

# Processing Speed

## Biohacker Report

REPORT CATEGORY —



COGNITION

Sample Client

Report date: 15 January 2026

Powered by

 omicEdge

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## Personal information

NAME

**Sample Client**

SEX AT BIRTH

**Male**

HEIGHT

**5ft 5"    165cm**

WEIGHT

**137lb    62kg**

### DISCLAIMER

This report does not diagnose this or any other health conditions. Please talk to a healthcare professional if this condition runs in your family, you think you might have this condition, or you have any concerns about your results.



# How this works

Our Wellness Reports analyze how your DNA influences your health.

We then use this analysis to give you personalized risk estimates and recommendations.



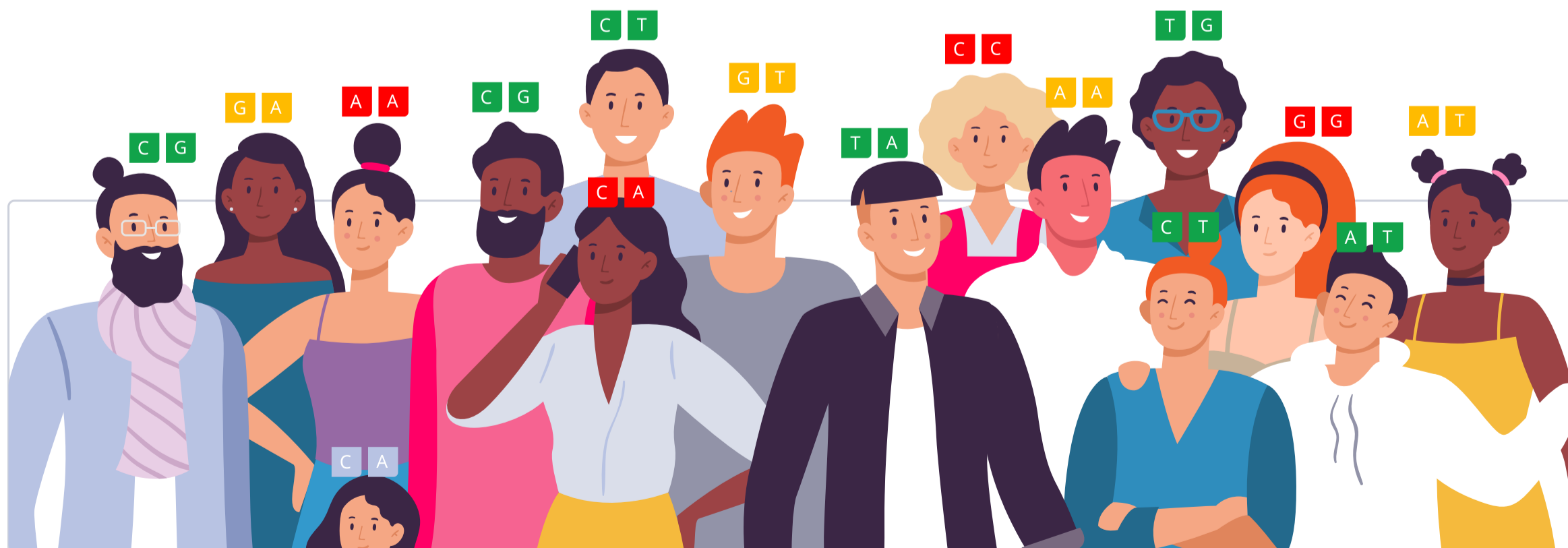
Similarly, our Trait Reports look at how your DNA influences your traits.



Your DNA is like an instruction manual — it contains a lot of information.

You can think of it as a blueprint for your body.

Genetic variants are parts of DNA that differ from person to person. Some can make you more vulnerable to certain health issues, while others may influence traits such as eye color.



We use artificial intelligence and machine learning to analyze all this information. We then summarize your results as a risk score or display it on a gauge.

**In total, we analyze up to 83 million genetic variants.**

When we give a risk score, the risk icon tells you if you are at a higher or lower risk compared to other people:



**Genotype color info:**

- AA** You don't have any risk alleles
- AA** You have 1 risk allele
- AA** You have 2 risk alleles

Your risk is also displayed as a percentile. This will tell you how your risks compare to our sample population. The lower your percentile number, the lower your risk. The "50th percentile" would be an average risk.

Similarly, the gauge tells you your relative risk score compared to our sample population, or it indicates a specific trait or haplotype you are more likely to have based on your genetic variants.

**When applicable, we also list top evidence-based recommendations that may help lower your risk. The focus is on recommendations that may be of benefit to you, based on your genetics.**

Our recommendations come in four categories: lifestyle, diet, supplements and drugs. The following icons tell you which category a recommendation falls into:



**Our team of scientists also ranks each recommendation. We rank based on impact and the strength of evidence in the medical literature.**

Impact shows how strongly a recommendation will affect your health in a certain area. Evidence is how much scientific support there is for the recommendation. Rankings are from 1 to 5 (low to high):



## Impact

Impact scores range from 1-5. These scores reflect how much of an effect each recommendation can have. An impact score of 5 predicts the biggest effect.

When a recommendation affects something we can measure, we use those measurements to assign the impact score. For example, a recommendation that decreases cholesterol by 20% will have a higher impact score than one that decreases it by 5%.

Some recommendations affect things that we cannot directly measure, like stress or mood. For these, the impact score is based on how well they work relative to other recommendations and standard treatments. The best ones get the highest scores.

If there is a lot of research that shows a recommendation works especially well for your genotype, the impact score gets increased.

## Recommendation Evidence

●●●●● 5 / 5

Recommendations that are considered effective and generally recommended by experts and medical bodies.

●●●●○ 4 / 5

Recommendations that are considered likely effective and that have multiple independent meta-analyses and a great many studies supporting them.

●●●○○ 3 / 5

Recommendations that are considered possibly effective and have many studies supporting them

●●○○○ 2 / 5

Recommendations that have insufficient evidence, with two or several clinical trials supporting them, or many studies but with ambiguous results.

●○○○○ 1 / 5

Recommendations that have insufficient evidence, with a single clinical trial, or with many studies most of which didn't find support for the recommendation.

○○○○○ 0 / 5

No evidence in humans.

## Genotype-specific Evidence

●●●●● High-quality

Direct evidence that a recommendation helps more in people with your gene variant (many clinical trials, a few large clinical trials, or a meta-analysis).

●●●●○ Medium-quality

Direct evidence that a recommendation helps more in people with your gene variant (a few clinical trials or one large clinical trial).

●●●○○ Low-quality

Direct evidence that a recommendation helps more in people with your gene variant (a single clinical trial or more trials with inconsistent results).

●●○○○ Indirect

A recommendation may help more in people with your gene variant because it targets a specific gene or protein affected by your variant (e.g., MTHFR, dopamine).

●○○○○ In theory

A recommendation may help more in people with your gene variant because it targets a specific mechanism affected by your variant (e.g., inflammation, oxidative stress).

## Some things to keep in mind:

- Genetics doesn't play a considerable role in a condition or a trait.
- There is not enough research available to estimate a genetic predisposition.
- There are technical limitations to estimating or presenting a genetic predisposition.
- The topic is sensitive, and a genetic predisposition should only be estimated and presented by a healthcare professional.

# Introduction

**Processing speed** is a measure of **how fast you are able to understand information and respond to it**. It is one of the basic measures of **cognitive function** [\[R\]](#).

Just as cognitive function in general, processing speed develops during childhood, peaks in early adulthood, and gradually declines from middle-age onward. There are a number of tests to measure processing speed, typically using basic math and reasoning problems [\[R, R, R\]](#).

Factors that affect brain function also impact processing speed. These include [\[R, R, R, R, R\]](#):

- Aging
- Lack of sleep
- Concussions and other brain injuries
- Disorders such as dyslexia and ADHD

# Contributing Factors and Genetics

**PERSONALIZED TO GENES**

Based on the variants we looked at, you are predisposed to lower processing speed. However, cognitive training, mental stimulation, sleep quality, physical exercise, nutrition, and practice with timed tasks can enhance processing speed.

Processing speed is a measure of **how fast you are able to understand visual or auditory information and respond to it** [R].

About **65%** of the differences in people's processing speed may be due to **genetics**. The genes involved in processing speed play a role in brain function and development [R].

Faster processing speed is linked to healthier aging [R].

These can improve your processing speed:

- Getting enough sleep [R]
- A healthy diet, rich in omega-3s [R, R, R, R, R]
- Physical activity (aerobic exercise and resistance training) [R, R, R, R]
- Learning new things and engaging in brain games and puzzles [R, R, R]



LOWER

**Predisposed to lower processing speed based on 7,285,692 genetic variants we looked at**

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
CADM2	rs17518584	TC
PGAP3	rs4795390	CC
IRX6	rs17291845	GG
KRTAP7-1	rs7283316	AA
MYRIP	rs9985399	TT
JAG1	rs1884136	GG
TTYH2	rs7219585	GG
TMEM245	rs523340	GG
PKNOX1	rs2839627	CC
PRB2	rs2908835	CC
TRIB3	rs6051520	GT
CHRNA4	rs1044396	GG
NRSN1	rs6922632	AC
TBX20	rs2392362	TC
/	rs2567426	GA
SPATA7	rs17124581	TT
COMT	rs4680	AG
HLA-C	rs2230365	CC
IQGAP1	rs12915189	AG
SHLD1	rs4815868	AA
APOE	rs429358	TT
HNF4G	rs16939046	TT
DCDC2	rs793834	GG
DDX39B	rs2255798	GG
SYNJ1	rs7279487	TT
HOMER1	rs7713917	AA
KL	rs9536314	TT
DTNBP1	rs2619522	CA
ATP5PD	rs11077773	TT
ACP1	rs11542478	AA
NSG2	rs10475598	TT

The number of "risk" variants in this table doesn't necessarily reflect your overall result.

# Your Recommendations

Your recommendations are prioritized according to the likelihood of it having an impact for you based on your genetics, along with the amount of scientific evidence supporting the recommendation.

You'll likely find common healthy recommendations at the top of the list because they are often the most impactful and most researched.

	DOSAGE		DOSAGE		
1	Exercise At Least One Hour a Day	1 hour	2	Cognitive Training	15 minutes
3	Aerobic Exercise (Cardio)	1 hour	4	Mindfulness	30 minutes
5	Sleep for 7+ Hours		6	Tai Chi	1 hour
7	Drink at Least 8 Glasses of Water a Day		8	Behavioral Sleep Extension	
9	Avoid Aluminum Exposure		10	Yoga	30 minutes
11	Neurofeedback	1 hour	12	Bacognize (Bacopa monnieri)	300 mg
13	Music Therapy	30 minutes	14	Pyroloquinoline Quinone (PQQ)	20 mg
15	Nerve Stimulation	30 minutes	16	Cocoa	
17	Circadian Rhythm Alignment		18	Avoid Lead Exposure	
19	Maintain Optimal Vitamin D Levels	1000 iu	20	Transcranial Direct Current Stimulation (tDCS)	30 minutes
21	Avoid Styrene Exposure		22	Dietary Omega-3 Fatty Acids	
23	Ginkgo	120 mg	24	Cherry Juice	
25	N-Back Training	20 minutes	26	Spearmint	
27	Pilates and Endurance Training	1 hour	28	Saffron	20 mg
29	Avena Sativa	100 mg	30	Omega-3 (Fish Oil)	500 mg

31	Black Chokeberry		32	Repetitive Transcranial Magnetic Stimulation	
33	Hatha Yoga	1 hour	34	Ashwagandha	120 mg
35	Meditation	30 minutes	36	Desert Olive Tree Pearls	
37	American Ginseng	200 mg	38	Cyanidin	50 mg
39	Coffee Cherry Extract	100 mg	40	Curcumin	500 mg
41	Sulforaphane	30 mg	42	Bhastrika Yoga (Bellows Breathing)	5 minutes
43	Thiamine Supplements	100 mg	44	Acetyl-L-Carnitine	500 mg
45	Low-Glutamate Diet		46	Fucoxanthin And Guarana	
47	Green Coffee Extract	400 mg	48	Mangiferin	150 mg
49	Alpha-GPC Choline	300 mg	50	Phosphatidylserine	300 mg
51	Citicoline (CDP Choline)	250 mg	52	Fucoxanthin	3 mg
53	Airway Muscle Training	30 minutes	54	Pilates	30 minutes
55	Hydroxytyrosol	5 mg			

1



## Exercise At Least One Hour a Day

IMPACT

4 / 5

EVIDENCE

4 / 5

### How to implement

Dedicate a minimum of 60 minutes to moderate-intensity activities such as brisk walking, swimming, or cycling. Do this most days of the week, aiming for at least 5 days to optimize benefits.

TYPICAL STARTING DOSE

1 hour

### Description

[Exercise](#) can do wonders for your health. It can help you lose weight, improve your heart health, boost your mood, and more [\[R\]](#).


There are many ways you can be active. You can walk, run, swim, dance, or play team sports. **Everything counts, and it's never too late to start!**


Try to get at least **60 minutes of moderate physical activity on most days**, including walking. **Getting a mix of cardio (min 150 min/day) and strength training (min 2 times a week) may be optimal.**


### How it helps

Exercise helps improve processing speed and reaction time, both in the short and long term. **Moderate-intensity** exercise may be the most beneficial [\[R, R, R\]](#).

Exercise may also improve processing speed in people recovering from a **stroke or concussion** [\[R, R\]](#).

2  **Cognitive Training**

**IMPACT**  3 / 5

**EVIDENCE**  4 / 5

## How to implement

Engage in exercises that challenge your brain for at least 15 minutes per day, five days a week. This can include puzzles, memory games, learning a new language, or playing a musical instrument.

**TYPICAL STARTING DOSE**

**15 minutes**

## Description

Cognitive training involves structured exercises and activities designed to improve specific cognitive functions, such as memory, attention, and problem-solving skills. It can be beneficial for individuals looking to enhance cognitive abilities or address cognitive challenges associated with conditions like Alzheimer's disease or attention deficit hyperactivity disorder (ADHD).

**Cognitive training** programs guide you through challenging tasks. They aim to support some cognitive functions, including [\[R\]](#):


- Memory
- Attention
- Problem-solving skills

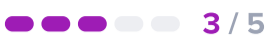
**Some scientists like to think of the brain as a muscle.** They say people should “use it or lose it.” In line with this, cognitive training can be considered “brain exercise.” It is often provided through computer programs [\[R, R\]](#).

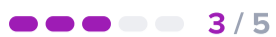
## How it helps

Cognitive training (usually involving computer games) may moderately improve processing speed in healthy older people and those with cognitive impairment [\[R, R, R, R, R, R\]](#).

However, cognitive training failed to improve processing speed in some studies, and it may not be beneficial in people with a brain injury [\[R, R\]](#).

3  **Aerobic Exercise (Cardio)**

**IMPACT**  3 / 5

**EVIDENCE**  3 / 5

## How to implement

Engage in at least 150 minutes of moderate-intensity aerobic exercise or 75 minutes of vigorous-intensity activity each week. Distribute this time over at least 3 days per week, avoiding consecutive days of vigorous exercise to allow for recovery.

**TYPICAL STARTING DOSE**

**1 hour**

## Description

Engaging in regular aerobic exercise, such as running, swimming, or cycling, offers numerous health benefits, including improved cardiovascular fitness, weight management, and mood enhancement. It supports overall physical and mental well-being while reducing the risk of chronic diseases.

Cardio, short for cardiovascular exercise, is any type of physical activity that temporarily increases your heart rate. Examples include **running, cycling, swimming, and brisk walking**.

Regular cardio exercise has many benefits for your overall health. It can help lower your risk of heart disease and diabetes, support weight loss, and improve your mood and energy levels. To get the most out of cardio, try to do it for at **least 30 minutes, 3-5 times a week**.

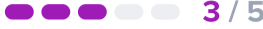
**Interval training** is a type of cardio that combines periods of high-intensity training with brief rest periods.

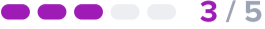
## How it helps

Cardio may improve processing speed and reaction time, **especially in older people** [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#).

However, it may not improve processing speed and other cognitive functions after a concussion or brain injury [\[R\]](#).

4  **Mindfulness**

**IMPACT**  3 / 5

**EVIDENCE**  3 / 5

## How to implement

Set aside 5-10 minutes each day to practice mindfulness meditation. Find a quiet place, assume a comfortable seated position, close your eyes, focus on your breathing, and observe your thoughts and sensations without judgment.

TYPICAL STARTING DOSE

**30 minutes**

## Description

Mindfulness involves paying focused and non-judgmental attention to the present moment. It can reduce stress, improve emotional regulation, and enhance overall mental clarity and well-being.

**Mindfulness is the practice of being aware of the present moment.** When practicing mindfulness, a person acknowledges their thoughts, feelings, and sensations without any judgment [R].

Mindfulness and other types of [meditation](#) may improve [R]:

- Weight and anxiety
- Low mood
- Sleep disturbances
- Pain
- High blood pressure

## How it helps

Mindfulness encourages mental focus and stress reduction which can improve cognitive abilities like memory, attention, and processing speed. Immersing in the present moment helps clear away the clutter in your mind and enhances your cognitive performance.

Mindfulness interventions positively impacted cognition, including **processing speed** in several meta-analyses [R, R, R, R].

However, one meta-analysis found **no benefits** of mindfulness on processing speed [R].

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## Sleep for 7+ Hours

IMPACT
EVIDENCE

3 / 5

3 / 5

## How to implement

Ensure you allocate enough time in your schedule to achieve a minimum of 7 hours of sleep each night. This might involve going to bed earlier or adjusting your evening routine to promote relaxation and make it easier to fall asleep.

## Description

Optimizing sleep involves adopting healthy sleep habits and creating a sleep-conducive environment to ensure restorative and sufficient sleep duration. It supports cognitive function, mood stability, and overall physical health. Most experts recommend getting **at least 7 hours of good-quality sleep each night**.

**Sleep supports your body and mind** [R, R]. More precisely, sleep helps:

- Support brain health [R, R]
- Maintain a healthy weight and appetite [R, R, R]
- Regulate blood pressure [R, R]
- Balance blood sugar [R, R]

Ways to sleep better include [R]:

- Reducing your bright light exposure (screen time) in the evenings
- Sticking to a regular sleep schedule
- Avoiding hunger or large meals before bed
- Avoiding nicotine, caffeine, and alcohol before bed
- Maintaining a sleep area that's cool, dark, and quiet


## How it helps

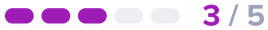
Proper sleep is essential for cognitive function. Short-term **sleep deprivation**—but not insomnia—may greatly impair reaction time [R, R].

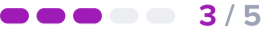
PERSONALIZED TO YOUR GENES

**Sleep disturbances may have a stronger impact on processing speed in people with your *BDNF* gene variant** [R]

YOUR GENETIC VARIANTS			
GENE	SNP	GENOTYPE	EVIDENCE
BDNF	rs6265	TC	

6  **Tai Chi**

**IMPACT**  3 / 5

**EVIDENCE**  3 / 5

## How to implement

Practice Tai Chi for 30 to 60 minutes at least twice a week. Choose a quiet, spacious area and follow along with a qualified instructor, either in person at a class or through an online video tutorial, to ensure proper technique and maximum benefit.

### TYPICAL STARTING DOSE

**1 hour**

## Description

Tai Chi is a traditional Chinese mind-body practice involving slow, flowing movements and deep breathing. It is known for its potential to reduce stress, improve balance, and enhance overall physical and mental well-being.

**Tai chi involves gentle movements and breathing to strengthen and relax the mind and body.** Practicing tai chi may help [\[R, R, R\]](#):

- Manage pain
- Improve fitness
- Increase well-being
- Improve sleep and mood

## How it helps

Tai chi may improve processing speed in healthy people and those with health conditions such as [\[R, R\]](#):

- Parkinson's disease
- Stroke
- Mild cognitive impairment
- Dementia
- Traumatic brain injury

Tai chi combines exercise and relaxation, both of which are great for cognitive function [\[R\]](#).

7

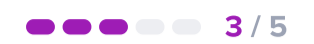


## Drink at Least 8 Glasses of Water a Day

IMPACT

 3 / 5

EVIDENCE

 3 / 5

### How to implement

Consume a total of at least 64 ounces (or approximately 1.9 liters) of water over the course of the day. This can be divided into 8 glasses, each containing 8 ounces of water. Aim to drink evenly throughout the day to avoid dehydration.

### Description

Water is an essential nutrient for nearly every process in your body, helping to maintain brain and gut function, maintain a healthy weight, as well as energy and performance levels, among others.

**Water is essential for life. It supports nearly every process in your body** [\[R\]](#).

Water helps maintain [\[R\]](#):

- Energy and performance levels
- Brain function
- Gut function
- Healthy weight

Most experts recommend drinking **around 8 glasses (64 oz. or 2 L) of water daily**. You might need more or less than this, depending on how active you are, where you live, or what your overall health is like [\[R\]](#).

### How it helps

Even slight dehydration can have a negative impact on cognitive performance, including reaction time [\[R\]](#).

Most experts recommend drinking **around 8 glasses (64 oz. or 2 L) of water daily**. It's crucial to drink enough water when you exercise and when you're exposed to heat [\[R\]](#).

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## Behavioral Sleep Extension

IMPACT

 3 / 5

EVIDENCE

 3 / 5

### How to implement

To implement behavioral sleep extension, aim to increase your total sleep time by going to bed 15 to 30 minutes earlier than your usual bedtime, or by allowing yourself to sleep later in the morning. Gradually increase this time as needed to reach a target of 7 to 9 hours of sleep per night, consistently, including on weekends. Adjust your daily schedule to accommodate this change, making sleep a priority.

### Description

Behavioral sleep extension involves adopting healthier sleep habits to extend the duration and improve the quality of sleep. It can lead to improved cognitive function, mood, and overall well-being by addressing sleep deficiency.

### How it helps

Behavioral Sleep Extension, which includes strategies to get more quality sleep, can significantly improve your processing speed. Increasing the quantity and quality of sleep will result in better brain function and speedier mental processes.

In various non-placebo-controlled trials, extending sleep duration was linked to improvements in reaction times across different groups. A study of 25 rugby players participating showed a 4.3% decrease in reaction time from a 6-week sleep extension program. Similarly, 55 adolescents with chronic short sleep experienced enhancements in visuospatial processing after a sleep extension program. A trial with 24 adolescents found that a 5-week sleep intervention improved sluggish cognitive tempo and driving performance. Additionally, 15 students reporting minimal daytime sleepiness showed improvements in reaction time following a period of sleep extension. In a study of 50 tactical athletes, 4 nights of sleep extension improved reaction time and psychomotor vigilance [[R](#), [R](#), [R](#), [R](#)].

9




## Avoid Aluminum Exposure

IMPACT

 3 / 5

EVIDENCE

 3 / 5

### How to implement

Use aluminum-free deodorants and avoid cooking or storing food in aluminum foil or aluminum cookware. Instead, opt for glass, stainless steel, or ceramic options for cooking and storing food. Check labels on over-the-counter medications, such as antacids, for aluminum compounds and choose aluminum-free alternatives. Aim to do this consistently for the long term to effectively minimize your aluminum exposure.

### Description

Aluminum is a common metal used in manufacturing and food containers. Humans accidentally consume trace amounts of it on a daily basis. High levels can be found in the environment, certain workplaces (e.g., transportation industries), deodorants, and contaminated foods. Exposure to high levels of aluminum can potentially lead to aluminum toxicity.

Aluminum is a lightweight metal. It is **the most abundant metal in the Earth's crust** and is naturally found in the environment. It is usually used for food preservation, cans, cookware, and cars [\[R\]](#).

Aluminum-containing products are major sources of aluminum exposure including [\[R\]](#):

- Antacids (heartburn drugs)
- Food additives
- Cosmetics (e.g., antiperspirants, makeup foundations, toothpaste)


Excessive aluminum exposure may increase [oxidative stress](#) and contribute to various health issues, such as [\[R, R, R, R, R, R, R\]](#):

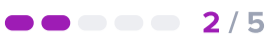
- Neurological disorders
- Cognitive problems
- Bone disorders
- Breast cancer

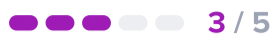
### How it helps

Aluminum has well-known adverse effects on brain health. People exposed to aluminum tend to have worse processing speed [\[R\]](#).

Sources of aluminum exposure include **contaminated food, deodorants, and some industries**. Some vaccines contain trace amounts of aluminum, but health authorities say those amounts are not likely to cause harm [\[R, R, R\]](#).

10  **Yoga**

**IMPACT**  2 / 5

**EVIDENCE**  3 / 5

## How to implement

Practice yoga for at least 20 to 30 minutes a day, most days of the week. Choose a style that matches your fitness level and goals, and consider attending a class or using online resources to guide your practice.

**TYPICAL STARTING DOSE**

**30 minutes**

## Description

Yoga is a mind-body practice that combines physical postures, breathing exercises, and meditation. It enhances flexibility, strength, and mental well-being and is used for stress reduction, relaxation, and overall health improvement.

[Yoga](#) combines breathing, stretching, and relaxation techniques. Practicing yoga may help [\[R, R, R\]](#):

- Reduce [stress](#)
- Improve fitness
- Lower blood pressure and heart rate
- Manage pain

## How it helps


Yoga may moderately improve processing speed. It combines exercise and relaxation, both of which are great for cognition [\[R, R\]](#).

11




## Neurofeedback

IMPACT

 2 / 5

EVIDENCE

 3 / 5

### How to implement

Attend neurofeedback sessions with a trained therapist, usually once or twice a week, for a minimum of 20 sessions. Each session typically lasts 30 to 60 minutes where sensors are placed on your scalp to monitor brainwave activity, and feedback is given in real-time to help you learn to control or alter your brain functions.

TYPICAL STARTING DOSE

**1 hour**

### Description

Neurofeedback is a therapeutic technique that helps individuals regulate brain activity, potentially improving focus, reducing anxiety, and enhancing cognitive function by providing real-time feedback on brainwave patterns.

### How it helps

Neurofeedback trains individuals to regulate brain activity. It can potentially enhance processing speed by optimizing neural pathways involved in quick information processing.

Neurofeedback can improve athletes' reaction time and decision-making, effectively increasing their performance in the sports field. It may affect parts of the brain involved in cognitive processing [\[R\]](#), [\[R\]](#).

One study focused on individuals at clinical high risk for psychosis found that processing speed training using pupillometry-based neurofeedback led to faster motoric and non-motoric processing speeds. This improvement was sustained at a two-month follow-up and was associated with better social adjustment [\[R\]](#).

Another study demonstrated that sensorimotor rhythm (SMR) neurofeedback training reduced sensorimotor interference, thereby enhancing cognitive processing capabilities. Participants showed improved memory and attentional performance, indicating that SMR neurofeedback can effectively boost processing speed [\[R\]](#).

In older adults, cognitive training with neurofeedback using functional near-infrared spectroscopy (fNIRS) resulted in significant improvements in processing speed, memory, and executive function. This suggests that neurofeedback can be a valuable tool for mitigating age-related cognitive decline [\[R\]](#).

Additionally, a study on patients with major depressive disorder found that neurofeedback training aimed at increasing upper alpha power improved working memory performance and processing speed, highlighting its potential benefits for clinical populations [\[R\]](#).

12



## Bacognize (Bacopa monnieri)

IMPACT

2 / 5

EVIDENCE

2 / 5

### How to implement

Take bacopa as a supplement in a dose of 300-450 mg per day, ideally with food to enhance absorption. It should be taken daily for at least 4-6 weeks to begin noticing benefits in cognitive function and stress reduction.

TYPICAL STARTING DOSE

300 mg

### Description

Bacopa, also known as Brahmi, is an herb traditionally used in Ayurvedic medicine to support cognitive function and memory. It is believed to have neuroprotective properties and is used in herbal supplements for mental well-being.

[Bacopa](#) (*Bacopa monnieri*) grows as a weed in the rice fields of East Asia and the US [\[R\]](#).


Bacopa is used in Ayurveda (Indian traditional medicine) to support cognition [\[R\]](#).

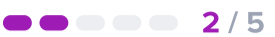
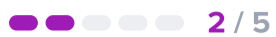
Note that bacopa is fat-soluble. This means that **taking it with a fatty meal should help you absorb it better** [\[R\]](#).

### How it helps

Supplementation with bacopa (300-450 mg/day for 12-18 weeks) may improve processing speed [\[R\]](#).

Note that bacopa is fat-soluble. This means that **taking it with a fatty meal should help you absorb it better** [\[R\]](#).

13  **Music Therapy**

**IMPACT**  **EVIDENCE** 

## How to implement

Engage in music therapy sessions for at least 30 minutes a day, three times a week. These sessions can involve listening to music, playing an instrument, singing, or writing songs, facilitated by a certified music therapist if possible.

**TYPICAL STARTING DOSE**

**30 minutes**

## Description

Music therapy is a therapeutic approach that uses music to address physical, emotional, cognitive, and social needs. It can improve mental health, enhance emotional expression, and support overall well-being.

[Music](#) therapy is a form of therapy that involves making, reflecting on, and/or listening to music. It can be applied individually or in groups and may not require the presence of a therapist [\[R\]](#).

Music therapy provides tools for body relaxation and positive imagery. It aims to improve communication, quality of life, and well-being [\[R, R\]](#).

## How it helps

Playing an instrument—both on your own or as part of music therapy—may help preserve processing speed. Musical practice may help by stimulating cognitive functions [\[R\]](#).

14



## Pyrroloquinoline Quinone (PQQ)

IMPACT

2 / 5

EVIDENCE

2 / 5

### How to implement

Take 20 to 40 mg of Pyrroloquinoline Quinone (PQQ) daily as an oral supplement, ideally with meals to enhance absorption. This dosage can be maintained indefinitely as part of your daily supplement routine.

TYPICAL STARTING DOSE

**20 mg**

### Description

PQQ is a micronutrient found in foods like spinach, green tea, and kiwifruit. It acts as a cofactor for enzymes involved in energy metabolism and may support mitochondrial health, which is essential for overall cellular function and vitality.

Pyrroloquinoline quinone (PQQ), also known as methoxatin, is a compound that helps enzymes work better. PQQ is also involved in the production of new mitochondrias. By doing so, PQQ helps improve [\[R, R\]](#):

- Energy levels
- Antioxidant protection
- Growth
- Reproduction

### How it helps

In 2 placebo-controlled trials of 120 participants, supplementation with PQQ (20-21.5 mg/day) for 12 weeks improved processing speed, reaction time, and execution speed among other cognitive aspects. PQQ may improve cognition by increasing activity in the right PFC, as seen in a placebo-controlled trial of 20 healthy subjects aged 50-70 [\[R, R, R\]](#).

PQQ is thought to stimulate the growth and development of mitochondria in brain cells, leading to improved cognition. In addition, PQQ works as an antioxidant that could protect the brain from harmful oxidative stress.

15



## Nerve Stimulation

IMPACT

2 / 5

EVIDENCE

2 / 5

## How to implement

Nerve stimulation can be implemented by daily sessions of 15-30 minutes using a device specifically designed for this purpose. These devices often use electrical currents to stimulate nerves through the skin, which can be adjusted in intensity according to comfort. It's important to consult a healthcare provider for guidance on the specific type of nerve stimulation that may be most beneficial for your condition.

TYPICAL STARTING DOSE

30 minutes

## Description

Nerve stimulation techniques involve the use of electrical impulses, like transcutaneous electrical nerve stimulation (TENS) or other methods to activate nerves, potentially providing relief from chronic pain, improving muscle function, and aiding in physical therapy.

**Health professionals can stimulate your nerves using different strategies** [\[R\]](#).

Many strategies use magnetic fields or electric currents. Examples include [\[R\]](#), [\[R\]](#), [\[R\]](#):

- [Transcutaneous electrical nerve stimulation \(TENS\)](#)
- Transcranial direct current stimulation (tDCS)
- Transcranial magnetic stimulation (TMS)
- Transcutaneous auricular vagus nerve stimulation (taVNS)

Nerve stimulation may improve [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#):

- Cognition
- Mood
- Pain
- Seizures
- Tinnitus

## How it helps


Nerve stimulation, namely **tDCS and rTMS**, may slightly improve reaction time during different cognitive tasks in healthy people and those with ADHD [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#).

However, nerve stimulation **may not increase processing speed** in people with many other conditions, including [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#):

- Depression
- Dementia
- Stroke
- Brain injury
- Multiple sclerosis
- Parkinson's disease
- Psychiatric disorders

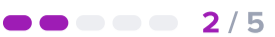
**Please note:** Nerve stimulation may not be safe for people that have metal implanted devices, have epilepsy, or are pregnant. Some types of nerve stimulation should also be avoided by people with bleeding disorders or heart disease. Consult your doctor before using nerve stimulation devices of any kind [\[R\]](#), [\[R\]](#), [\[R\]](#).

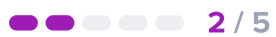
16



Cocoa

IMPACT
EVIDENCE





## How to implement

Incorporate 30-60 grams of high-quality dark chocolate (with at least 70% cocoa content) into your daily diet. Enjoy it as a snack or dessert to reap the potential heart health benefits.

## Description

[Cocoa](#) comes from the beans of the *Theobroma cacao* tree. It is found in many foods and drinks, and people have also used it as a medicine for thousands of years. The numerous active components of cocoa can help with weight control, fatigue, mood, and digestion, among others.

[Cocoa](#) comes from the beans of the *Theobroma cacao* tree. It's often used for making chocolate, hot chocolate, and pastries. People have also used it as a medicine for over a thousand years [\[R, R\]](#).

Cocoa contains many active components that likely help [\[R, R, R, R\]](#):

- Control weight
- Lower fatigue
- Boost mood
- Improve digestion
- Balance blood sugar
- Support heart health

**Note that pure cocoa is likely a healthier choice than chocolate. If you eat chocolate, choose dark chocolate with more cocoa and less sugar and fat.**


## How it helps

Cocoa is rich in antioxidants called **flavanols**, which have well-known benefits for brain health and cognition [\[R\]](#).

Consuming cocoa (10 g/day for at least 6 months) may increase processing speed [\[R\]](#).


A single dose of cocoa (providing 350-900 mg of flavanols) may improve reaction time in the short term, but one study didn't find this benefit [\[R, R, R\]](#).


17



Circadian Rhythm Alignment

IMPACT
EVIDENCE






## Description


Circadian rhythm alignment is the process of adjusting your sleep-wake cycle to match the natural 24-hour cycle of the Earth's rotation. Circadian rhythm alignment has been linked to a number of health benefits, including improved sleep quality, better mood, and reduced risk of obesity, heart disease, and diabetes.

## How it helps

A study of 7 chronic shift workers found that circadian misalignment due to night shift work worsens sustained attention, information processing and visual-motor performance, particularly after more than 10 hours of scheduled wakefulness [\[R\]](#).

18 

## Avoid Lead Exposure

IMPACT  1 / 5

EVIDENCE  2 / 5

## How to implement

Prevent lead exposure by using cold water for drinking and cooking, regularly cleaning dust from windowsills and floors, and ensuring that your home's paint is not chipping if it was built before 1978. For occupations involving potential lead exposure, use protective gear and follow safety protocols. Test your home for lead if it's old or you're concerned about contamination.

## Description

Lead is a heavy metal. It is naturally found in the environment in small amounts [\[R, R\]](#).

Exposure to lead can cause it to build up in the body. A buildup of lead can contribute to oxidative stress and cell damage. This is called **lead poisoning** [\[R, R\]](#).

Lead is no longer used in the manufacturing of some products like gasoline and paint. However, it can still be found in some pipes, batteries, and the wall paint of older homes [\[R, R, R\]](#).

## How it helps

Occupational exposure to lead may cause nerve damage, resulting in **worse reaction time** and other aspects of cognition [\[R\]](#).

See the [list of jobs](#) that may expose you to higher amounts of lead.

19



## Maintain Optimal Vitamin D Levels

IMPACT

1 / 5

EVIDENCE

2 / 5

### How to implement

Check your vitamin D levels, they should ideally be in the 30-66 ng/mL range. If your levels are lower than that, take a vitamin D supplement, 1000-4000 IU daily, to reach an optimal range.

TYPICAL STARTING DOSE

**1000 iu**

### Description

Vitamin D, often referred to as the "sunshine vitamin," can be synthesized by the skin when exposed to sunlight, as well as being found in fish, eggs, and fortified milk. It helps regulate calcium absorption, promoting strong bones and a healthy immune system. Vitamin D deficiency can lead to conditions like rickets in children and osteoporosis in adults.

Your body needs [vitamin D](#) for strong bones. Vitamin D also plays a role in [\[R\]](#):

- Mood
- Immunity
- Heart health
- Blood sugar control

[Sunlight](#) is our main source of vitamin D. Experts recommend getting at least **5-15 minutes of midday sun, 2-3 times per week**. People with darker skin and those living at high latitudes may need longer periods of sun exposure [\[R, R\]](#).


Foods like fish, eggs, and fortified milk provide small amounts of vitamin D. **People lacking vitamin D should consider taking a supplement** [\[R\]](#).

### How it helps

Low vitamin D levels may be linked to impaired cognitive function, especially processing speed [\[R\]](#).

Supplementation with vitamin D (800-4000 IU/day for 1-2 years) may **improve reaction time** in older people [\[R, R\]](#).

**Please note:** *Experts recommend getting 600-800 IU of vitamin D per day. Medical bodies recommend against taking more than 4,000 IU per day* [\[R\]](#).

20  **Transcranial Direct Current Stimulation (tDCS)**

**IMPACT** 1 / 5

**EVIDENCE** 2 / 5

## How to implement

Use a tDCS device for 20 to 30 minutes per session, targeting specific brain areas depending on the desired outcome. Sessions can be daily or a few times a week, under the guidance of a medical professional or trained specialist to ensure safety and effectiveness.

**TYPICAL STARTING DOSE**

**30 minutes**

## Description

Transcranial Direct Current Stimulation (tDCS) is a non-invasive brain stimulation technique that uses a low electrical current to modulate neural activity. It has been investigated for its potential in cognitive enhancement, mood regulation, and pain management.

## How it helps

Transcranial Direct Current Stimulation (tDCS) refers to a non-invasive procedure that uses a small electrical current to stimulate brain activity. For someone with slow processing speed, tDCS may enhance brain function and boost processing speed by improving neural efficiency and connectivity.

A [meta-analysis of 16 studies](#) found that anodal tDCS had **small but significant effects on reaction time in healthy people, but not in those with neuropsychiatric conditions**. Similarly, tDCS **reduces reaction time related to specific cognitive functions in elderly people** according to a [meta-analysis of 31 studies](#) [\[R, R\]](#).


However, a [meta-analysis of 7 trials](#) found that tDCS even had **negative effects on processing speed in people with major depression** [\[R\]](#).

21




## Avoid Styrene Exposure

IMPACT

 1 / 5

EVIDENCE

 2 / 5

### How to implement

Minimize your use of products made from polystyrene (often labeled with recycling code #6) such as disposable cups, plates, and packing materials. Additionally, limit exposure to indoor environments that may have elevated styrene levels, like those involving the use of fiberglass or certain construction materials and practices. Aim to improve ventilation in your living and working spaces to reduce the accumulation of styrene and other volatile organic compounds.

### Description

Avoiding exposure to styrene, a chemical used in various industries, is important to prevent potential health risks, such as respiratory problems and neurological effects.

Styrene is an oil-based chemical used in the manufacture of plastics, rubber, and resins. It is used to make packaging material, as well as latex and styrofoam products. It can also be found indoors as a result of operating photocopiers and laser printers, and from cigarette smoke. Small amounts may be eaten in foods packaged in polystyrene.

While health effects from low exposure to styrene are unknown, exposure to larger amounts can develop irritation of the eyes and lungs. Long-term, excessive exposures can injure the nervous system [\[R\]](#).

### How it helps

Occupational exposure to styrene may worsen processing speed [\[R\]](#).

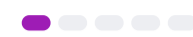
Workers in the plastic and rubber industries may be exposed to high levels of styrene. See the full [list of jobs](#) that may increase the risk of styrene exposure.

22




## Dietary Omega-3 Fatty Acids

IMPACT

 1 / 5

EVIDENCE

 2 / 5

### How to implement

Incorporate foods high in omega-3 fatty acids into your diet daily. This includes eating fish such as salmon, mackerel, and sardines at least twice a week. Alternatively, include a tablespoon of flaxseed oil or chia seeds in your daily diet.

### Description

[Omega-3 fatty acids](#) are some of the healthiest fats we can eat. They help lower inflammation and protect the heart, brain, and eyes. Our bodies produce less omega-3s than we need for optimal health, so it's important to get enough through food or supplements [\[R, R, R\]](#).

There are three major types of omega-3s: ALA, EPA, and DHA. **EPA and DHA are vital for mental and heart health** [\[R, R, R\]](#).

**Fatty fish are rich in EPA and DHA.** They include [\[R\]](#):


- Salmon
- Tuna
- Herring
- Sardines

For optimal health, try to get at least **two servings of fatty fish per week**. Fish oil supplements are available for those who don't eat fish regularly [\[R\]](#).

### How it helps

Omega-3s, especially EPA and DHA, are crucial nutrients for brain health. Higher omega-3 blood levels may be linked to better processing speed [\[R\]](#).

In [3 non-placebo-controlled trials of 1038 children and adolescents](#), consumption of fatty fish (230-300 g/week) for 12 weeks **improved processing speed and reaction time (by 51 ms)** [\[R, R, R\]](#)

23  **Ginkgo**

**IMPACT** 1 / 5

**EVIDENCE** 2 / 5

## How to implement

Take 120 mg of Ginkgo supplement daily, preferably with meals to aid absorption. This dosage is typically split into two 60 mg doses taken in the morning and evening for best results.

**TYPICAL STARTING DOSE**

**120 mg**

## Description

[Ginkgo](#) (*Ginkgo biloba*) is an ancient tree used in traditional Chinese medicine [\[R, R\]](#).

According to limited evidence, ginkgo leaf extract may help with [\[R, R, R, R\]](#):

- Anxiety
- Dementia
- Eye problems
- Blood vessel problems
- Vitiligo


## How it helps

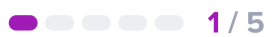
Ginkgo is rich in antioxidants called flavonoids. They help protect the brain and improve reaction time and other cognitive functions [\[R\]](#).

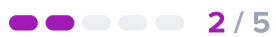
Taking ginkgo extract (120-240 mg/day for 2 months) may improve reaction time. However, several small studies didn't find this benefit [\[R, R, R, R, R\]](#).

Older people may see greater cognitive improvements from ginkgo supplementation [\[R\]](#).

**Please note: Do not consume ginkgo seeds or unprocessed ginkgo leaves. They are poisonous. Ginkgo may also interact with blood thinners. Consult your doctor before taking ginkgo supplements [\[R, R, R, R\]](#).**

24  **Cherry Juice**

**IMPACT**  1 / 5

**EVIDENCE**  2 / 5

## How to implement

Drink 8-10 ounces (about 240-300 ml) of tart cherry juice daily, preferably in the evening as studies suggest it might improve sleep quality. This should be incorporated into your diet consistently for at least two weeks to start observing potential benefits.

## Description

Cherry juice is believed to have anti-inflammatory properties and may help reduce muscle soreness and improve sleep quality. It is often used as a natural remedy for certain health concerns.


A cherry is a stone fruit with numerous varieties. Cherries are native to parts of Europe and Asia [\[R\]](#), [\[R\]](#).

People consume sweet cherries (*Prunus avium*) and tart cherries (*Prunus cerasus*) as either fruit or juice to help with [\[R\]](#):

- Gout
- Exercise recovery
- Blood sugar control
- Blood pressure

## How it helps

Drinking cherry juice (1-2 cups/day for at least 3 months) may improve processing speed. Cherries are rich in antioxidants that help protect the brain from oxidative stress [\[R\]](#).

25  **N-Back Training**

**IMPACT** 1 / 5

**EVIDENCE** 1 / 5

## How to implement

To implement n-back training, practice this cognitive exercise for 20 minutes daily over a period of at least 4 weeks. Use a computer program or mobile app designed specifically for n-back tasks, choosing a difficulty level that challenges you without causing frustration.

**TYPICAL STARTING DOSE**

**20 minutes**

## Description

N-back training is a cognitive training exercise that involves memory and attention tasks, which may help enhance working memory, cognitive skills, and mental sharpness when practiced regularly.

## How it helps

N-back is a cognitive training exercise designed to improve working memory, which is closely related to processing speed, by progressively challenging memory recall.

Studies indicate that n-back training can lead to significant improvements in response speed and accuracy, suggesting enhanced neural efficiency [\[R, R\]](#).

However, some studies suggest that the cognitive benefits of n-back training may not extend to processing speed, indicating the need for further investigation [\[R, R\]](#).

26

## Spearmint

IMPACT
EVIDENCE

1 / 5

1 / 5

## How to implement

Take a spearmint supplement, usually found in capsule form, once or twice daily with water. Daily dosage recommendations can vary, but they are commonly around 400mg to 800mg, based on product guidelines and individual tolerance. Continue this supplementation daily for at least 90 days to observe potential benefits.

## Description

Spearmint is a member of the mint family, and is native to Europe and Asia. Traditionally, it has been used in teas and cooking for its flavor and potential digestive and respiratory benefits. It contains compounds like carvone and limonene, which help give it these benefits.

Spearmint (*Mentha spicata*) is an aromatic herb used to flavor food and tea [\[R\]](#).

People also use spearmint to help with [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#):

- Digestive issues
- Cough and respiratory issues
- Cognition

## How it helps

According to a single study, supplementation with spearmint extract (900 mg/day for 3 months) may improve reaction time. Spearmint is rich in substances that stimulate the mind and reduce oxidative stress [\[R\]](#).

27

## Pilates and Endurance Training

IMPACT
EVIDENCE

1 / 5

1 / 5

## How to implement

Incorporate a Pilates session of at least 30 minutes, 3 times a week, focusing on core strength, flexibility, and posture. Add endurance training, such as running, cycling, or swimming, for 30 minutes, 3 times a week, to improve cardiovascular health and stamina.

**TYPICAL STARTING DOSE**


**1 hour**

## Description

Pilates and endurance training are two types of exercise that can provide a variety of health benefits. Pilates can help to improve flexibility, strength, and core stability, while endurance training can help to improve cardiovascular health and reduce the risk of chronic diseases.

## How it helps

In a non-placebo-controlled trial of 34 patients with multiple sclerosis, the combination of Pilates and aerobic exercise (3x/week for 8 weeks) improved information processing speed and other cognitive aspects [\[R\]](#).

28  **Saffron**

**IMPACT** 1/5 | **EVIDENCE** 1/5

## How to implement

Take 20 mg of saffron supplement daily. This can be taken at any time of the day, with or without food.

TYPICAL STARTING DOSE

20 mg

## Description

Saffron is a spice derived from the stigma of the saffron crocus flower, and is native to the Mediterranean and Asia. Its main compounds include crocin, picrocrocin, and safranal, which may contribute to its antioxidant properties and potential mood-enhancing effects.

[Saffron](#) is a yellow spice praised for its color, taste, and potential health benefits [\[R\]](#).


**Saffron is rich in antioxidants such as *crocin*.** Researchers are looking into its potential benefits for [\[R, R, R, R\]](#):

- Gut conditions
- Heart health
- Mental health

## How it helps

Saffron has antioxidant properties that can help improve brain function and could potentially increase processing speed. However, more research is required to confirm this effect.

A study examined the impact of saffron supplementation on athletic performance in 28 male university students. Saffron increased isometric and isotonic muscle forces by 10.1% and 6.1%, respectively, while also improving visual and auditory reaction times, suggesting potential ergogenic effects [\[R\]](#).

29  **Avena Sativa**

**IMPACT**  
● ○ ○ ○ ○ 1 / 5

**EVIDENCE**  
● ○ ○ ○ ○ 1 / 5

## How to implement

Take 100-300 mg of avena sativa extract daily, preferably with a meal to help with absorption. This supplementation is recommended for at least a few weeks to observe benefits.

**TYPICAL STARTING DOSE**

**100 mg**


## Description



Avena sativa, commonly known as oats, is a cereal grain rich in fiber and nutrients. It is often consumed as a dietary staple and is associated with potential health benefits, including heart health and digestive support.

## How it helps

A single dose (800-2500 g) of green *Avena sativa* extract acutely improved performance speed and brain activity in 3 placebo-controlled trials of 101 participants. However, a trial of 37 older adults found no long-term cognitive benefits of *Avena sativa* [[R](#), [R](#), [R](#), [R](#)].

*Avena sativa* may help by improving concentration and reducing mental fatigue.

30  **Omega-3 (Fish Oil)**

**IMPACT**  **EVIDENCE** 

## How to implement

Take 1-2 g of omega-3 (fish oil) supplement daily, preferably with a meal to enhance absorption.

**TYPICAL STARTING DOSE**

**500 mg**

## Description

Omega-3 fatty acids are essential fats found in fatty fish like salmon, flaxseeds, and walnuts. They are known for their potential cardiovascular and brain health benefits, including reducing the risk of heart disease and supporting cognitive function.

[Omega-3 fatty acids](#) are some of the healthiest fats we can eat. They help lower inflammation and protect the heart, brain, and eyes. Our bodies produce less omega-3s than we need for optimal health, so it's important to get enough through food or supplements [\[R, R, R\]](#).

There are three major types of omega-3s: ALA, EPA, and DHA [\[R, R\]](#).

**Fatty fish are rich in EPA and DHA.** They include [\[R\]](#):

- Salmon
- Tuna
- Herring
- Sardines

For optimal protection, try to get at least **two servings of fatty fish per week**. Fish oil supplements are available for those who don't eat fish regularly [\[R\]](#).

## How it helps

Omega-3 supplementation may improve processing speed, but many studies didn't find this benefit. People with **mild cognitive impairment** may be more likely to benefit from omega-3s [\[R, R, R\]](#).

31



## Black Chokeberry

IMPACT

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EVIDENCE

A progress bar for the EVIDENCE score, consisting of five segments. The first segment is filled with purple, and the number '1/5' is displayed to the right of the bar.

### How to implement

Incorporate black chokeberry (*Aronia melanocarpa*) in your diet by consuming 100-200 grams of fresh berries daily. If using a concentrated form like juice or extracts, follow the manufacturer's instructions, usually around 100 ml of juice or 500 mg of extract per day, for at least 8-10 weeks to observe potential health benefits.


### Description


Black chokeberry is a fruit known for its high content of antioxidants and potential health benefits. It may support cardiovascular health and provide immune system support when incorporated into a balanced diet.


### How it helps

Black Chokeberry is rich in antioxidants, which helps in protecting brain cells from damages, potentially improving cognitive functions like processing speed. However, direct research correlating Black Chokeberry consumption to increased processing speed is lacking.

In a [placebo-controlled trial of 101 healthy volunteers](#), consuming black chokeberry extract (90-150 mg/day) for 24 weeks **improved psychomotor speed** [R].

32  **Repetitive Transcranial Magnetic Stimulation**

**IMPACT**  1 / 5

**EVIDENCE**  1 / 5

## How to implement

Attend sessions at a certified medical facility, where a healthcare professional will use a coil placed near your head to generate brief magnetic pulses. Typically, sessions occur 5 days a week for 4-6 weeks.

## Description

**Repetitive transcranial magnetic stimulation (rTMS) is a noninvasive procedure** that stimulates the brain to improve symptoms of [\[R, R\]](#):

- Depression
- Muscle disease
- Parkinson's disease

rTMS delivers several magnetic pulses through an electromagnetic coil placed on the scalp. The pulses stimulate the region of the brain involved in mood and depression [\[R, R\]](#).

**This technique is used in people who don't respond to standard care.** rTMS is generally painless and safe when performed by trained professionals [\[R, R\]](#).


## How it helps

Repetitive Transcranial Magnetic Stimulation (rTMS) induces electric currents in the brain, stimulating certain areas to boost their activity and speed up information processing. This can help improve the processing speed, contributing to quicker thinking and faster response times.

A [meta-analysis of 126 studies](#) concluded that rTMS applied at 10 and 20 Hz **reduces reaction times in attention and perception tasks** [\[R\]](#).


However, **rTMS doesn't improve processing speed in people with psychiatric disorders or traumatic brain injury** according to [2 meta-analyses](#) (the largest one with 30 studies) [\[R, R\]](#).


33



## Hatha Yoga

IMPACT
EVIDENCE





## How to implement

Practice Hatha Yoga for 60 minutes at least twice a week. Choose a quiet, comfortable space and consider guided sessions for beginners or those unfamiliar with the poses. Consistency over a period of months to years is beneficial for appreciating its full effects.

TYPICAL STARTING DOSE

**1 hour**

## Description

Hatha yoga is a gentle and accessible form of yoga that combines physical postures, breathing exercises, and meditation. Practicing hatha yoga regularly can promote flexibility, stress reduction, and overall physical and mental well-being.

## How it helps

Hatha yoga involves slow and gentle movements along with focused breathing, which might enhance cognitive functions like processing speed. By reducing stress and improving mental focus, it may help sharpen your mind's ability to process information.

In a study with 118 participants (average age 62), those in an 8-week Hatha yoga group showed improved attention and information processing abilities compared to a stretching control group, suggesting the benefits of yoga practice [\[R\]](#).

34



## Ashwagandha

IMPACT
EVIDENCE





## How to implement

Take 250-600 mg of ashwagandha supplement daily. It can be consumed with water or a meal, depending on your preference or as advised by a healthcare provider.

TYPICAL STARTING DOSE

**120 mg**

## Description


[Ashwagandha](#) (*Withania somnifera*) is an herb used in traditional Indian medicine. This herb is known as an *adaptogen* because it helps people adapt to stress.

This herb is known as an *adaptogen* because it helps people adapt to stress [\[R\]](#), [\[R\]](#).

## How it helps

Supplementation with ashwagandha extract (500-600 mg/day for 2 months) may improve processing speed in healthy people and those with bipolar disorder [\[R\]](#), [\[R\]](#).

**Please note:** *Ashwagandha is likely unsafe to take during pregnancy* [\[R\]](#).

35  **Meditation**

**IMPACT** 1 / 5

**EVIDENCE** 1 / 5

## How to implement

Set aside 10-20 minutes each day in a quiet space without distractions to practice meditation. Focus on your breath or perform guided meditation using an app or audio track.

**TYPICAL STARTING DOSE**

**30 minutes**

## Description

Meditation is a mindfulness practice that can reduce stress, improve mental clarity, and promote relaxation. Regular meditation is associated with numerous mental and emotional health benefits, including reduced anxiety and enhanced emotional well-being.

**Meditation** is a relaxation technique that trains your mind to focus and redirect your thoughts. Some of the main types of meditation are [\[R\]](#):


- Mindfulness
- Focused
- Transcendental
- Mantra
- Moving


People use meditation to improve [\[R, R\]](#):

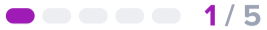
- Stress and anxiety
- Mood
- Sleep disturbances
- Pain

## How it helps

According to limited evidence, mindfulness and Tibetan sound meditation may improve processing speed. Meditation may help by increasing focus and relieving stress [\[R, R\]](#).

36  **Desert Olive Tree Pearls**

**IMPACT**  1 / 5

**EVIDENCE**  1 / 5

## How to implement

Take one capsule of desert olive tree pearls daily with water, preferably with a meal, for at least 8 weeks to potentially see benefits.

## Description


Desert olive tree pearls, derived from the fruit of the desert olive tree, are rich in antioxidants and healthy fats. They are used in traditional medicine for potential health benefits, including anti-inflammatory properties and support for skin health.

## How it helps

Desert olive tree pearls are rich in antioxidants such as hydroxytyrosol, which may help by reducing oxidative damage and inflammation in the brain.

In a placebo-controlled trial of 72 middle-aged and older adults, supplementation with desert olive tree pearls (3 g, 2x/day for 12 weeks), which contain 162 times more hydroxytyrosol than olive oil, improved psychomotor speed, reaction time, cognitive flexibility, processing speed, and executive function [R].

The study investigated the effects of desert olive tree pearls (DOTPs), rich in hydroxytyrosol, on cognitive function in middle-aged and older adults. Participants received 3g of DOTPs or placebo twice daily for 12 weeks. DOTP intake showed significant improvement in complex attention compared to placebo, with significant time effects observed in various cognitive domains including psychomotor speed, reaction time, cognitive flexibility, processing speed, and executive function [R].

37  **American Ginseng**

**IMPACT** 1 / 5

**EVIDENCE** 1 / 5

## How to implement

Take 200-400 mg of American ginseng extract daily, preferably with a meal to enhance absorption. This regimen can be followed continuously for up to 12 weeks, after which a break or reassessment of the need to continue should be considered.

**TYPICAL STARTING DOSE**

**200 mg**

## Description

American ginseng is a perennial herb native to North America, particularly regions of the United States and Canada. It is valued for its potential health benefits, including immune system support, stress reduction, and enhanced cognitive function, with the primary active compounds being ginsenosides.

[Ginseng](#) is a plant people use to improve [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#):

- Sexual function
- Immunity
- Fatigue
- Attention

There are many different types of ginseng. The most common ones are [\[R\]](#), [\[R\]](#), [\[R\]](#):


- Korean red ginseng, also called Asian ginseng (*Panax ginseng*)
- [American ginseng](#) (*Panax quinquefolius*)
- Chinese notoginseng, also called Sanchi (*Panax notoginseng*)

## How it helps

American Ginseng contains compounds called ginsenosides which may positively modulate neurotransmitter activity and enhance cognitive processing abilities.


A double-blind, placebo-controlled, crossover study examined the acute mood and neurocognitive effects of Cereboost™, an American Ginseng extract, in healthy young adults. The study found significant improvements in working memory performance, which can indicate enhanced cognitive processing speed [\[R\]](#).


38



## Cyanidin

IMPACT
EVIDENCE





## How to implement

Take cyanidin as a dietary supplement in the form of capsules or powder. The typical dosage ranges from 50 to 200 mg per day. It should be consumed with water, preferably with meals to enhance absorption, and continued daily for at least 3 to 6 months to observe potential health benefits.

**TYPICAL STARTING DOSE**

**50 mg**

## Description

Cyanidin is a type of natural pigment that gives certain fruits and veggies their rich red, purple, or blue color. Consuming cyanidin, especially through a diet filled with colorful fruits and vegetables, can be beneficial for overall health. It can help prevent heart disease, control diabetes, and even slow down aging, thanks to its potent antioxidant properties.

## How it helps

In a placebo-controlled trial of 31 subjects with signs of poor cognitive function, drinking polyphenols-rich tropical fruit juice with cyanidin (500 mL, 3x/day) for 10 weeks improved cognitive function, particularly learning, memory, processing speed, sequencing, mental flexibility, and visual-motor skills [\[R\]](#).

Cyanidin may help by protecting brain cells from damage and inflammation.

39



## Coffee Cherry Extract

IMPACT
EVIDENCE





## How to implement

Take 100-300 mg of coffee cherry extract supplement daily, preferably in the morning to avoid any potential interference with sleep. This can be consumed with or without food, and should be integrated into your daily routine for ongoing support of brain health.

**TYPICAL STARTING DOSE**

**100 mg**


## Description


Coffee cherry extract, derived from the fruit surrounding coffee beans, contains antioxidants like chlorogenic acids. It has been studied for its potential to support cognitive function and overall antioxidant protection.

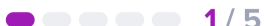
## How it helps

In a placebo-controlled trial of 46 healthy volunteers, consuming 1100 mg coffee berry extract increased accuracy at rapid visual information processing (when taken alone) and executive function (when combined with 275 mg apple extract) [\[R\]](#).

Coffee cherry extract boosts BDNF levels, which supports brain health by promoting the growth of neurons.

40  **Curcumin**

**IMPACT**  1/5

**EVIDENCE**  1/5

## How to implement

Take a 500 mg curcumin supplement daily with food. To enhance absorption, take it with a meal that contains fats or oils since curcumin is fat-soluble.

TYPICAL STARTING DOSE

500 mg

## Description

Curcumin is a compound found in turmeric known for its anti-inflammatory and antioxidant properties. It has been studied for its potential to reduce inflammation, support joint health, and contribute to overall well-being.

[Turmeric](#) is a yellow spice from India. It may reduce inflammation and [oxidative stress](#) [R].

The most important active compound in turmeric is **curcumin**. People use curcumin for [R, R, R, R, R, R]:

- Joint pain
- Hay fever
- Mood
- High blood sugar
- Gut health
- Liver health


## How it helps

According to a single study, curcumin (160 mg/day for 4 months) may slightly improve processing speed [R].

Curcumin may protect the brain by reducing oxidative stress and inflammation [R].


**Please note:** curcumin may interfere with iron absorption due to its iron-chelating properties, potentially exacerbating anemia or making it harder to manage. If you have anemia, consult your healthcare provider before using curcumin or turmeric supplements [R, R, R].


41



## Sulforaphane

IMPACT
EVIDENCE





## How to implement

Take a sulforaphane supplement, typically available in capsule form, with a dosage ranging from 30 to 60 milligrams per day. It is generally taken once daily, with or without food, according to the product's label instructions or a healthcare provider's advice. Continue this regimen daily for as long as you seek its benefits, but consult a healthcare provider for long-term use guidance.

### TYPICAL STARTING DOSE

**30 mg**


## Description

Sulforaphane is a natural compound found in cruciferous vegetables like broccoli and cauliflower. It is known for its potent antioxidant and anti-inflammatory properties, potentially offering protective effects against chronic diseases and promoting overall health.

## How it helps


In a [placebo-controlled trial of 144 older adults](#), supplementation with sulforaphane (30 mg/day) for 12 weeks **improved processing speed and working memory** [R].


42



## Bhastrika Yoga (Bellows Breathing)

IMPACT
EVIDENCE





## How to implement

Sit in a comfortable position with your back straight. Inhale deeply through your nostrils, filling your lungs with air, then exhale forcefully through the nostrils, emptying the lungs completely. Do this for 2 minutes initially, gradually increasing to 5 or 10 minutes daily, preferably in the morning on an empty stomach.

### TYPICAL STARTING DOSE

**5 minutes**


## Description


Bhastrika yoga, also known as "bellows breath," is a pranayama (breathing) technique in yoga. It involves forceful inhalation and exhalation and is believed to increase vitality, clear the mind, and improve respiratory health when practiced mindfully as part of a yoga routine.

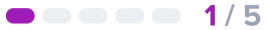
## How it helps

In a non-placebo-controlled trial involving 70 healthy men, an 18-minute session of bhastrika yoga reduced anticipatory responses, indicating it inhibits unnecessary reactions to stimuli. Another trial with 22 schoolboys showed that practicing bhastrika yoga over 9 sessions reduced both visual and auditory reaction times [R, R].

Practicing bhastrika yoga enhances oxygen supply to the brain, which can potentially improve neural function and processing speed. Additionally, it relieves stress, allowing the brain to work efficiently and speed up its processing ability.

43  **Thiamine Supplements**

**IMPACT**  1/5

**EVIDENCE**  1/5

## How to implement

Take thiamine supplements orally, starting with a dose of 100 mg daily. This can be taken with or without food, but consistently at the same time each day for at least one month to help improve deficiency symptoms.

**TYPICAL STARTING DOSE**

**100 mg**


## Description

Your doctor may recommend thiamine supplements. You can also discuss magnesium supplements with your doctor if your magnesium levels are low [\[R\]](#).

## How it helps

Thiamine (Vitamin B1) helps our body's cells convert carbohydrates into energy, which impacts brain functions including processing speed. Deficiencies can lead to cognitive problems, so supplements might help improve this aspect of brain performance.

In a study involving 120 young adult females who took either a placebo or 50 mg of thiamine daily for 2 months, improvements in thiamine status were linked to reported enhancements in clarity of thought, composure, and energy. Thiamine supplementation did not affect memory, but it did result in faster reaction times after the supplementation period. [\[R\]](#)

44  **Acetyl-L-Carnitine**

**IMPACT** 1/5 **EVIDENCE** 1/5

## How to implement

Take 500-1,000 mg of Acetyl-L-Carnitine per day, split into 2 or 3 doses, with or without food. Joe prefers taking 500 mg in the morning. It can be taken indefinitely for chronic conditions or for a period of several months for acute concerns.

**TYPICAL STARTING DOSE**

**500 mg**

## Description

[Carnitine](#) is a protein building block (amino acid). It comes in many forms, such as acetyl-L-carnitine. Acetyl-L-carnitine may help with nerve damage and mood problems.

[Carnitine](#) is a protein building block (amino acid). It comes in many forms, such as acetyl-L-carnitine [\[R, R, R\]](#).

[Acetyl-L-carnitine](#) may help with [\[R, R, R\]](#):


- Nerve damage
- Mood problems
- Cognitive decline



Doctors are also studying its potential effect on drug addiction [\[R\]](#).

## How it helps

Acetyl-L-Carnitine may help improve cognitive function, including processing speed, by enhancing mitochondrial efficiency and neuronal energy metabolism.

According to one study, acetyl-L-carnitine improves memory and cognitive processes in pre-frail older patients [\[R\]](#).

45  **Low-Glutamate Diet**

**IMPACT**  **EVIDENCE** 

## How to implement

To follow a low-glutamate diet, avoid foods high in glutamate such as processed meats (e.g., sausages, ham), certain cheeses (e.g., Parmesan), soy products, and foods containing MSG. Opt for fresh fruits, vegetables, whole grains, and lean proteins. Implement this diet daily over an extended period for potential benefits.


## Description



A low-glutamate diet may benefit individuals with sensitivities or certain neurological conditions by reducing the intake of glutamate-rich foods, potentially improving symptoms and overall well-being.

## How it helps

In a placebo-controlled trial of 40 veterans with Gulf War Illness, following a low-glutamate diet for 1 month improved overall cognitive function and all cognitive domains (processing speed, executive function, reaction time, etc) except memory [\[R\]](#).

Excessive glutamate can cause overstimulation in the brain, possibly affecting clarity of thought.

46  **Fucoxanthin And Guarana**

**IMPACT**  **EVIDENCE** 

## How to implement


Take a supplement containing fucoxanthin in combination with guarana once daily, ideally with a meal to enhance absorption. The specific dose of fucoxanthin is usually around 2.4-8mg, and guarana around 50-200mg, but follow the product's label for exact dosing. Continuous use for at least 12 weeks is recommended for best results.

## Description

Fucoxanthin is a natural pigment found in certain types of seaweed and algae. It is believed to have potential health benefits, including supporting weight management and promoting antioxidant activity. Guarana is a plant native to the Amazon basin known for its caffeine content. It is used in some dietary supplements and energy drinks for its potential to enhance alertness and cognitive function.

## How it helps

Fucoxanthin is a natural compound found in algae that has shown potential in stimulating cognitive function, potentially improving processing speed. Guarana, likewise, contains caffeine which can enhance brain function and potentially quicken mental processing speeds.

47  **Green Coffee Extract**

**IMPACT** 1 / 5

**EVIDENCE** 1 / 5

## How to implement

Take a 400 mg dose of green coffee extract supplement daily. This can be consumed in the morning or as directed on the supplement's packaging.

TYPICAL STARTING DOSE

400 mg

## Description

Green coffee extract is believed to support weight management due to its high content of chlorogenic acids, which may help regulate blood sugar levels and promote fat metabolism.

**Green coffee is made from unroasted coffee beans.** It's rich in an anti-inflammatory and antioxidant compound called [chlorogenic acid](#) [R, R].

Green coffee may help lower [R]:

- Blood pressure
- Weight
- Blood sugar levels

## How it helps


In a placebo-controlled trial of 38 healthy volunteers, supplementation with chlorogenic acids for 16 weeks improved motor and psychomotor speed [R].



Green coffee may boost concentration and alertness due to its caffeine content. This may enhance processing speed.

**Please note:** *Green coffee bean extract contains caffeine. Keep this in mind if you're trying to limit your caffeine intake. If you're pregnant, limit caffeine to 200 mg per day* [R].

**Please note:** *chlorogenic acid from green coffee beans may inhibit the production of the thyroid hormone T4 (thyroxine). Individuals with thyroid disorders, particularly hypothyroidism or low T4 levels, should exercise caution when using coffee bean extract and always consult with a healthcare provider before taking this supplement* [R].

**Please note:** *polyphenols and tannins from coffee may bind to iron and form insoluble complexes, which reduces iron absorption in the gut. If you have anemia, consult your healthcare provider before using coffee or coffee supplements.*

48  **Mangiferin**

**IMPACT**  **EVIDENCE** 

## How to implement

Take a mangiferin supplement of approximately 150-300 mg daily, ideally with a meal to enhance absorption. The duration of use depends on the specific health concern being addressed and recommendations from a healthcare provider.

**TYPICAL STARTING DOSE**

**150 mg**

## Description

Mangiferin, a natural compound found in mangoes and other plants, is known for its antioxidant and anti-inflammatory properties. It has the potential to protect cells from oxidative stress and inflammation, promoting overall well-being.

**Mangiferin** is a natural compound found in mangoes and several other plants.

Researchers are interested in its potential benefits for blood sugar control, liver health, heart health, and more. However, the available evidence to support its use as a supplement is limited [\[R\]](#).

## How it helps

In 2 placebo-controlled trials of 102 healthy volunteers, supplementation with mango leaf extract (300-500 mg) before a cognitive assessment improved performance in processing speed and other cognitive aspects [\[R, R\]](#).

Mangiferin may help by reducing inflammation and oxidative stress.

49  **Alpha-GPC Choline**

**IMPACT** 1 / 5

**EVIDENCE** 0 / 5

## How to implement

Take 300-600 mg of Alpha-GPC choline supplement daily, preferably in the morning or early afternoon to avoid interference with sleep. It can be taken with or without food. Continue this supplementation for at least 4-6 weeks to assess its effectiveness.

**TYPICAL STARTING DOSE**

**300 mg**


## Description

Alpha-GPC (L-alpha glycerylphosphorylcholine) is a natural compound that can be found in small amounts in various foods, including soy, and is also produced in the body. It is a choline-containing compound that may support cognitive function and memory.

## How it helps

Alpha-GPC Choline acts as a precursor to the neurotransmitter acetylcholine, promoting healthy brain cell function and communication. It may improve cognitive function, memory, and learning capabilities.

Choline alphoscerate (alpha-GPC) combined with donepezil may improve cognition, functional outcomes, and behavioral outcomes in adult-onset dementia disorders with cerebrovascular involvement, based on a systematic review and meta-analysis of 7 RCTs and 1 prospective cohort study [\[R\]](#).

50  **Phosphatidylserine**

**IMPACT** 1 / 5

**EVIDENCE** 0 / 5

## How to implement

Take 100 mg of phosphatidylserine three times daily with meals. Continue this regimen for up to 6 months to evaluate its effectiveness.

**TYPICAL STARTING DOSE**

**300 mg**

## Description

Phosphatidylserine is a naturally occurring phospholipid found in cell membranes, primarily in animal-based sources such as meat and fish. It is commonly used as a dietary supplement to potentially support cognitive function and memory, as well as age-related cognitive decline and improving focus and mental clarity.

[Phosphatidylserine](#) is a major component of all cell membranes. It's found in high amounts in the brain, and it helps support brain function.

People use phosphatidylserine as a supplement to improve mental focus, memory, and mood.

## How it helps

Phosphatidylserine is a key component of neuronal membranes that may help support brain function.

Supplementation with phosphatidylserine may improve cognitive aspects such as memory and learning in people with mild cognitive decline. However, the results are mixed [\[R,R,R\]](#).

51



## Citicoline (CDP Choline)

IMPACT

1 / 5

EVIDENCE

0 / 5

### How to implement

Take 250 to 1000 mg of citicoline (CDP choline) daily, in the morning with or without food. For best results, continue this supplement regimen daily for at least 6 weeks to 3 months.

TYPICAL STARTING DOSE

**250 mg**

### Description

Citicoline is a compound that may have cognitive-enhancing properties and is sometimes used as a dietary supplement to support brain function and memory. It's believed to promote neural health and cognitive performance.


*CDP-choline* is a molecule naturally produced by the body. It is important for cell structure and function. It also contributes to the production of the chemical messenger [acetylcholine](#) [R, R].

The supplement form of CDP-choline is called [citicoline](#). It may support brain and eye health. It may also help with drug addictions [R, R].

### How it helps

Citicoline has been shown to stimulate the synthesis of key brain phospholipids and boost neurotransmitters, which may contribute to enhanced processing speed.

[Citicoline](#) supplementation (250-1,000 mg/day for 28 days) may improve a range of cognitive functions. However, one study only found this benefit in low cognitive performers [R, R, R].

52  **Fucoxanthin**

**IMPACT** 0 / 5

**EVIDENCE** 1 / 5

## How to implement

Take fucoxanthin as a dietary supplement in a dosage of 2.4 to 8 mg per day, with a meal that contains fat for better absorption. It can be taken in a single dose or divided into two doses throughout the day. Continue for at least 5 to 16 weeks to observe benefits.

TYPICAL STARTING DOSE

3 mg

## Description

Fucoxanthin is a natural pigment found in certain types of seaweed and algae. It is believed to have potential health benefits, including supporting weight management and promoting antioxidant activity.

## How it helps

Fucoxanthin is a natural pigment found in seaweed that is believed to boost brain health. However, there's currently no scientifically validated evidence to suggest that Fucoxanthin can specifically aid in enhancing processing speed.

In a [placebo-controlled trial of 61 experienced gamers](#), supplementation with a Phaeodactylum tricornutum extract with 1% fucoxanthin and 500 mg guarana for 30 days **improved reaction time, reasoning, learning, executive control, attention shifting (cognitive flexibility), and impulsiveness** [R].

53



## Airway Muscle Training

IMPACT

0 / 5

EVIDENCE

0 / 5

### How to implement

Perform airway muscle training exercises daily for at least 30 minutes. This can involve using specific devices designed to resist airflow in and out, thereby strengthening the respiratory muscles, or practicing breathing exercises that focus on inhaling and exhaling against resistance. Consistency is key, so aim to integrate this practice into your daily routine for ongoing respiratory health.

TYPICAL STARTING DOSE

**30 minutes**

### Description

Airway muscle training is exercise that builds strength in the throat and tongue muscles. This can involve anything from controlled breathing to singing long notes. People use airway muscle training to improve sleep apnea, respiratory conditions, and exercise performance.

Airway muscle training is exercise that builds strength in the throat and tongue muscles. This can involve anything from controlled breathing to singing long notes. People use airway muscle training to improve [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#):

- Sleep apnea
- Respiratory conditions like COPD
- Exercise performance

### How it helps

Airway muscle training can indirectly improve cognitive processing speed by enhancing respiratory efficiency and brain oxygenation.

In an uncontrolled trial of 10 healthy volunteers, voluntary isocapnic hyperventilatory training of the respiratory muscles improved processing speed and working memory during exercise at altitude [\[R\]](#).

54



## Pilates

IMPACT
EVIDENCE

● ● ● ● ● 0 / 5

● ● ● ● ● 0 / 5

## How to implement

Engage in Pilates exercises for at least 20-30 minutes, 3 times a week. Focus on core strength, flexibility, and mindful breathing. It is suitable for both beginners and advanced individuals, adjusting the difficulty of exercises as necessary.

TYPICAL STARTING DOSE

**30 minutes**

## Description

Pilates is a form of exercise that focuses on strengthening the core, improving flexibility, and enhancing overall body awareness through controlled movements and breathing techniques. Its health benefits include increased core strength, improved posture, enhanced flexibility, and better balance, making it a popular choice for those seeking a holistic approach to fitness.

**Pilates is a type of exercise that emphasizes proper alignment, breathing techniques, and precise movements.**

It involves a series of controlled movements performed on a mat or with specialized equipment, such as a reformer or Cadillac. Pilates helps strengthen the core muscles, improve flexibility, and promote mind-body awareness.

## How it helps

In a non-placebo-controlled trial of 34 patients with multiple sclerosis, the combination of Pilates and aerobic exercise (3x/week for 8 weeks) improved information processing speed and other cognitive aspects [\[R\]](#).

55



## Hydroxytyrosol

IMPACT
EVIDENCE

● ● ● ● ● 0 / 5

● ● ● ● ● 0 / 5

## How to implement

Take a hydroxytyrosol supplement at a dose of 5 to 10 mg per day, with or without food. This supplement should be taken daily for at least 8 to 12 weeks to observe potential health benefits.

TYPICAL STARTING DOSE

**5 mg**

## Description

Hydroxytyrosol is a natural phenolic compound found in extra virgin olive oil. It is known for its antioxidant properties and may contribute to the health benefits associated with the Mediterranean diet.

## How it helps

In a placebo-controlled trial of 72 middle-aged and older adults, supplementation with desert olive tree pearls (3 g, 2x/day for 12 weeks), which contain 162 times more hydroxytyrosol than olive oil, improved psychomotor speed, reaction time, cognitive flexibility, processing speed, and executive function [\[R\]](#).

Hydroxytyrosol may help by reducing oxidative damage and inflammation in the brain.

# Next Steps

Remember, your genes only tell one important part of your health story!

Now that you've seen your DNA-based results for this health topic, let's take a look at other contributing factors.

## Your lab results

Your lab results are impacted by the combined effect of your genes, environment and lifestyle.

Lab tests will give you the best picture of your current health status, while your genes provide insight into your health predispositions and which recommendations are best for you.

