



# BRAIN REGENERATION GUIDE

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# BRAIN REGENERATION CAN YOUR BRAIN HEAL ITSELF?

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## Brain Cell Regeneration

Brain regeneration is an important concept that is critical in today's environment. Your brain is the command center of your nervous system and the center of all of your body's functions and systems. The health of your brain is essential for your memory, learning, mental energy, and mood, and the prevention of mental health issues and neurodegenerative disorders.

Even though most of your brain cells are formed in the womb and during infancy, new research suggests that your brain is able to regenerate and create new cells throughout your life. This means that you can keep your brain health, mental energy, and memory even as you age.

In this document, you will learn what brain regeneration, BDNF and neuroplasticity are and why are they important for brain health. You will understand the most common things that can damage your brain. I will also share 12 powerful ways to heal your brain cells and support your brain health naturally.

# NEUROPLASTICITY

THE ABILITY OF THE BRAIN TO REORGANIZE ITSELF,  
BOTH IN STRUCTURE AND HOW IT FUNCTIONS

Scientists used to believe the brain was hardwired. We used to think after childhood, you could not repair, regenerate or replace damaged brain cells. Now, we know the brain can change its structure based on how we use it, the structure of the brain and the nutrition we provide.

## HOW THE BRAIN CHANGES



### NEUROGENESIS

Continuous generation of new neurons in certain brain regions



### NEW SYNAPSES

New skills and experiences create new neural connections



### STRENGTHENED SYNAPSES

Repetition and practice strengthens neural connections



### WEAKENED SYNAPSES

Connections in the brain that aren't used become weak

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## What is Brain Regeneration?

Your brain is one of your most important organs. It is the center of all of your body's functions and systems. It serves as a command center for your nervous system that perceives stimuli, activates responses, and obtains and sends signals across your body to keep you safe and healthy. Your brain is also the place where your memory is stored and learning, cognition, and individual growth is happening.

Clearly, the health of your brain is critical and should be protected. You may think that it is normal for your brain to decline with age, however, that is not necessarily the case. Nutrition, lifestyle habits, and other factors all affect your brain health. More importantly, and contrary to old beliefs, your brain is able to generate new brain cells.

# NEUROPLASTICITY

The brain's ability to adapt, rewire and regenerate itself can take place when physiological changes occur to



DNA Regulation & Transcription



Microglia Activity



Membrane Bound Ion Channels



Neurotransmitters



Hormone Activity



Dendritic Spines

Our thoughts, life experiences, nutrition, age and continual patterns all impact these physiological mechanisms.

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## How Brain Regeneration Works

Most of your brain cells are formed while you were in your mother's womb. Other neural cells of your brain developed during infancy. Until recent decades, doctors believed a certain level of brain degeneration is inevitable because your brain had a limited capacity to regenerate. Now we know better.

New research from the last two decades suggests that your brain is actually able to create new cells throughout your lifespan and brain regeneration is possible. Your brain actually still creates about 700 new neurons per day in the hippocampus. This allows the hippocampus to maintain its central function.

The science of neurogenesis suggests that aerobic exercise, brain exercises, stress relief, and other lifestyle habits can encourage brain regeneration, improve your brain health, and may help to prevent or treat degenerative diseases, such as Alzheimer's and Parkinson's disease, or reverse damage from traumatic brain injury (1, 2, 3, 4, 5, 6).

# NEUROPLASTICITY CAN RESULT FROM:



Stressful  
Circumstances



Social  
Interactions



Traumatic  
Events



Emotions



Meditation  
& Prayer



New Experiences



Exercise



Nutrition



Learning Activities



Daily Thoughts

## **"Neurons That Fire Together, Wire Together"**

We can rewire our brain for the better through positive inputs into each of these areas. We can also wire our brain for pain, negativity and degeneration through negative inputs in these areas.

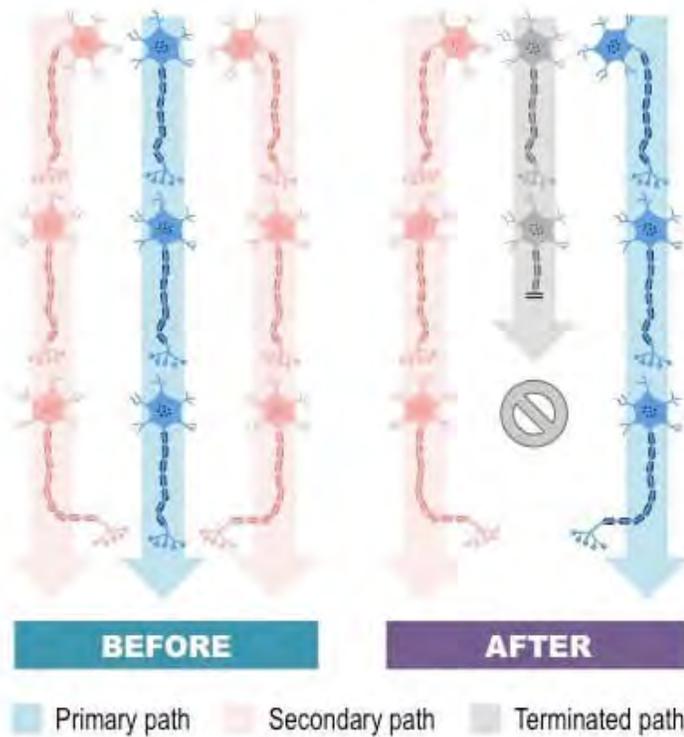
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## BDNF and Synaptic Plasticity

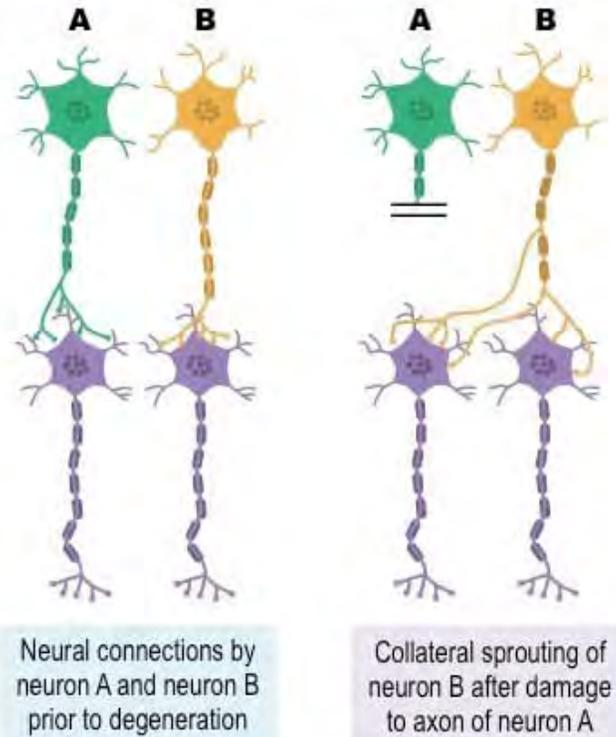
Brain-derived neurotrophic factor or BDNF is a protein produced inside your nerve cells to help your brain to communicate and function properly. It protects neurons, encourages their growth, improves their functions, and helps them to survive by protecting them from premature cell death. It also strengthens the signal between neurons by binding to the receptors at the synapses.

BDNF is essential for optimal brain function and a key player in brain regeneration. It plays an important role in learning and memory. It regulates various body functions, including eating and drinking.

**Rerouting:** New connections are made between active neurons to create alternate neural pathways



**Sprouting:** New axon and dendrite extensions allow existing neurons to form new connections

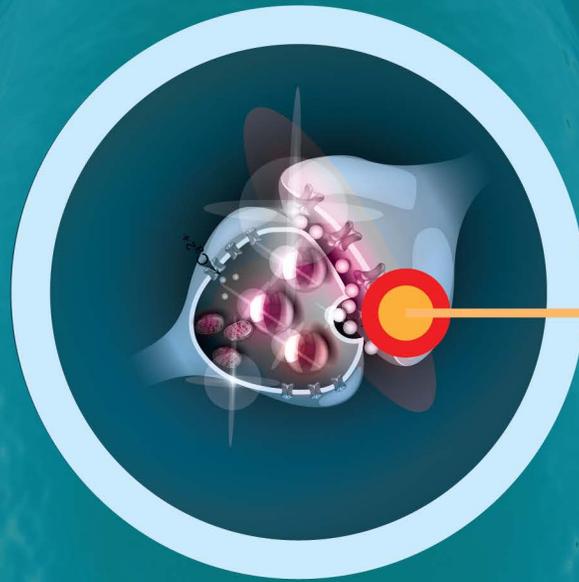


## Brain Regeneration and Synaptic Density

Synapses are junctions between neurons that allow communication. Synaptic plasticity is the change that happens at synapses and affects the quality of the communication between two neurons. Short-term synaptic plasticity is a rapid, sub-second change that reverts to normal quickly.

Long-term synaptic plasticity is a longer change that may last for minutes, hours, days, or years. Long-term synaptic plasticity is critical for our brain's ability to store information and for our memory.

Research has shown that BDNF is critical for long-term enhancement of synaptic efficacy. It improves neural development and synaptic plasticity, hence it may lower the risk of neurodegenerative and psychiatric disorders, such as dementia, Alzheimer's disease, Huntington disease, and depression (7, 8, 9, 10, 11, 12, 13).



# Neuroplasticity

The ability of the brain to rewire and rebuild itself to form new neural networks and reinforce familiar neural connections.

Why should you care about your

**BDNF** ?

Brain Derived Neurotrophic Growth Factor is a key neurochemical responsible for the growth and maintenance of neural connections.

- **BDNF** helps your brain adapt & learn
- Improves all forms of plasticity

## YOU control your **BDNF** levels

### Nutrition

Sugar reduces BDNF Levels while fasting. Ketosis and Omega-3 fatty acids improve BDNF levels.

### Sleep

Poor Sleep reduces BDNF Levels.

### Exercise

Movement and exercise at any age improves BDNF levels.

### Chronic Stress

Imbalances in cortisol and adrenaline lower BDNF levels

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# BRAIN

## DEGENERATION

### Causes, Symptoms & Solutions

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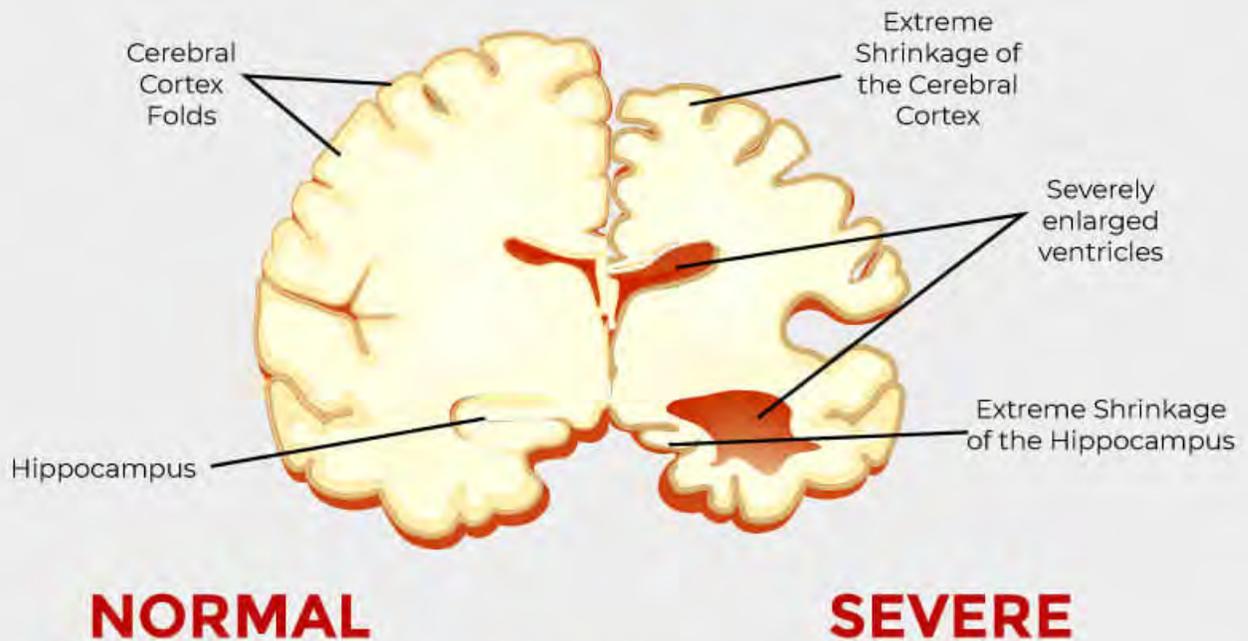
## Brain Degeneration: Causes, Symptoms & Solutions

Your brain is a powerful organ. It is the command center of your nervous system and the center of all of your body's functions and systems. It's responsible for your memory, learning, mental energy, and mood. Yet, brain degenerative disorders are rampant in our world. In the US alone 5 million people are dealing with Alzheimer's disease, and that's just one form of brain degeneration.

Brain degeneration is clearly a serious issue and its symptoms, including memory problems, confusion, and mood changes can be quite scary. Chances are, you want to avoid these symptoms, protect your brain, and stay mentally sharp, preserve your memory, and have a good mood for the rest of your life. Thankfully, there are some natural strategies that can help you with that.

# THE PROCESS OF BRAIN DEGENERATION

The brain is very susceptible to chronic inflammation. Over the long-term, chronic inflammation chews up and destroys neuronal tissue and leaves the brain weak and impaired. This is a 30+ year process that gradually degenerates the brain tissue.

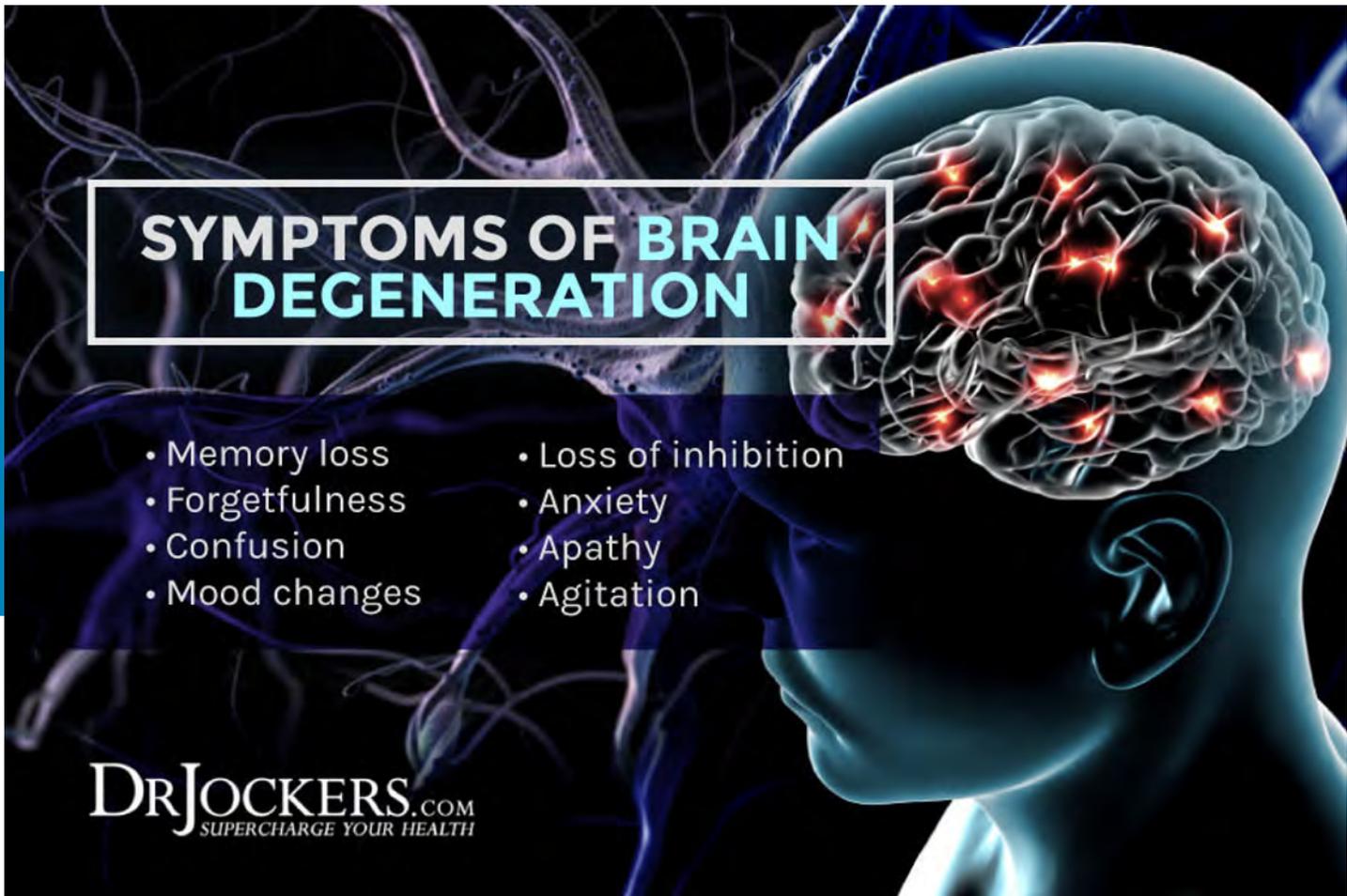


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## What Is Brain Degeneration?

Brain degeneration is a serious problem that our aging society is facing today. Neurodegenerative or brain degenerative diseases cause brain and nerve deterioration over time. They lead to memory issues, confusion, personality changes, and other symptoms depending on the type of brain degeneration. Some brain degenerative disorders, such as dementia, Alzheimer's disease, and Parkinson's disease develop and worsen overtime as you age, while others, such as Tay-Sachs disease are genetic and develop at an earlier age.

Brain degenerative problems are on a rise. About 5 million people are affected by Alzheimer's disease, 1 million with Parkinson's disease, 400,000 with multiple sclerosis (MS), 30,000 with Huntington's disease, and 30,000 with amyotrophic lateral sclerosis (ALS) in the United States alone (14, 15, 16)



## SYMPTOMS OF BRAIN DEGENERATION

- Memory loss
- Forgetfulness
- Confusion
- Mood changes
- Loss of inhibition
- Anxiety
- Apathy
- Agitation

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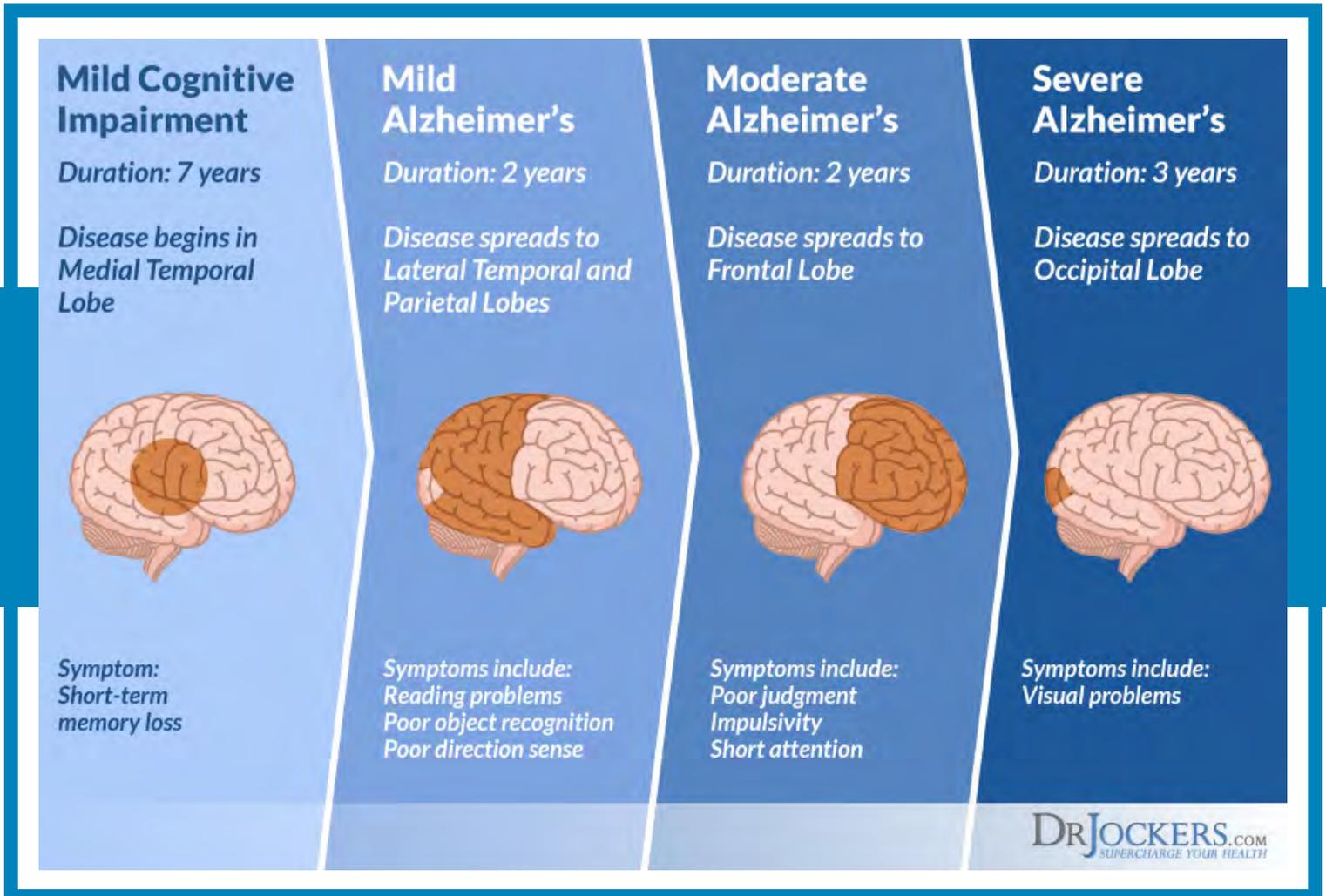
## Major Symptoms of Brain Degeneration

Symptoms of brain degeneration may depend on the type of neurodegenerative disorder you may be experiencing. Common symptoms include:

- **Memory loss**
- **Forgetfulness**
- **Confusion**
- **Mood changes**
- **Loss of inhibition**
- **Anxiety**
- **Apathy**
- **Agitation**

New symptoms can develop and symptoms usually get worse over time as the condition progresses. There is currently no cure for neurodegenerative diseases, however, early diagnosis and treatment can be highly beneficial.

Traditional treatment involves medication and behavioral management, however, natural treatment methods, including diet and lifestyle changes may improve the condition or delay symptoms significantly. These dietary and lifestyle strategies are also an absolute key to preventing brain degeneration. Before we dive into natural solutions for brain degeneration, let's discuss some of the major causes of brain degeneration (17, 18).



## Major Causes of Brain Degeneration

To prevent and treat brain degeneration effectively, first, you have to understand the factors that affect your brain health and may lead to brain degeneration. Most people are doing things every day that are progressively degenerating their brain and they don't know this is happening.

Your diet, lifestyle, and overall health all affect your brain health. Let's take a look at the major causes of brain degeneration.

# MAJOR CAUSES OF BRAIN DEGENERATION

- Blood Sugar Imbalances
- Environmental Toxicity
- Sedentary Lifestyle
- Chronic Stress & Poor Sleep
- Chronic Infections & Dysbiosis

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## Blood Sugar Imbalances

When you hear the term blood sugar imbalances, you probably think about diabetes. Blood sugar imbalances, however, not only increase your risk of diabetes but also compromise your brain health. If your diet is high in processed carbs and refined sugar and low in vegetables, healthy fat, and clean protein, you are setting yourself up for blood sugar imbalances.

Blood sugar imbalances may lead to memory issues, brain fog, irritability, mood fluctuations, lightheadedness, cravings, and fatigue. Eating a high carb quick snack or meal may give you a burst of energy, but it will also lead to a sugar drop soon after characterized by brain fog and tiredness (19, 20).

## Blood Sugar and the Brain

Medical researchers are connecting the dots between diabetes and the risk of Alzheimer's.

### CONDITION

### RESULT

Type 2 diabetics with an average blood glucose level of 190 mg/dl...

...Had a 40% higher risk of dementia than diabetics with an average blood glucose level of 160 mg/dl

Middle-aged Type 1 diabetics...

...Had higher rates of brain lesions and slower cognitive function than people without Type 1 diabetes

Experiencing an episode of extremely low blood sugar, or hypoglycemia requiring medical attention...

...Was associated with a two-fold increase in the risk of Alzheimer's disease

NEJM; Neurology; JAMA Internal Medicine

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## Environmental Toxicity

Toxins are unfortunately all around us in our polluted air, municipal tap water, non-organic and processed foods, plastic products, moldy indoor spaces, and conventional beauty, body, and household products. The problem is that all these environmental toxins may have a serious impact on our brain and overall health.

Neurotoxins, such as ethanol (in alcohol), glutamate, mycotoxins, nitric oxide, botulinum toxin (in Botox), tetrodotoxin, and tetanus toxin, are particularly damaging to your neurological functioning. Environmental toxicity may lead to memory problems, brain fog, dementia, neurodegenerative diseases, mood swings, irritability, fatigue, anxiety, depression, and mental health issues (21, 22, 23).

# NEUROTOXINS THAT DAMAGE THE BRAIN



MERCURY



LEAD



ALUMINUM



ARSENIC



EXCESSIVE  
ALCOHOL & ILLEGAL  
PRESCRIPTION DRUGS



FLUORIDE



DDT/DDE



PESTICIDES/  
HERBICIDES



POLYCHLORINATED  
BIPHENYL'S (PCB'S)



ASPARTAME



MONOSODIUM  
GLUTAMATE (MSG)



FLAME RETARDANTS  
(PBDE'S)



POLYCYCLIC  
AROMATIC  
HYDROCARBONS

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## Sedentary Lifestyle

You may think that exercise and movement are only important for your physical strength, toned look, or cardiovascular fitness. The truth is that they are critical for your brain health as well.

Regular movement is especially crucial for the areas of your brain that are important for memory formation. Leading a sedentary lifestyle may increase your risk of memory problems, learning troubles, and cognitive decline (24, 25).

# 7 MAJOR HEALTH PROBLEMS OF A SEDENTARY LIFESTYLE



## CHRONIC ORGAN DISEASES

Due to reduced fat burning capacity, the risk of fatty liver disease, high blood pressure, cardiovascular ailments, digestive problems rises.



## LOWER BACK PROBLEMS

Sitting for longer period with arms bent at right angles and flat feet and a slouched back results in herniated lumbar disks and stiff psoas muscles.



## DECREASED BRAIN FUNCTION

It affects the performance of Brain-Derived Neurotrophic Factor (or BDNF) and leads to reduced concentration levels, forgetfulness and confusion.



## BLOOD CLOTS

Sitting at a desk or couch for along time period can lead to severe deep vein thrombosis (DVT) caused due to reduced blood circulation.



## MUSCULAR DEGENERATION

You also run the risk of weakening your abdominal muscles, upper and lower spine, neck and shoulders.



## MISALIGNMENT OF THE SKELETON

Your posture suffers a lot and it leads to permanent misalignment and repetitive stress injuries.



## CHRONIC FATIGUE

When you don't move your body enough on a daily basis, you develop weak and inadequate mitochondria. This results in feelings of fatigue and low energy throughout the day.

## Chronic Stress and Poor Sleep Habits

The amygdala in your brain is responsible for emotional processing. When you are under stress, your amygdala signals your hypothalamus which is response will increase your heart rate, heightens your senses, leads to heavier breathing and greater oxygen intake, increases cortisol levels and rushes adrenaline across your system. The problem is that if you are experiencing chronic stress, this stress response never ends which leads to cortisol build-up.

Cortisol is not only important for your stress response, but it also helps your hippocampus, the part of your brain where your memories are processed and stored. When there is too much cortisol in your system due to chronic stress, it can wear your brain down. It can impair brain and memory function, disrupt synapse regulation, and kill brain cells. Chronic stress has a seriously negative effect on your memory and learning and increases your risk of brain degeneration (26, 27, 28).

If you are experiencing poor sleep on a regular basis, it may have a serious impact on your brain and overall health. Poor sleep may increase the likelihood of chronic stress, high cortisol, fatigue, and chronic inflammation. These factors may contribute to brain fog, memory troubles, learning difficulties, mood swings, and low mood. Sleep deprivation may also increase the risk of dementia, Alzheimer's disease, and other neurodegenerative diseases (29, 30, 31).

# SLEEP ALLOWS YOUR BRAIN TO DETOX

Science is showing that sleep is critical for your brain cells to do the following:

- Detoxify Metabolic Waste
- Get Rid of Dysfunctional Neuronal Cells
- Rebuild New Neuronal Connections
- Reset the Balance of Neurotransmitters
- Improve Neurotransmitter Receptor Sensitivity

These 5 processes are key for the formation of both short and long-term memory and for smooth cognitive processing. Poor sleep is associated with brain fog and mood problems when we are young and accelerated cognitive decline when we are older.

Special nervous system cells called "glial" cells rush in to scavenge additional waste in and around the brain cells.



The glymphatic system flushes out dirty fluid and molecules from inside the brain tissue through a network of pathways. Clean cerebrospinal fluid replaces it.



Brain cells perform autophagy ("self eating"), mopping up diseased and damaged bits of protein and metabolic waste



Lymphatic vessels surrounding the brain deliver the waste to the lymphatic system, which rids the body of toxins, waste and other unwanted material.



## Gut Infections and Dysbiosis

Again, if you think about your gut health, your brain may not be the first thing that comes to mind. However, there is a clear and strong connection between your gut and brain health. Just think about it. Before a speaking engagement, new date, or any other important event, you may experience gut problems or at least butterflies in your stomach.

This connection between your gut and brain not only happens when short-term exciting or stressful events occur, but the communication between these two organs is on-going, long-term, and intimate. Gut dysbiosis and gut infections lead to an imbalance in your entire body and increase chronic inflammation.

Gut microbiome imbalance and consequent chronic inflammation may lead to brain degeneration. They may increase your risk and symptoms of brain fog, memory problems, learning difficulties, cognition, mental health issues, mood imbalances, and neurodegenerative diseases (32, 33, 34, 35).

# GUT-BRAIN AXIS

## HEALTHY CNS FUNCTION

Healthy Gut Function

## SYSTEMIC COMMUNICATION

HPA axis  
Neurotransmitters  
Bacterial Metabolites  
Cytokines

## INFLUENCE ON:

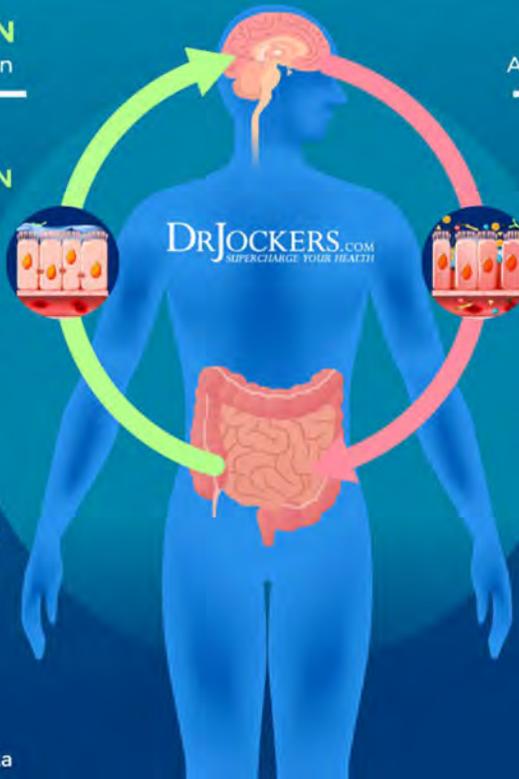
Motility  
Secretion  
Nutrient Delivery  
Microbial Balance

## HEALTHY STATUS

Normal behavior,  
cognition, emotion,  
nociception

Healthy levels of  
inflammatory cells  
and/or mediators

Normal gut microbiota



## ABNORMAL CNS FUNCTION

Abnormal Gut Function

## NEURAL COMMUNICATION

Vagal  
Sympathetic

## INFLUENCE ON:

Neurotransmitters  
Stress/Anxiety  
Mood  
Behavior

## STRESS/DISEASE

Alterations in behavior  
cognition, emotion,  
nociception

Altered levels of  
inflammatory cells  
and/or mediators

Intestinal Dysbiosis

## What Is Brain Autophagy

The word autophagy comes from the Greek word 'auto-phegin' or 'self-eating'. It refers to the process of cellular recycling where the cell itself metabolizes various components in order to reuse them and build new and healthier cell structures.

Your cells contain a number of important components called organelles. When your cells are exposed to stressors, such as nutrient deprivation, they create a double-membrane structure called phagophore. The phagophore is very flexible and able to surround cellular components and deliver them to lysosomes. Lysosomes are unique organelles that are able to degrade particular components by releasing degrading enzymes upon them. The major driver of any autophagy is cellular stress. Your body is seeking balance and homeostasis. When stress, such as nutrient deprivation from fasting or exercise happens, your body needs to prepare for survival. To do this, it breaks down older or damaged cells and cellular organelles to leave room for the creation of new and healthier ones for better energy efficiency.

Brain autophagy refers to the process of autophagy in your brain. It allows the removal of old and damaged brain cells and the creation of new and healthy brain cells. Brain autophagy is essential for memory, cognition, and brain health, and may help to reduce brain degeneration (36, 37, 38, 39).

# AUTOPHAGY

Is the self-devouring mechanism of the body's cells, as a part of the normal physiological process involving cell death and dysfunctional components of the cell.

## 5 BENEFITS OF INDUCING AUTOPHAGY



Healthy Aging



Metabolic Health



Brain Health



Cancer



Heart Health

### NORMAL

Cell grows and divides and engages in all usual cellular functions.

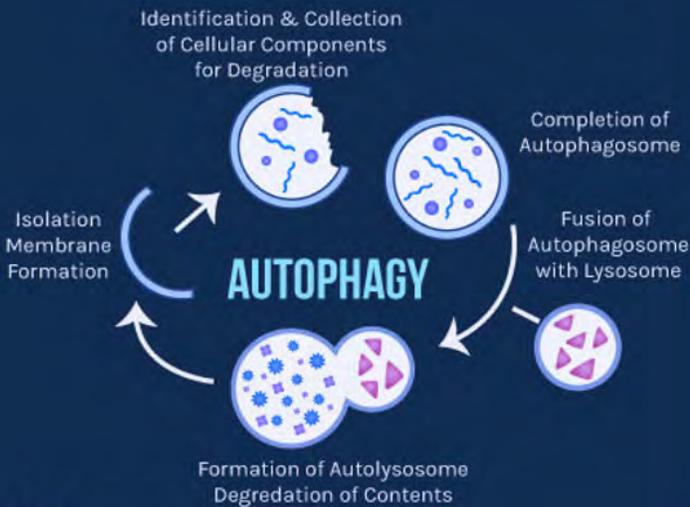
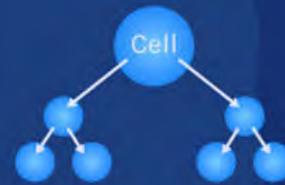
#### FEEDING



### AUTOPHAGY

Growth ceases, the cell instead focuses on internal cleaning.

#### FASTING

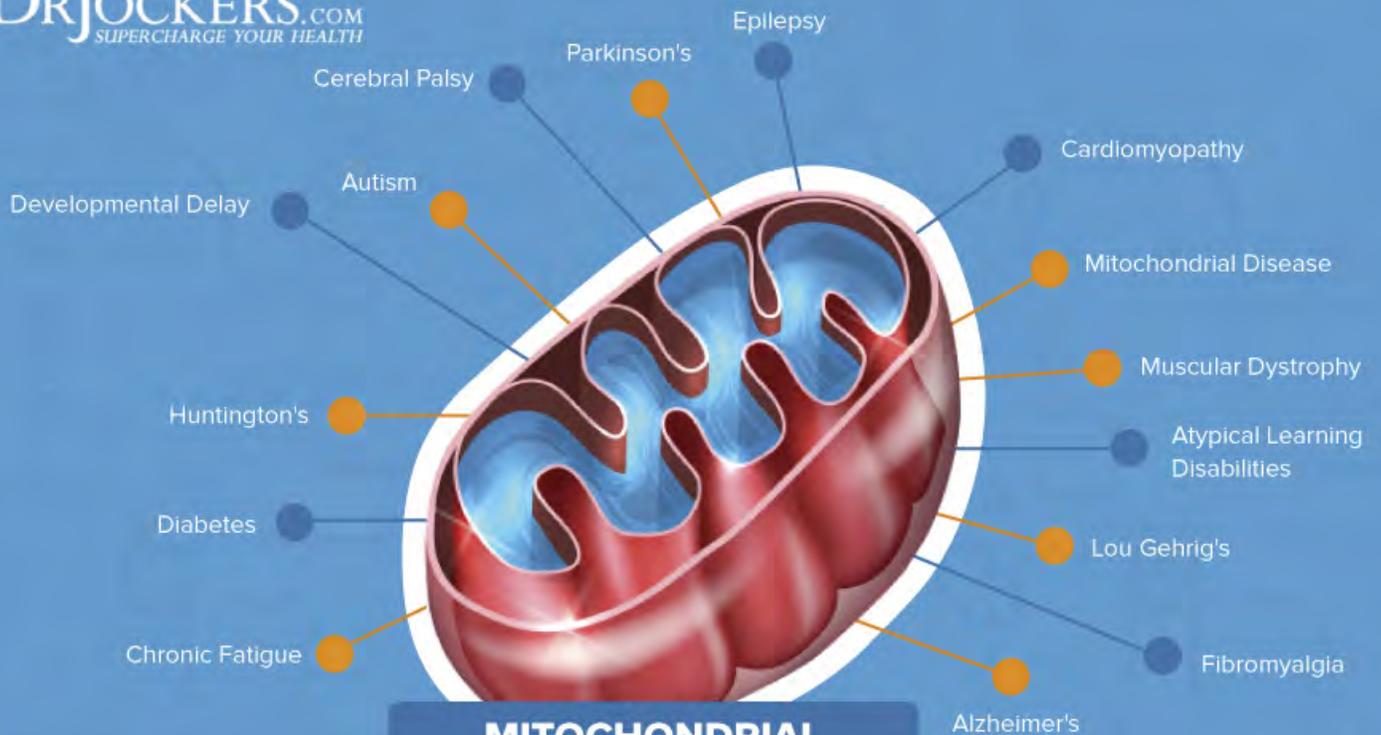


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## Creating Resilient Brain Mitochondria

Did you know that there are 10,000 mitochondria per brain cell? That's a lot of mitochondria to take care of and keep healthy. They are the powerhouse of your brain cells, so their healthy functioning is critical. Mitochondrial dysfunction increases the risk of brain degeneration and brain health problems, so it is incredibly important to keep your brain mitochondria well-functioning.

Mitochondrial biogenesis is when cells increase their individual mitochondrial mass. Mitochondrial biogenesis through diet and lifestyle strategies, such as fasting, exercise, antioxidants, and certain supplements, can help to create resilient brain mitochondria and reduce brain degeneration and neurodegenerative disease (40).



RESEARCH SHOWS THE  
ORANGE ONES ARE MORE  
SIGNIFICANTLY INFLUENCED

## MITOCHONDRIAL DYSFUNCTION

## Top 12 Brain Regeneration Strategies

Chances are, you want to say good-bye to brain fog, memory issues, learning troubles, mental fatigue, and low mood. You certainly want to protect your brain from neurodegeneration, dementia, and Alzheimer's disease.

Read on to learn the top 12 ways to protect and heal your brain cells naturally. Practicing some form of all of these strategies is important for optimizing your mental health and keeping your brain healthy and strong.



# Top 12 Brain Regeneration Strategies

- Anti-Inflammatory Diet
- Intermittent Fasting
- Getting Into Ketosis
- Regular Movement and Exercise
- Reduce Stress & Practice Gratitude
- Prioritize Good Sleep

- Support Gut Health
- Neurobic Exercises
- Reduce Your Toxic Load
- Use Magnesium Daily
- Use Autophagy Enhancing Herbs
- Use Mitochondrial Support Nutrients

## Anti-Inflammatory Diet

Eating an anti-inflammatory diet rich in nutrient-dense foods is critical for your brain health. Begin by removing all inflammatory foods, including refined sugar, gluten, refined oils, deep-fried and processed foods, conventional dairy, grain-fed meat and eggs, soda and sugary drinks, and foods that you are sensitive to.

Instead, eat an anti-inflammatory diet with lots of greens, vegetables, low glycemic index fruits, herbs, spices, healthy fats, grass-fed meat, and wild-caught fish. You can see the best foods and herbs to focus on in the image below.

# TOP ANTI-INFLAMMATORY FOODS



Grass/pasture Fed Meat, Poultry, And Wild Game



Lemon, Limes and Berries



Avocados and Avocado Oil



Green Tea



Non-Starchy Vegetables



Turmeric



Wild-caught Fish



Bone Broth and Vegetable Broth



Apple Cider Vinegar



Ginger



Organic Extra Virgin Olive oil and Olives



Fermented Vegetables



Coconut oil, Coconut Butter, Coconut Milk and Coconut Flakes



Basil, Oregano, Thyme, Rosemary, Sage, etc



Garlic, Onions and Chives

# PRO-INFLAMMATORY FOODS



Refined Grains, Whole Grains, Grain/flour Products



Deep Fried Foods, Processed Foods, Most Packaged Foods



Grain-fed Meats/eggs, Fast Foods, Soda Pop



Most Commercial Salad Dressings, Trans Fats, Margarine, Some Oils (Corn, Safflower, Sunflower, Soybean)

## Intermittent Fasting

Intermittent fasting is a fasting strategy that cycles between fasting and eating over a period of time. It helps cellular repair, autophagy, immune regulation, inflammation levels, and insulin sensitivity, and decreases the risk of chronic diseases, including neurodegenerative conditions, such as Alzheimer's (41).

Spiritual leaders and philosophers such as Plato have talked about the benefits of fasting on improving mental efficiency, creativity, intuition and sense of well-being. If you want to learn more about the benefits of intermittent fasting and how to practice intermittent fasting, I recommend [this article](#).



The infographic features a central image of a white clock face on a blue background, flanked by a silver fork on the left and a silver knife on the right. To the right of the clock is a list of seven fasting methods, each in a colored pill-shaped box. The background of the infographic shows a person's hands holding a glass bottle of water with a lime wedge.

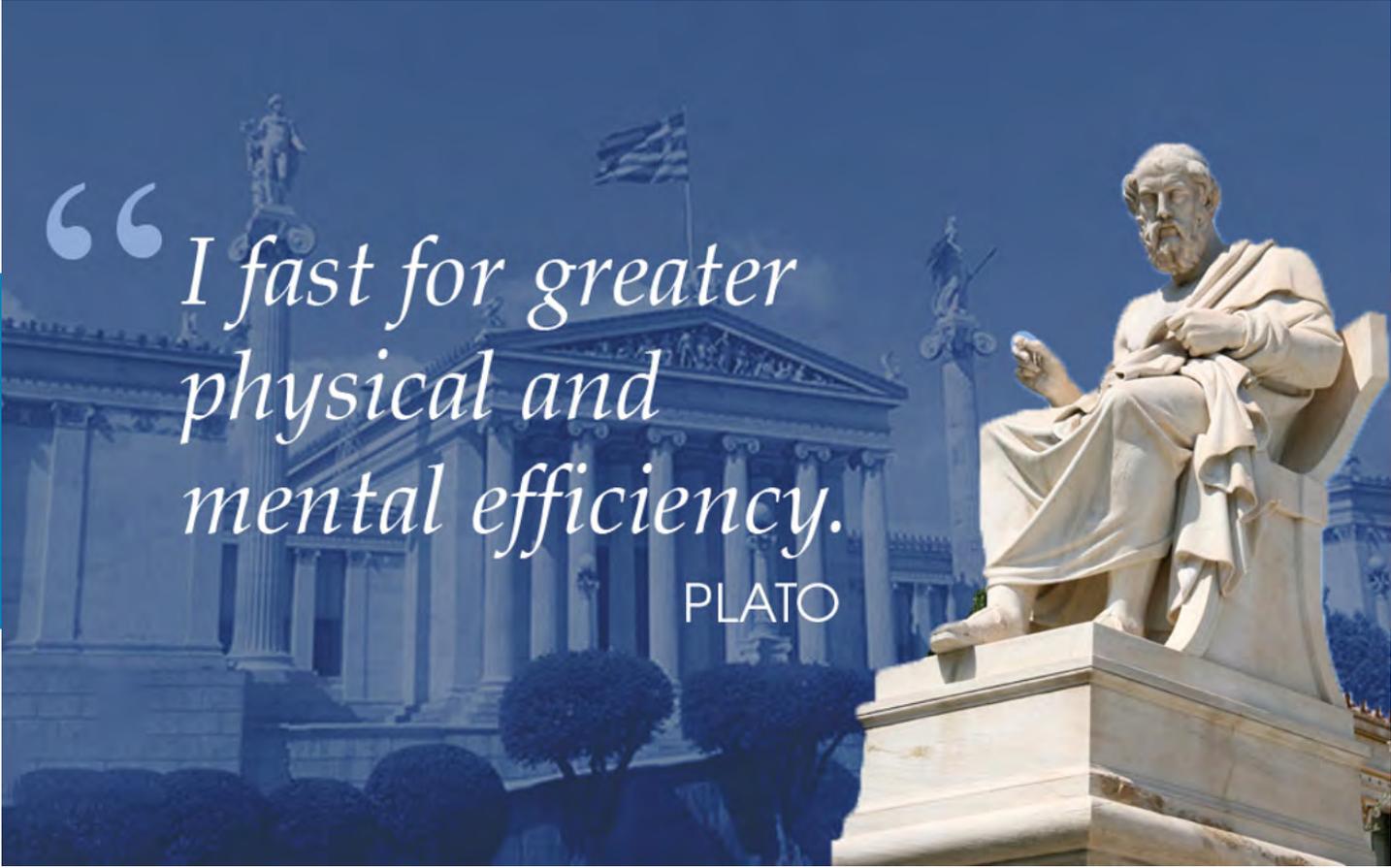
Simple Fast:	12 hours
Brunch Fast:	14 hours
Crescendo Fast:	16 hours - 2 days per week
Cycle Fast:	16 hours - 3x weekly
Strong Fast:	16-18 hours daily
Warrior Fast:	19-21 hours daily
1 Day Fast:	Full 24 hour fast each week

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## Extended Fasting

Extended fasting is another way to improve brain autophagy. Extended fasting goes a step beyond intermittent fasting. While intermittent fasting only goes for anywhere between 12 to 23 hours of fasting a day, extended fasting lasts for at least a day, usually several hours, and in some cases even longer.

Extended fasting normally involves no food for the fasting period, only calorie-free liquids, including water and herbal tea. I only recommend extended fasting to those who are experienced with and do well on more advanced intermittent fasting protocols.



“*I fast for greater physical and mental efficiency.*

PLATO

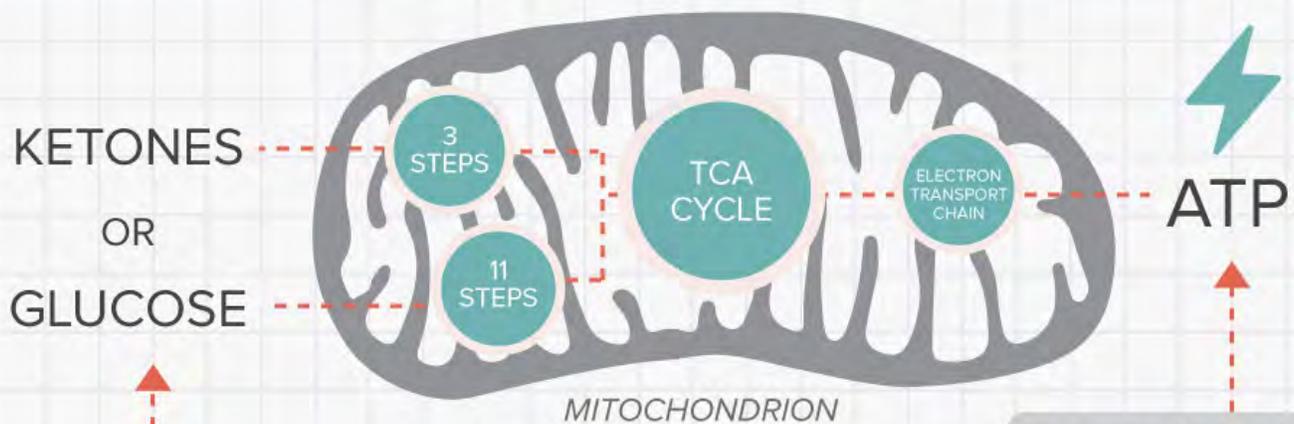
## Getting Into Ketosis From Time to Time

Under the regular circumstances, most people's body creates energy by breaking down glucose from dietary carbohydrates. However, when your body doesn't receive enough glucose supply, it turns to dietary or stored body fat for energy. These fats are converted in the liver into ketones that enter your mitochondria inside your cells to be turned into energy.

This process of ketosis helps to enhance autophagy, reduce inflammation, improve mitochondrial biogenesis, improve brain health, and increase mental sharpness. The best way to experience ketosis is through the combination of the keto diet and intermittent fasting.

I am not saying you have to follow a ketogenic diet all the time, you can vary your nutrition, but actively working to get into ketosis from time to time is extremely beneficial for brain regeneration (42, 43, 44, 45, 46, 47, 48, 49, 50, 51).

# ENERGY: KETONES VS. GLUCOSE



Your body provides different fuels for your mitochondria

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Because ketones are able to enter the TCA cycle in fewer steps than glucose, ketones increase metabolic efficiency.

Ketones create more metabolic energy and significantly less free radicals and metabolic waste than glucose metabolism (glycolysis). This is equivalent to a vehicle that gets better performance and gas mileage and creates significantly less exhaust and carbon emissions.

## Regular Movement and Exercise

As you've learned earlier, regular movement and exercise are not only part of a healthy lifestyle, but are essential for brain health. They may help to lower chronic inflammation, reduce stress levels, and decrease the risk of memory problems, learning troubles, and cognitive decline.

I recommend that you exercise at least 20 to 30 minutes minimally 5 times a week. Try a combination of cardiovascular exercise, strength and resistance training, and low-impact exercise. Aim to stay active throughout the day by choosing to take the stairs, taking a walk at lunch, stretching regularly, gardening, and dancing for your favorite song.

## BENEFITS OF MOVEMENT

- Improves Circulation
- Stimulates Lymphatic Drainage
- Enhances Tissue Oxygenation
- Balances Key Brain Neurotransmitters
- Reduces Stress and Tension in Body
- Improves Mood and Happiness
- Enhances Mental Clarity and Memory

### DIFFERENCE BETWEEN MOVEMENT AND EXERCISE:

Movement is any sort of movement you are doing at a low-intensity without specific physique related goals. Exercise is something you are doing at a very high intensity with a goal to build strength, muscle, endurance, burn fat, etc.



## Reduce Stress and Practice Gratitude

Reducing your stress levels is non-negotiable for brain regeneration and mental health. To reduce your stress, try regular meditation, daily prayer, breathwork, journaling, regular exercise, relaxation recordings, daily gratitude, and nature walks. Practice positive self-talk and affirmations for a powerful mindset and mood shift.

Practice daily gratitude and prayer. Keep a daily gratitude journal and count your blessing throughout the day. Remember, when you are in a state of gratitude, negative energy, stress, and anxiety have no room.

# GIVE THANKS

## Grateful People

-  Have More Energy and Optimism
-  Are Less Bothered By Life's Hassles
-  Are More Resilient in the Face Of Stress
-  Are Healthier
-  Have a Positive Mood
-  Are More Compassionate
-  Are More Likely to Help Others
-  Are Less Materialistic
-  Are More Satisfied with Life

*"I would maintain that thanks are the highest form of thought, and that gratitude is happiness doubled by wonder."*

- Gilbert K.Chesterton



## TIPS TO BECOME MORE GRATEFUL

Keep a daily journal of 3 things you're thankful for.

Tell someone in your life something you appreciate about them everyday.

Silence the negative. Make an effort not to complain.

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## Prioritize Good Sleep

Prioritizing good-quality sleep is critical for your brain regeneration and mental health. It is essential for rest, repair, and cellular rejuvenation. Develop a regular nighttime routine that relaxes your body before sleep and works for you. Avoid sugar and caffeine throughout the day, especially in the evening.

Turn off your electronics several hours before bedtime. Engage in relaxing activities. Meditate, journal, reading, read, stretch, and sip on some herbal tea. Make sure that you have a comfortable bed, bedding, and pillows. Try some black-out curtains or a sleep mask.

# TIPS FOR A GREAT NIGHT'S SLEEP



Have Your Room Cool



Keep Your Room as Dark as Possible



Use a Sleep Mask



Avoid Caffeine within 8 Hours of Sleeping



Don't Eat Within 3 Hours of Sleeping



Get Sun Exposure During the Day



Exercise Regularly (but not late at night)



Avoid Bright Light After Sunset



Wind Down At 9pm

## Support Gut Health

As you've learned, your brain and gut are closely connected, hence supporting your gut is absolutely necessary to heal your brain cells. Eating a gut-friendly, anti-inflammatory, and nutrient-dense diet is a must.

Additionally, support a gut microbiome balance with healthy bacteria by eating probiotic-rich foods, such as sauerkraut, kimchi, and kefir, and taking a daily probiotic supplement.

# Benefits of Using Probiotics

- Immunomodulation
- Protection Against Infections
- Improve Gastrointestinal Diseases
- Increase Nutrient Absorption
- Metabolic By Product Formation
- Aid in Weight Loss
- Improve Brain Health

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## Neurobic Exercises

Neurobics is a term used to describe the physiological effects of unique and non-routine ways of thinking and moving and their effects on the brain to improve memory, learning, mood, and mindset. These exercises can help stimulate brain regeneration by challenging the brain to think and move in unique ways.

Neurobics exercises include balancing on one leg, crossword puzzles, trying a new instrument, using your non-dominant hand, barefoot walking, and journaling. To learn more about the benefits of neurotics exercises, I read [this article \(52, 53, 54, 55, 56\)](#).

# NEUROBIC EXERCISES

Activities that shake up your routine and use your senses in unusual ways can help to make your brain more agile and flexible.

## HERE ARE JUST A FEW:



### Morning Roulette

Brush your teeth, or do any daily activity like shaving or styling your hair, with your nondominant hand.



### Ongoing Chess Game

At the office, leave a chess board out so that any worker can come along, assess the situation, and make a move anonymously.



### Visit a Farmer's Market

Relish the diversity of shapes, colors, aromas and tastes, move anonymously.



### Close Your Eyes and Open Wide

Identify food on your plate only by smell, taste, and touch.



### Introduce Novelty

Take a different route to work, or as you walk your dog: try a different breakfast regime or switch places at the table.

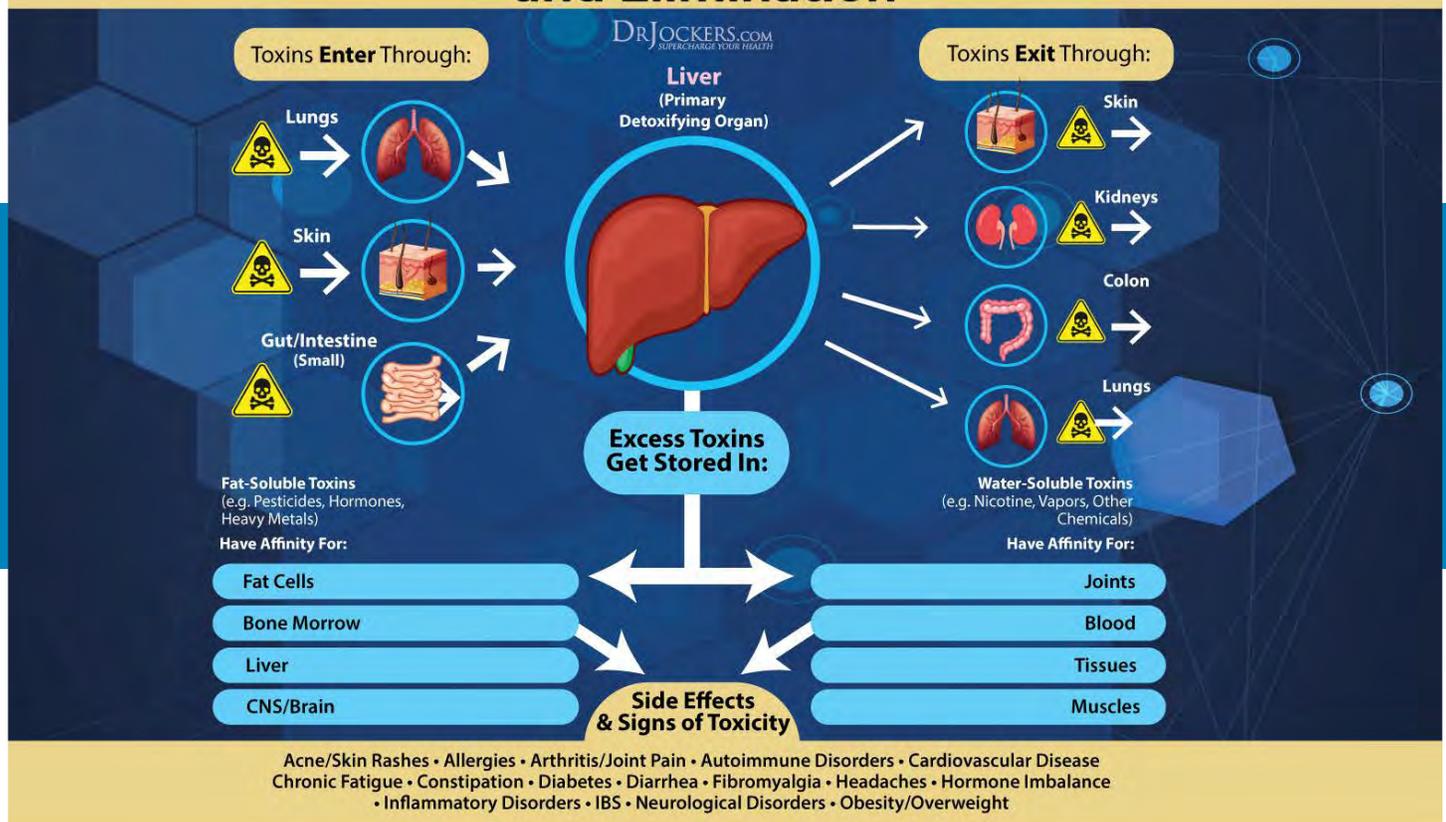
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## Reduce Your Toxic Load

To optimize your brain health, you cannot forget about reducing your toxic load. Eat organic foods as much as possible. Remove conventional beauty, body, and household products, and replace them with organic, natural, or homemade alternatives.

Spend time in nature as much as possible. Getting good water filtration is also especially important. You can also get a quality **Berkey filter** or take it up a notch and use a **hydrogen water system** which adds molecular hydrogen to combat oxidative stress and improve immune health.

### The Process of Detoxification and Elimination



## Use Magnesium

One of the key nutrients to address for proper brain regeneration is magnesium. Magnesium is critical for brain health, mental health, relaxation, and stress relief.

I recommend **Brain Calm Magnesium** to boost your magnesium levels. It helps muscle function, healthy nerve conduction, neurological function, energy production, mood, and mental health. Dissolve one scoop in 6 oz of cool, pure water. Take it once a day at night.

## Key Benefits of Brain Calm Magnesium



- ✓ Supports healthy brain magnesium levels
- ✓ Supports healthy synapse number and function
- ✓ Supports memory and cognitive acceleration
- ✓ Supports stress management, sleep quality and a healthy mood
- ✓ Helps ensure an optimal magnesium intake for overall health

## Use Autophagy Enhancing Herbs

Autophagy is your body's natural method of detoxification. It allows your body to recycle and get rid of old and unhealthy cells leaving room for the creation of new and healthy cells to replace them. To heal your brain cells, I recommend autophagy-enhancing herbs, including matcha green tea, ginger, turmeric, resveratrol, citrus bergamot, oregano, sage, rosemary, and quercetin.

This is why I recommend **Inflam Defense™**, a powerful supplement made with turmeric, ginger, boswellia, quercetin, rosemary, and rutin. To learn more about the top autophagy-enhancing herbs, I recommend [this article](#).

## TOP FOOD AND HERBAL COMPOUNDS FOR AUTOPHAGY



### Quercetin

Red Onions, Cranberries  
and Elderberries



### 6-Shagaol

Ginger



### Curcumin

Turmeric



### Resveratrol

Blueberries, Grapes  
and Red Wine



### EGCG

Green Tea, Oolong tea  
and Dark Chocolate



### Citrus Bergamot

Bergamot orange,  
Earl Gray tea



### Carnosic Acid

Oregano, Sage  
and Rosemary

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## Use Mitochondrial Support Nutrients

For optimal brain health, I also recommend that you support your mitochondrial health. **Mito Support™** was designed to support the function of the mitochondria, which is the powerhouse of your cell and the key cellular health.

It is a blend of nutrients, nutraceuticals, botanicals, and Krebs cycle intermediates designed to support efficient mitochondrial metabolism and energy (ATP) production for increased vitality. It supports brain health, cognition, mental health, and healthy energy levels. Supporting your mitochondria is a key principle for brain regeneration.

# MITO SUPPORT CLINICAL BENEFITS



- ✓ Improves Energy and Cognition
- ✓ Supports Healthy Cellular Function
- ✓ Improves Mental and Cardiovascular Health
- ✓ Supports Optimal Athletic Performance

## Bonus: Heat Therapy

To support brain autophagy, you may want to consider heat therapy. The stress of the heat urges your body to destroy old and damaged cells and create new and healthy cells through the process of autophagy. Heat shock proteins (HSP) are a group of proteins that your cells produce as a response to exposure to stressful conditions they encounter.

They play an important role in your body's cellular repair system. They may help to stabilize new proteins and refold damaged proteins. Saunas, UV light therapy, taking hot healing baths, or using a heating pad on sore muscles may be forms of heat therapy (57).

For optimal immune support, brain support and other health benefits, I recommend an infrared sauna by [Synergy Science](#) as a great affordable option with safe, deep penetrating, detoxifying, and immune-supporting benefits.

# HOW SAUNA THERAPY IMPROVES HEALTH



## Activates Heat Shock Proteins (HSP's)

- HSP's act to break down damaged proteins and stimulate regrowth
- Sauna therapy activates HSP's by up to 16 times the baseline.



## Increases Growth Hormone (HGH)

- Sauna therapy has been shown to increase HGH up to 5 times baseline levels
- HGH acts to preserve lean body tissue, burn fat, improve cellular healing and immune response.



## Stimulates Autophagy

- Autophagy is when the body breaks down bad cells and recycles the components for cell renewal.
- Sauna therapy activates HSP's which enhance autophagy and cell renewal



## Reduces Inflammation

- Sauna therapy improves the body's immune response and reduces inflammation



## Facilitates Detoxification

- Perspiration is one of the main ways we eliminate toxic chemicals.



## Improves Physical Endurance

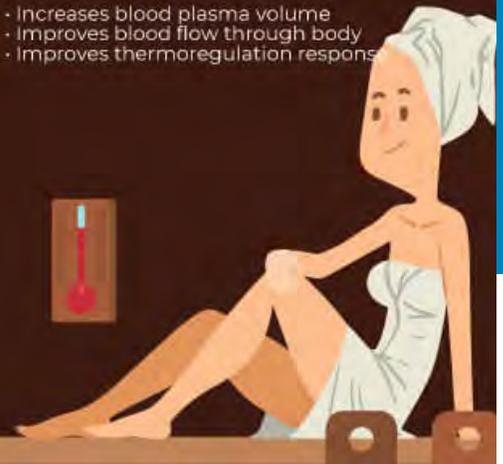
- Increases blood plasma volume
- Improves blood flow through body
- Improves thermoregulation response



## Improves Insulin Sensitivity

- Studies have shown improvements in blood glucose and insulin sensitivity with sauna usage.
- Improved insulin sensitivity enhances fat burning and reduces inflammation.

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## Bonus: Cold Therapy

Along with heat therapy, I recommend that you consider cold therapy as well for increased brain autophagy. In this case, the stress from the cold leads to autophagy, the removal of old and damaged cells and the creation of new and healthy cells. Cold shock proteins or cold shock domain (CSD) is a protein domain of about 70 amino acids.

Cold shock proteins may help your cells to survive under stressful conditions. While heat shock proteins help your cells to survive conditions warmer than optimal, cold shock proteins help survival in lower than optimal temperature. Cold therapy methods include cryotherapy chambers, jumping into a cold pool, or taking a cold shower.

I recommend combining hot and cold therapy. You may want to sit in a sauna then take a cold shower or jump into the pool. An even simpler way is finishing up your warm shower with a cold shower (58, 59, 60, 61).



# COLD SHOWER vs HOT SHOWER



## COLD SHOWER

- Helps you wake up & increases awareness
- Relieves depression & improves mood
- Hydrates your skin & hair
- Gives extra dose of energy
- Tightens your skin
- Improves fertility
- Improves concentration
- Accelerates metabolism
- Improves immunity & blood circulation
- Speeds up muscle soreness & recovery after workout



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## HOT SHOWER

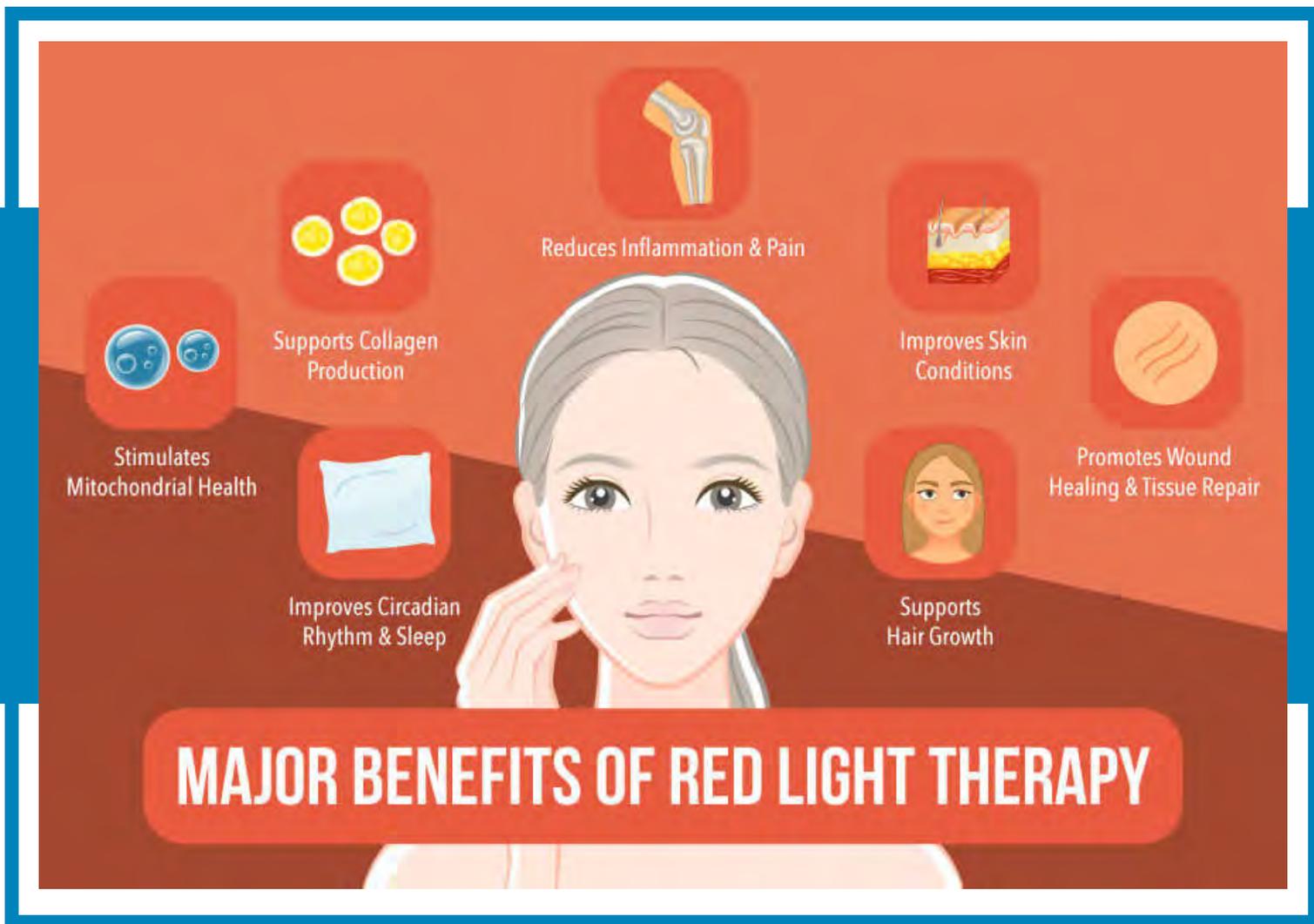
- Great for a good night's sleep
- Opens up the pores & cleans skin
- Relieves tension
- Relieves headache
- Removes toxic wastes from skin
- Relieves cold & nasal congestion
- Relieves muscle cramps
- Fights migraine
- Reduces anxiety
- Relaxes your body & muscles

The synergistic power is in alternating your temperature in the shower between hot and cold to force your body to adapt to the new temperature regulation.

## Bonus: Red Light Therapy

Red light therapy (RLT) is a powerful therapeutic technique that may improve brain autophagy. IT has been used for a variety of therapeutic purposes in alternative healing, including wounds, scars, skin issues, inflammation, pain, sleep, and hair growth. It increases cellular energy and antioxidant activity in your body. (62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73).

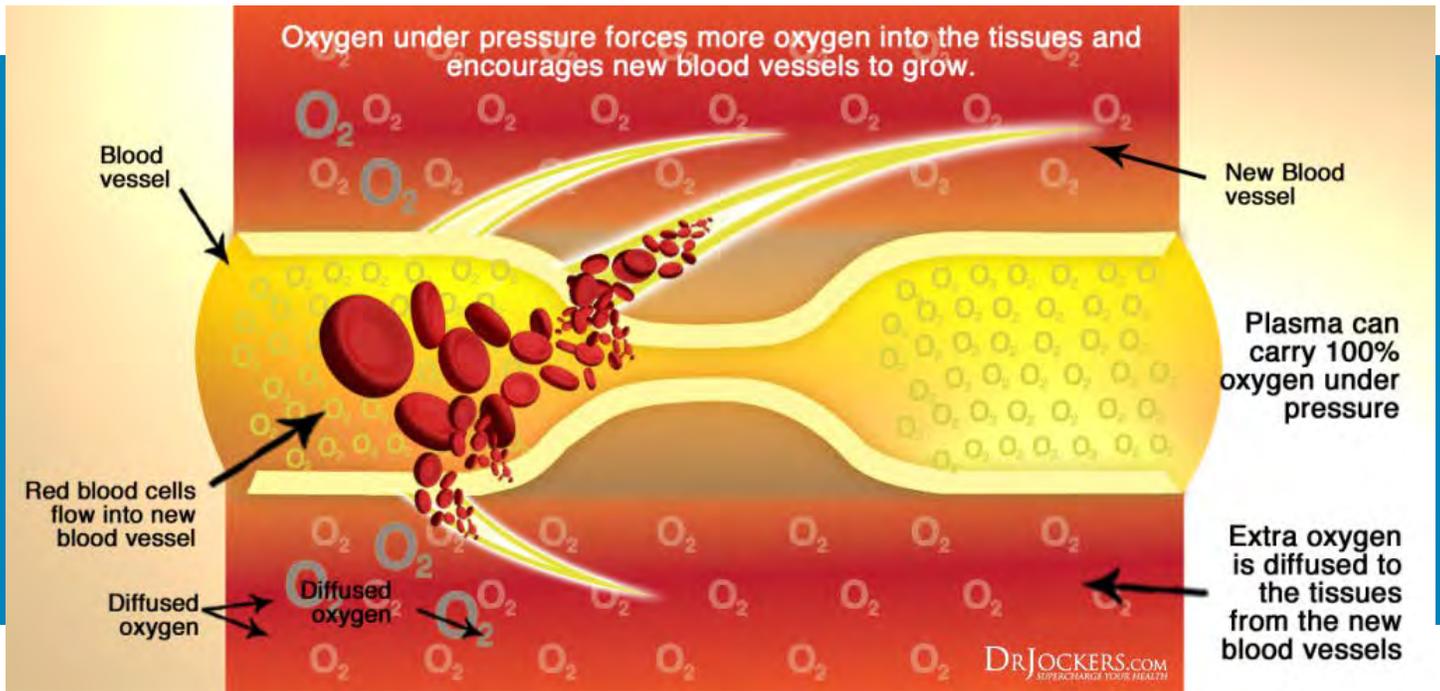
If you are looking for a powerful, safe, effective, yet affordable red light therapy option, I recommend [Mito Red Light Therapy Device](#). Use the coupon code **DRJOCKERS** at checkout to save 5% on the MitoRed product line. To learn more about red light therapy, I recommend [this article](#).



## Bonus: Consider Hyperbaric Oxygen Therapy

For additional support, consider hyperbaric oxygen therapy. It has been shown to raise tissue oxygen levels, encourage new blood vessel growth, increase your body's defense system, reduce swelling, increase stem cells, and support optimal health.

Brain regeneration can be enhanced with the use of hyperbaric oxygen therapy on a regular basis. To learn more about hyperbaric oxygen therapy, I recommend reading [\*\*this article\*\*](#) (74, 75, 76, 77, 78).



## Final Thoughts

Brain degeneration is a serious issue that affects millions of people in the US and around the world. The symptoms of brain degeneration memory problems, confusion, and mood changes. To protect your brain from brain degeneration, follow my tips and try my natural solutions.

You may notice improvements not only in your cognition, mental sharpness, mood, and energy but also in your overall health. If you want to work with a functional health coach, I recommend [this article](#) with tips on how to find a great coach. On our website, we offer [long-distance](#) functional health coaching programs. For further support with your brain health recovery and other health goals, just reach out and our fantastic coaches are here to support your journey.



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LONG-DISTANCE  
COACHING PROGRAM

*"The doctor of the future will give no medication, but will interest his patients in the care of the human frame, diet and in the cause and prevention of disease."*

Thomas Edison

We are on a mission to educate and empower as many people as possible to reach their full potential in life and health.

# About Dr. David Jockers DNM, DC, MS

Dr. David Jockers is a doctor of natural medicine, a functional nutritionist and corrective care chiropractor. He runs one of the most popular natural health websites in DrJockers.com which has gotten over 1 million monthly visitors and his work has been seen on popular media such as the Dr Oz show and Hallmark Home and Family.

Dr Jockers is the author of the best-selling book “The Keto Metabolic Breakthrough” by Victory Belt publishing and “The Fasting Transformation.” He is a world-renowned expert in the area of ketosis, fasting and functional nutrition. He is also the host of the popular Dr Jockers Functional Nutrition podcast.

Dr Jockers lives in Canton, Georgia with his wife Angel and his twin boys David & Joshua and his daughters Joyful and Shine.



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