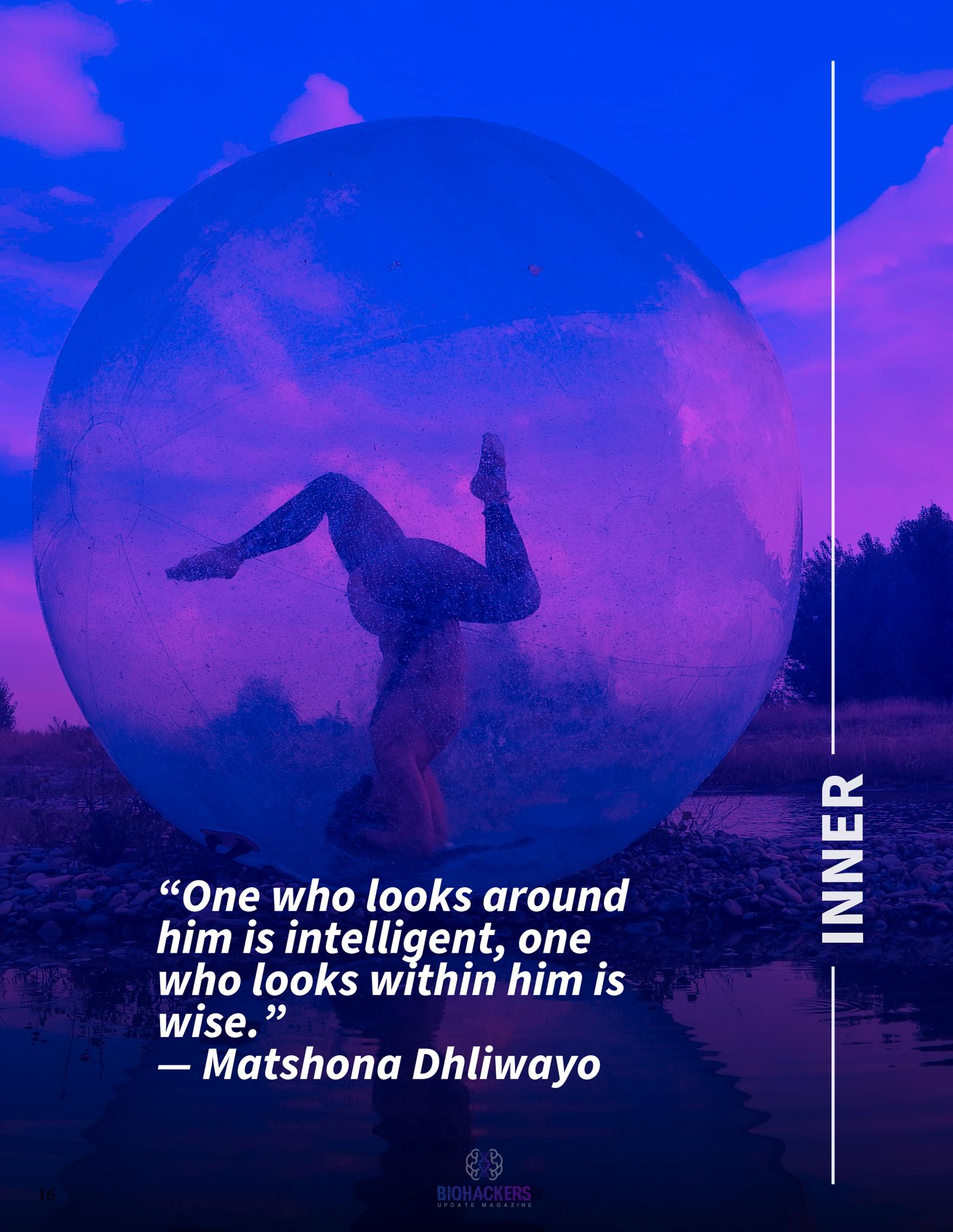
furthermore considered anti-inflammatory as well as its compounds containing beneficial effects for our skin. As old age approaches, our bones are more likely to break which can lead to conditions like osteoporosis and osteoarthritis. Those with higher omega-3 intakes may show improvement in bone mineral density.

How to incorporate into diet

Now that you are aware of the multitudes of benefits of fish oil and omega3 fats in general, you are most likely eager to incorporate it into your diet. Luckily there are multiple sources of these kinds of fats such as fatty fish, avocado, olive oil, etc. However if you are more intrigued in adding fish oil into your diet, keep an eye out for fish supplements in the pharmacy aisle! A dosage of 500mg of EPA and DHA per 1000mg of fish oil is considered ideal. Be picky with the type you pick, consider freshness, purity, form, concentration, timing and sustainability. Cheaper is not always better when it comes to what you put in your body!

Bottom line...

If you're looking to improve your overall brain health and mental health as well as feel better in your body, strongly consider incorporating an increased omega 3 fatty acid diet in your life, more specifically fish oil. The only way to benefit properly from this product is to be knowledgeable about it, through science and research, and use it as a responsible, regular biohack. :)



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

— Matshona Dhliwayo





OCCLUSION TRAINING: DOES IT ACTUALLY WORK?

There are many biohacks out there that can help you improve your muscle gains at the gym. Many of these are backed up by scientific evidence that corroborate their benefits. One biohack that has been rapidly gaining popularity over the years is occlusion training.

Let's examine this technique in more detail and the science behind it.

What is Occlusion Training?

If you are hearing about occlusion training for the first time, you may be puzzled as to what it refers to. "Occlusion" is the process of blocking or closing a blood vessel. Therefore "occlusion training" or "blood flow restriction" training refers to temporarily blocking blood flow during exercise.

This technique was first discovered by Dr. Yoshiaki Sato in 1966 while he sat for an extended period of time at a Buddhist ceremony in Japan. Sato noticed his legs had gone numb

after sitting in a traditional Japanese posture for so long, and that he was having difficulty standing afterwards. The young doctor began massaging his legs and noticed that the lack of blood flow to his legs was causing his difficulty and discomfort. He then spent many years experimenting with blood flow restriction and its potential muscle building benefits.

Basic occlusion training aims to restrict blood flow to a particular muscle to boost your muscle building gains. Avid occlusion trainers often use special elastic or pneumatic cuffs to reduce blood flow back to their hearts. This concentrates more blood in their muscles during training.

The Rationale Behind Occlusion Training

So why would a technique this strange work for muscle building? After all, your heart pumps more blood to your muscles when you need to muster extra strength. It is believed that blocking blood flow back to your heart increases your blood's lactate concentration. The net effect of this is being



“Avid occlusion trainers often use special elastic or pneumatic cuffs to reduce blood flow back to their hearts. This concentrates more blood in their muscles during training.”

able to perform low intensity workouts but with the benefits associated with a more intense workout.

Scientific Evidence for Occlusion Training

Occlusion training has been studied extensively for many decades. Most of these studies involve participants restricting blood flow to their muscles using cuffs or tourniquets on their limbs before exercising.

Many of these [studies](#) have been compiled together, and the evidence does show that occlusion training offers muscle building benefits. 78% of these studies found that participants' strength increased after blood flow restriction training. 50% of the studies also noted a significant increase in muscle size.

Is Occlusion Training Safe?

It is always important to assess the safety of any training method before attempting it. All workout techniques carry some risk with them, and occlusion training is no different.

Blood Clots

Some medical experts have expressed concern about occlusion training potentially causing blood clots. Blood clots can arise when there is too much pressure in your blood vessels. These blood clots can be fatal if left untreated, which has made some people weary of occlusion training.

The good news is that there is no evidence linking occlusion training and the formation of blood clots. However, you should still be careful when trying this technique.

Nerve Damage

Placing tourniquets around certain limbs is believed to cause nerve damage. This can result in problems such as nerve palsies. However, it is believed that you can avoid nerve damage by limiting tourniquet placements to your upper arm and upper thigh, and by using safe blood flow restriction pressures.

Occlusion Training in Physical Therapy

As you can see, occlusion training can be relatively safe when performed under the right conditions. In-fact, occlusion training is growing in popularity as a physical therapy method for post-surgery recovery. One [study](#) cites its effectiveness for patients after knee-surgery.

How to Start With Occlusion Training

If you are interested in giving occlusion training a go, you should follow these steps.

Warm-Up Properly

It is important to perform a warm up exercise before restricting blood flow to any limb. You should try light warm-up exercises

such as cardio, followed by 10 to 15 reps with the weight you intend to use once you have restricted blood flow.

Restrict Blood Flow

The next step is to restrict blood flow to your desired limb. For the upper body, it is recommended to place the strap or cuff just below the armpit. For lower body workouts, you can set the strap or cuff at the top of your thigh.

You can also purchase special equipment for this such as compression bands, blood flow restriction bands, occlusion cuffs, or digital blood flow restriction cuffs.

It is difficult to say which of these options is best. However, the digital blood flow restriction cuffs allow you to monitor and adjust your pressure according to your needs. This may help protect you from using dangerously high cuff pressures.

Moderate cuff pressure is around 120mmHg, while inflatable sports rehabilitation tourniquets use pressures between 90 and 150mmHg.

Training Technique

Once you have applied your cuffs you can start your exercise sets. Your first set should comprise 30 reps with a load of 20% to 30% of your one rep maximum (1RM). This should be followed by three sets of 15 reps. You should rest for 30 to 60 seconds between each set.

Adding Occlusion Training to Your Workout Schedule

Occlusion training is especially popular with people who perform high intensity resistance training (HIRT). Such fitness enthusiasts often do low intensity resistance training (LIRT) with the help of blood flow restriction on low-load training days. So if your workout routine for the week consists of HIRT three times a week, you can add LIRT with blood flow resistance training on two other days.

As you can see, occlusion training offers many muscle building benefits. So if you are looking to make some extra gains at the gym without putting in too much extra effort, occlusion training may be just the biohack you have been waiting for.



DOES MEDITATION IMPROVE EXERCISE PERFORMANCE?

It's no secret that every fitness enthusiast out there wants to improve their workout performance. Some wish to hit a certain goal for the number of reps they can do, while others want to break their personal record for deadlifts. There are many biohacks out there to help you improve your exercise performance. This includes taking supplements, following specialized diets, and training in controlled environments.

Another biohack that may also help improve your exercise performance is meditation. Let's take a closer look at this practice and the science behind the claim.

What is Meditation?

Chances are that you know at least a few people who engage in meditation regularly. This practice is thousands of years old and has been present in many different cultures around the world. So what exactly is meditation?

It is defined as a practice that uses different techniques such as mindfulness and focus, coupled with breathing to train your mind and achieve mental clarity.

General Benefits of Meditation

Before we look at the link between meditation and exercise performance, it is worth learning about the general benefits this practice offers.

Stress Reduction

A significant number of individuals meditate regularly because it helps reduce stress. This is backed up by [studies](#) that have found meditating for a few minutes each day reduced participants perceived stress in their day to day lives.

This may also imply that regular meditation can help you take on more stress without feeling as worn down.

Helping With Anxiety

Anxiety is a common condition that affects millions of people around the globe. One type of anxiety known as generalized anxiety disorder (GAD) can create persistent feelings of worry, even when stressors aren't present.

Studies have found that patients with GAD experienced a reduction in their symptoms after performing mindfulness meditation regularly.

Assisting With Depression

People with depression often experience symptoms such as low mood or fatigue. This condition is usually managed with the help of therapy and/or medication. However, there is evidence to suggest meditation may also help people with depression manage their condition.

One [study](#) found that Brazilian university students who followed a meditation program for six weeks reported a reduction in depression symptoms. This symptom reduction also persisted for several months for participants who

continued to meditate on their own after the program was over.

Meditation and Exercise Performance

The benefits mentioned above demonstrates how meditation can be a powerful tool for managing various mental health conditions. There is also much evidence to suggest meditation can help with exercise performance. Some reasons why meditation may be helpful in this area include:

Improved Focus

Meditation is great for helping you focus on being present in the moment. Focus is also a vital part of exercise. After all, you may have noticed how difficult it can be to get the most out of your exercise sessions when you are distracted. For example, many athletes have [difficulty](#) performing at their best when they are surrounded by noise from crowds.

This means meditation may help you improve your exercise performance by blocking out external distractions and helping you focus on the task at hand. Whether that is sustaining a plank for a few more seconds, or focusing your energy on completing extra reps.

Increasing Your Pain Tolerance

Much of your exercise performance is tied to your pain tolerance. This makes sense, as it is the buildup of pain and fatigue that forces us to stop an exercise and take a breather. The good news is that meditation can actually increase your pain tolerance.

This is backed up a [study](#) that found that performing mindfulness meditation regularly produces analgesic or pain-relieving effects. Researchers believe that meditation leads to better acceptance of and attention to pain, which results in a higher pain tolerance.

Better Sleep

Getting adequate rest is also important when you are working towards optimizing your exercise performance. It's no secret that athletes have difficulty performing their best when they are short on sleep, or haven't recovered from their workouts earlier in the week. One [study](#) found that the "time to exhaustion" when exercising decreased for athletes who were sleep deprived.

So how does meditation tie into this? Meditation is believed to help [improve](#) sleep quality, especially for people who suffer from sleep disturbances.

What Meditation Type is Best for Enhancing Exercise Performance?

There are many different types of meditation out there. This includes:

Mindfulness meditation

Spiritual meditation

Focus meditation

Mantra meditation

Transcendental meditation

Each of the above meditation types offers mental health benefits. However, the meditation type that may be most useful for athletes that wish to improve their exercise performance is mindfulness meditation.

Mindfulness meditation is a special type of meditation that teaches you to calm your mind and slow down racing thoughts. It can be practiced in any environment as long as it is quiet. You simply need a comfortable place to sit and a few

minutes to allow your mind to get into the zone.

Should You Meditate Before or After Your Workout?

If you are interested in enhancing your workouts with the help of meditation, you may be wondering if it is better to meditate before or after exercising.

The truth is that meditation offers benefits both before and after exercising. If you meditate before hitting the gym, you can benefit from increased focus and relaxation during your workouts. When done right, you may be able to sustain an intense exercise for longer before reaching exhaustion.

Meditating after exercise may not help your exercise performance directly. However, it can help your mind and muscles relax after an intense workout. This cooldown period is important for muscle recovery, which may aid with muscle growth.

As you can see, there is plenty of evidence to suggest that meditation can enhance your workouts. So look up various meditation techniques and see which ones you can incorporate into your routine comfortably.

HOW MINDSET AFFECTS OUR RESPONSES TO FOODS: AMAZING (GHRELIN) EFFECTS!



Mindset is quite literally everything. How we envision the world around us depends entirely on our mental state and vision regarding the world, meaning each and every person's view on things vary. From working out to reading to love, we react to things differently which is what makes friendships so great! All things taken into consideration, understanding that how we feel is unique to each individual, we can understand how our responses to foods are deeply ingrained inside us due to our mindset. Your taste, your opinion, your favorites, the ones you hate, all of these variables depend on your view on them. Let's take a look into the reason we like what we like!

Ghrelin the "Hunger" hormone

The hormone Ghrelin plays a substantial role in where, when and how we eat. Nicknamed the "Hunger" hormone, it's that pit in our stomach we feel after skipping breakfast - Ghrelin is to blame. The hormone travels through your bloodstream in order to send a signal to your brain that you are indeed hungry. It's main function is to increase appetite however it further affects your sleeping cycle, reward seeking behavior, taste sensation and carbohydrate metabolism. The levels of the hormone generally rise before a meal on an empty stomach and lower after filling up your stomach with nutrients. This hormone may seem like a monster ruining all your hard work and standing

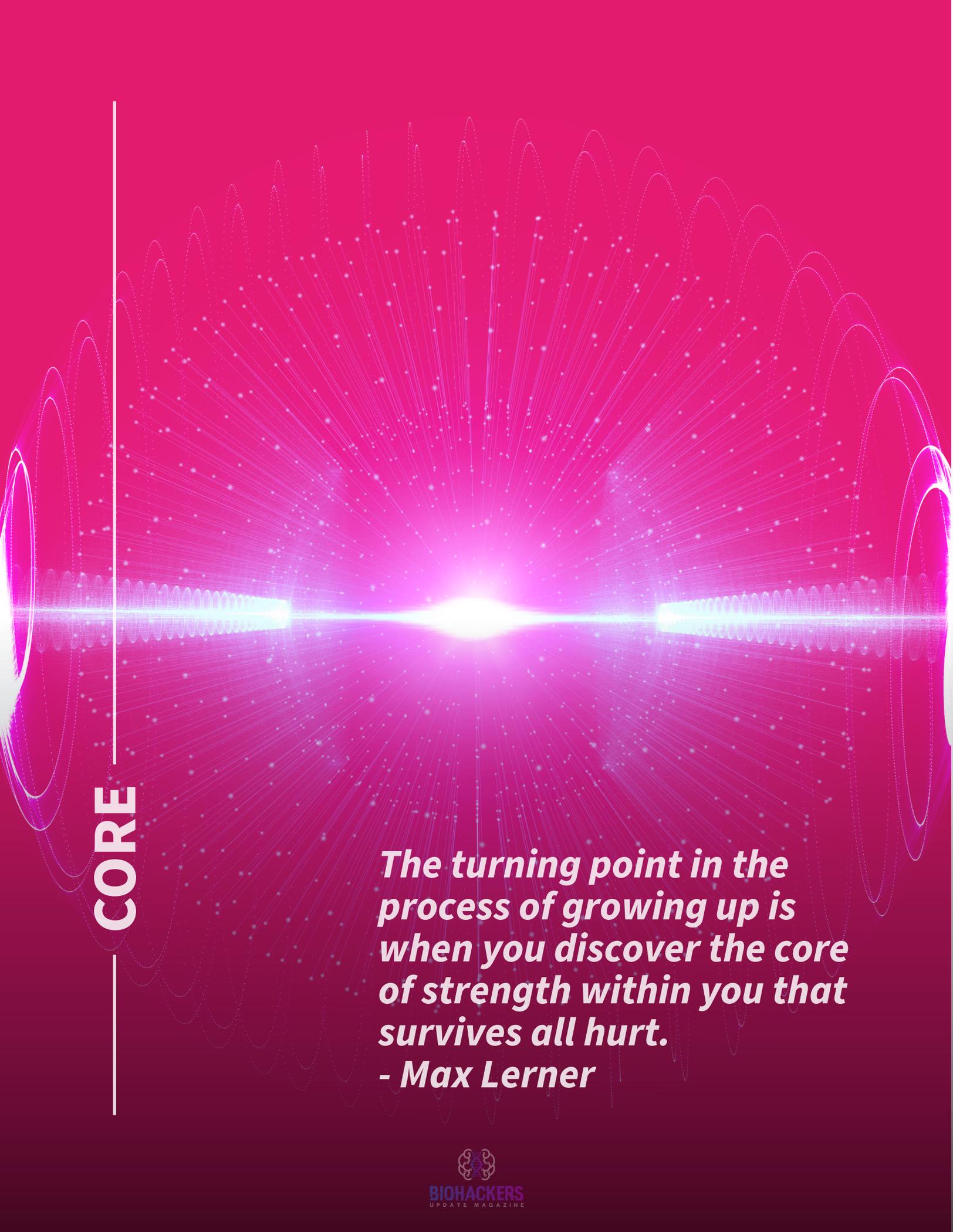
between you and your weight loss goals, however avoiding weight extremes, getting a full night of sleep, increasing muscle mass and protein intake as well as cycling calories can help lower Ghrelin levels in your body.

The Effect of mindset on Hunger (and Vice Versa!)

In the fitness community, we may not agree on everything. There are often disagreements due to everyone's unique perspective and personalities, however, we can all agree on one thing: sticking to a diet is hard. This does not necessarily mean a diet regarding calorie intake; it can also mean choosing every day to be the healthier version of you and to make healthy food choices, maybe even just skipping out on the donuts we are so fond of. Either way, regardless of the dieting choices you feel suit your needs the best, we can all understand the difficulties that come with the challenge of changing the way we live our lives. It is important to use to the full capacity the benefits of a strong mindset when opting towards a change in nutrition, not necessarily to convince yourself you are not hungry as this is deeply detrimental to one's entire wellbeing, but more so to build a stronger will power to stay in alignment with your dieting plan. It is vital to utilize Ghrelin as a tool and not an enemy, working in conjunction with your hunger and choose to satisfy it with the healthy options you are opting for! An example being that when you feel hunger clawing at your insides, instead of suppressing it, opt to fulfill it with a full meal such as chicken breasts, veggies etc. packed with protein instead of reaching for ice cream. Do not resist or fight Ghrelin as hunger can have devastating effects on our body and our mental health such as PTSD, depression, increased risk of chronic diseases, irritability, hyperactivity and aggressiveness. Instead opt for a more gentle approach - you're not competing against your body and understand that you make a team.

To conclude...

Treat your body and mind with respect and you'll receive it back. After all, you are stuck with yourself for the rest of your life so you might as well spend all those years becoming the best version of yourself out there. Challenges are a fundamental part of life with the purpose of serving as a lesson, and who's a better teacher to you than yourself? Change begins on the inside before you can see it on the outside, change your mental diet and observe yourself growing everyday closer to who you truly want to be.

The background features a central bright light source that radiates outwards, creating a tunnel-like effect. The light is primarily yellow and white, with a soft purple and blue glow. Numerous thin, white lines radiate from the center, some forming concentric circles and others forming a grid-like pattern. The overall effect is one of depth and energy.

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



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ZINC & THE MIND

Zinc. It's been one of the most talked about nutrients since the start of the COVID-19 pandemic mostly because of its beneficial role in the health of the immune system. But this nutrient, besides having one of the coolest names (seriously it sounds like the Avenger of the nutrient world), is packed with many other benefits. In this article, we'll look at the particular effects zinc has on the neural pathways and brain function as well as how to get more zinc into our daily lives.

Zinc's neural interaction

To start, let's first look at how zinc works in the human body, particular the neural region. About 2g of Zinc exists in the average adult human body. In the brain, zinc is paired with iron, the most concentrated metal. One can find the most zinc

in the hippocampus in synaptic vesicles, boutons, and mossy fibers. It can also be found in notable levels in the choroid layer of the retina (which is an extension of the brain)). According to one [study](#), Zinc plays an important role in axonal and synaptic transmission and is necessary for nucleic acid metabolism and brain tubulin growth and phosphorylation.

According to James Lake, M.D., a clinical assistant professor at the University of Arizona College of Medicine, Zinc is an essential trace element for normal brain function and may lessen anti-inflammatory effects via several cytokines. This element also has general neuroprotective effects, is involved in hippocampal neurogenesis, and modulates the activity of the hypothalamic-pituitary axis.

What happens when you don't get enough?

[Research](#) shows that the lack of zinc has been implicated in impaired DNA, RNA, and protein synthesis during brain development. This means that as zinc is especially important during pregnancy and the lactation process. Not getting enough of the mineral could have been shown to be related to many congenital abnormalities of the nervous system in offspring. It's also important for growing children to get enough zinc to reduce the risk of learning challenges and lethargy.

But Zinc isn't just important for growing children. It's also essential for us adults and deprivation could mean some serious consequences, many of them mental. The research is still ongoing but one [study](#) claims that there may be a link between low zinc levels and neurological symptoms. Scientists evaluated 63 people who had headaches, tingling, and peripheral neuropathy, as well as deficiencies in zinc and other micronutrients and after treating them for these deficiencies, the participants reported improvements in their neurological symptoms.

There was also a correlation between depression and zinc levels. [Research](#) found that clinical studies have shown beneficial effects of supplemental zinc in depression, also noting that it was important to pursue research using zinc as a potential therapeutic option for psychosis as well.

This study also says that many other factors can impact zinc's level of absorption and therefore effectiveness, so it's really important to watch what we're intaking in terms of food and medicine. For example, a list of medications commonly administered to psychiatric patients, including anticonvulsants, oral medications for diabetes, hormones, antacids, anti-inflammatories and others also impact zinc absorption.

So now that we see how important zinc is for the mind, two questions remain:

1. How much do we need?

And

2. Where can we get it?

Take a look at the charts from the National Institute of Health on the next page.

Supplementation

Zinc can come in many forms when in a supplement. The most well-known are zinc gluconate, zinc sulfate, and zinc acetate. The percentage of elemental zinc varies by form. For example, according to the National Institutes of Health, approximately 23% of zinc sulfate consists of elemental zinc; thus, 220 mg of zinc sulfate contains 50 mg of elemental zinc. The research behind the effectiveness of absorption behind each form is still just scratching the surface, so do your own research to see which works best for you.

Keeping a sharp mind is important in today's world of stop and go. Allow yourself to think with power. Zinc-up and give yourself the peace of mind that your brain and neurological system is in the loving hands of its good pal, Zinc.

Table 1: Recommended Dietary Allowances (RDAs) for Zinc
[\[2\]](#)

Age	Male	Female	Pregnancy	Lactation
0–6 months	2 mg*	2 mg*		
7–12 months	3 mg	3 mg		
1–3 years	3 mg	3 mg		
4–8 years	5 mg	5 mg		
9–13 years	8 mg	8 mg		
14–18 years	11 mg	9 mg	12 mg	13 mg
19+ years	11 mg	8 mg	11 mg	12 mg

* Adequate Intake (AI)

Food	Milligrams (mg) per serving	Percent DV*
Oysters, cooked, breaded and fried, 3 ounces	74.0	673
Beef chuck roast, braised, 3 ounces	7.0	64
Crab, Alaska king, cooked, 3 ounces	6.5	59
Beef patty, broiled, 3 ounces	5.3	48
Lobster, cooked, 3 ounces	3.4	31
Pork chop, loin, cooked, 3 ounces	2.9	26
Baked beans, canned, plain or vegetarian, ½ cup	2.9	26
Breakfast cereal, fortified with 25% of the DV for zinc, 1 serving	2.8	25
Chicken, dark meat, cooked, 3 ounces	2.4	22
Pumpkin seeds, dried, 1 ounce	2.2	20
Yogurt, fruit, low fat, 8 ounces	1.7	15
Cashews, dry roasted, 1 ounce	1.6	15
Chickpeas, cooked, ½ cup	1.3	12
Cheese, Swiss, 1 ounce	1.2	11
Oatmeal, instant, plain, prepared with water, 1 packet	1.1	10
Milk, low-fat or <u>non fat</u> , 1 cup	1.0	9
Almonds, dry roasted, 1 ounce	0.9	8
Kidney beans, cooked, ½ cup	0.9	8
Chicken breast, roasted, skin removed, ½ breast	0.9	8
Cheese, cheddar or mozzarella, 1 ounce	0.9	8
Peas, green, frozen, cooked, ½ cup	0.5	5
Flounder or sole, cooked, 3 ounces	0.3	3



DON'T MAKE THESE THREE CRUCIAL MISTAKES ON YOUR JOURNEY TO HUMAN OPTIMIZATION

The self-improvement and biohacking industries make billions of dollars each year selling products and services that will help you “upgrade” yourself. Oftentimes, they can actually do the opposite and set you back even further.

The reason being that aspiring biohackers often fall into one of these three traps:

1. *Self-improvement is all about learning.*

Learning is always a good thing, but buying info products that will only collect dust on your bookshelf and never help you convert what you learned into action does nothing.

A meta-analysis of 400 studies conducted by scientists from UNC and the University of Sheffield found that ONLY 50% of our intentions ever get implemented.

2. *Following experts will give you the same results.*

We are all made different. No matter how rich or successful someone is, something that works for them may not work for you. It may be a good starting point, but you need to optimize something for you and your genetic makeup.

According to recent research by University College London, even a well regarded habit like meditation can cause negative effects like fear, panic, and distorted emotions for as much as 25.6% of practitioners.

3. *Positive thinking and the Law of Attraction will help you to achieve your goals.*

There is nothing wrong with having a positive mindset, but you need a routine to put into action in order to achieve your goals.

A study by the University of Kentucky and the Alpert Medical School of Brown University, found that motivation alone is not enough in order to be consistent in your actions. There are other critical factors.

On the surface, these things may seem like they are the keys to upgrading yourself, but as you can see, they can have negative or adverse affects on you.

To be the most successful version of you, you need a system that you can easily stick with and continuously optimize. This will allow you to become the best version of yourself.

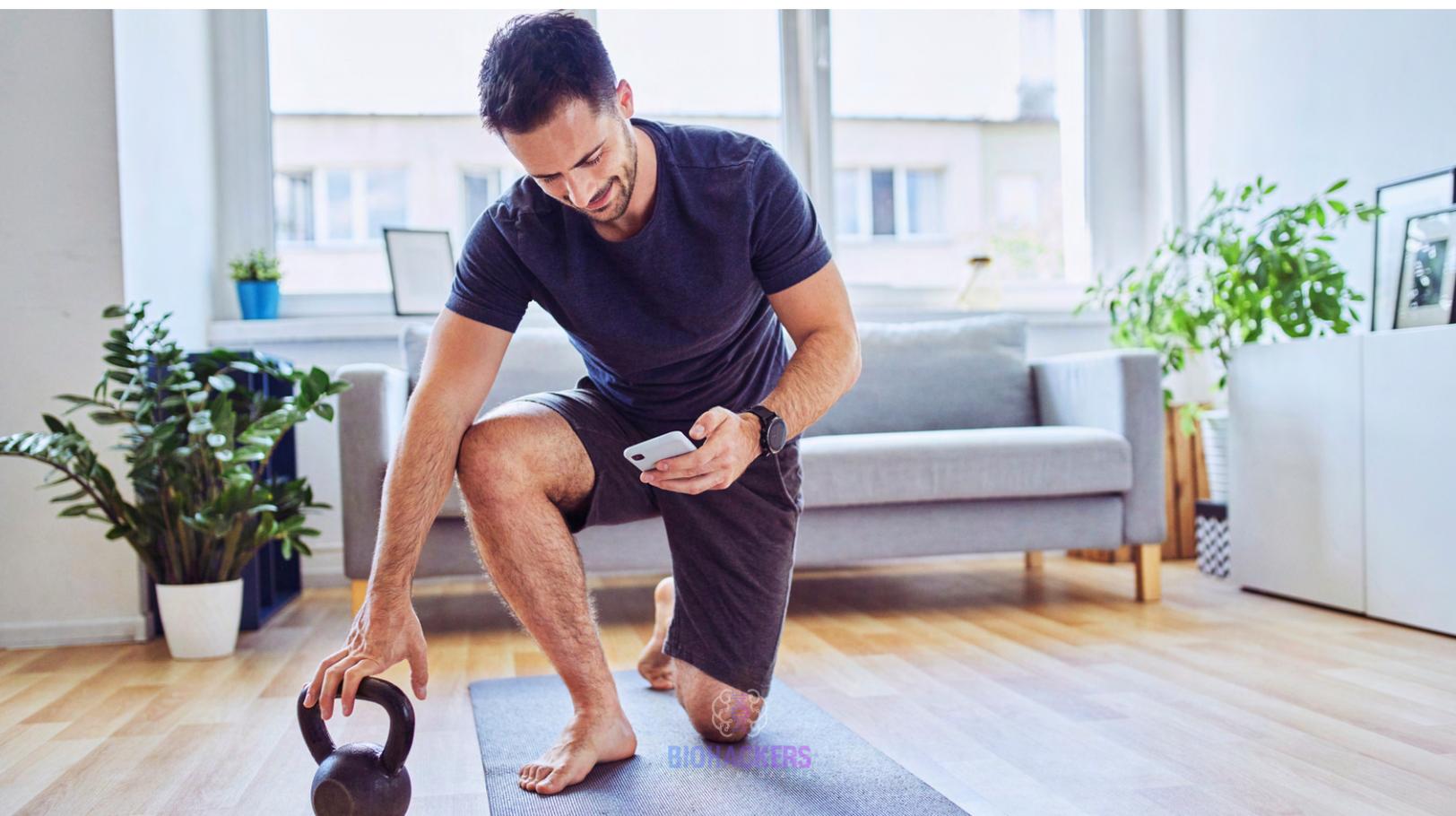
Improving yourself isn't easy. It takes hard work, discipline, and time. Time researching and trying to determine what routines, foods, and activities work best for you. But what if it was easier than that? What if there was an app that was specifically designed to create this system and hold you accountable to it? An app that was designed to bridge the gap between implementation and action to create the best version of yourself? Ultiself is that app.

Designed by Ph.D. level scientists and backed by successful entrepreneurs, Ultiself is the ultimate biohacking app. By understanding that 90% of our daily actions are habit based, Ultiself hacks into your individual habits and creates the optimal routine to help you reach the most successful version of yourself.

It's as simple as logging into the app and inputting the areas in which you want to improve. Ultiself's AI will kick in and make suggestions for habits and routines that will make the greatest impact based on those areas. Over time it will further optimize your routine, make habit suggestions, and even help you identify your chronotype by providing you with your ideal bed and wake up time.

"It's like having a mentor in my pocket." - David Busch, satisfied customer.

Whether your goal is weight loss, improving your athletic performance, or launching your own business, Ultiself is the most efficient way to reach your goals. After all, our habits lead to actions and our actions lead to results.



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ACKNOWLEDGMENTS

There is so much support behind our cause and we are eternally grateful. As a new company fresh off the block, we've had our fair share of challenges but because of all of our supporters, we've overcome them and produced, becoming more humble and stronger along the way. Our many Thanks to all those who made this possible:

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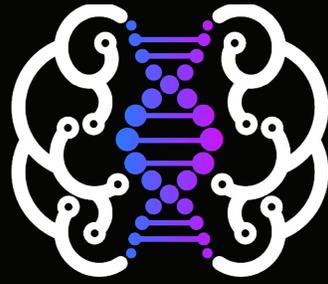
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Designer, Viviana Castro

GENERAL ACKNOWLEDGMENTS:

Many many thanks to our partners, kids, friends & family who all had to suffer because of the long hours we put into building this magazine.

Also we of course have to thank our subscribers, readers and followers on social media for supporting us along the way! You all ROCK!



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INFORMED, IMPROVED, INSPIRED

**Every Decision We Make, Conscientiously
or Unconscientiously Impacts our Life
Start to Be A Better Version of You**

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