

Reaction Time

Biohacker Report

REPORT CATEGORY —



COGNITION

Sample Client

Report date: 15 January 2026

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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.

Personal information

NAME

Sample Client

SEX AT BIRTH

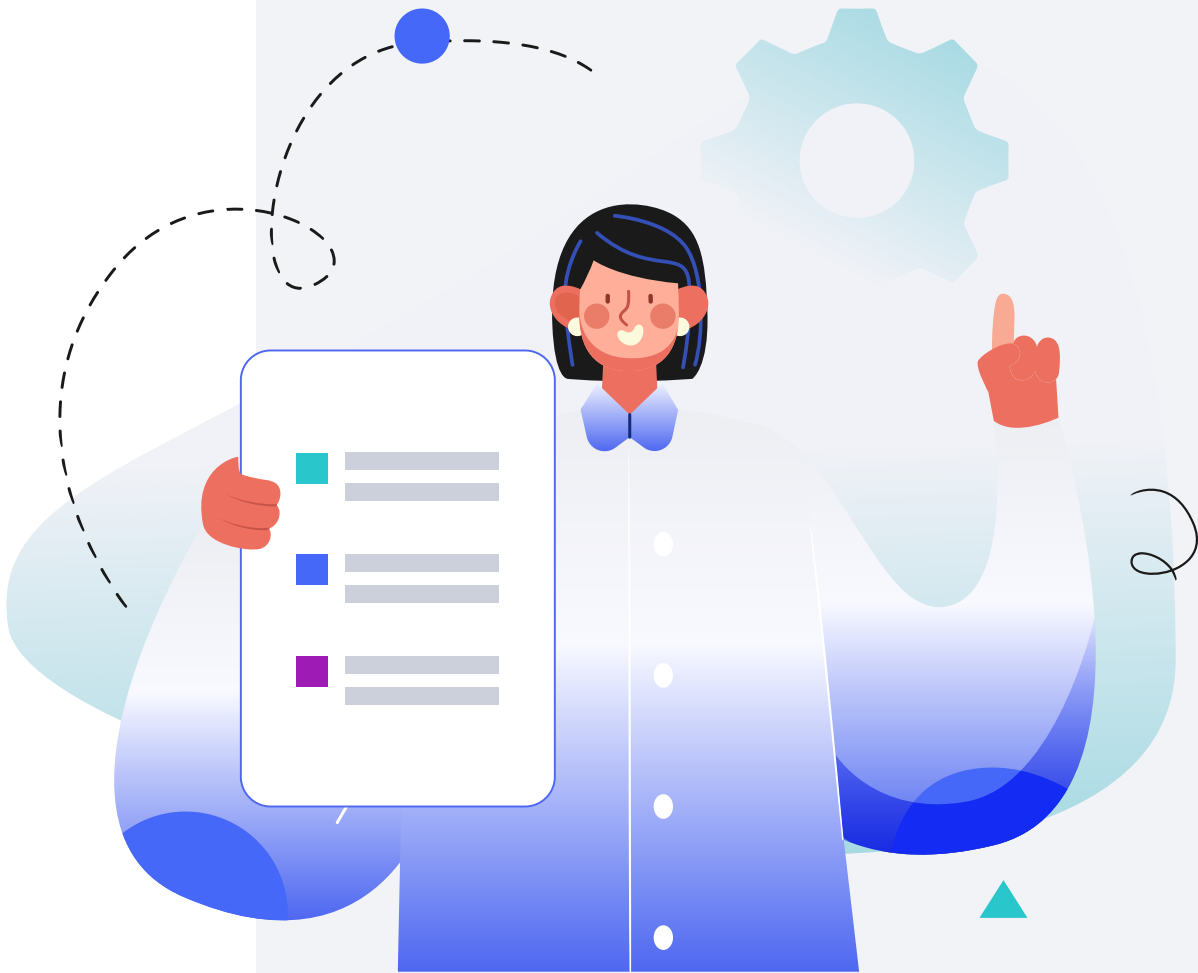
Male

HEIGHT

5ft 5" 165cm

WEIGHT

137lb 62kg



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

Reaction time, also known as response time, is the **time it takes for a person to respond to a stimulus** after it is presented. It measures how quickly a person can process information and make a decision [\[R\]](#), [\[R\]](#).

Scientists measure different types of reaction times. For example, the stimulus can be visual or auditory. Similarly, the setting can be simple or more complex [\[R\]](#):

- **Simple:** involves only one stimulus and one response.
- **Recognition:** involves choosing which stimuli to respond to.
- **Choice Reaction:** involves matching particular stimuli with particular reactions

Contributing Factors

 PERSONALIZED TO GENES

Based on the variants we looked at, you are predisposed to typical reaction time. However, practice, alertness, physical fitness, sleep quality, focus training, and activities requiring quick responses can improve reaction time.

Reaction time measures **how quickly you respond to a stimulus**. About **50-60%** of the differences in reaction times between people may be **due to genetics** [\[R, R, R\]](#).

Other contributing factors include [\[R, R, R, R, R, R\]](#):

- Age
- Gender
- Fitness
- Fatigue
- Drugs and alcohol
- Certain medical conditions

There are a number of things that you can do to improve your overall reaction time. These include [\[R, R\]](#):

- Getting enough sleep
- Exercising regularly
- Challenging your mind with plays, tasks, and social interactions

Caffeine may also cause short-term improvements in reaction time [\[R, R\]](#).



TYPICAL

Predisposed to typical reaction time based on **7,178,186** genetic variants we looked at

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
ATG13	rs7127529	AA
ARF3	rs10875906	CC
/	rs4627212	AA
PFDN1	rs269767	GG
SEMA6D	rs10519132	GA
TP53I11	rs7937459	CA
MFSD9	rs817225	AG
KRTAP7-1	rs7283316	AA
SPATA7	rs17124581	TT
PKNOX1	rs2839627	CC
MYRIP	rs9985399	TT
TMEM245	rs523340	GG
TTYH2	rs7219585	GG
JAG1	rs1884136	GG
IRX6	rs17291845	GG
PRB2	rs2908835	CC
NRSN1	rs6922632	AC
TRIB3	rs6051520	GT
IQGAP1	rs12915189	AG
TBX20	rs2392362	TC
/	rs2567426	GA
LRRC37A	rs35838379	AA
SH2B3	rs7309325	GG
/	rs13028903	CC
RMI1	rs10125715	AA
RORB	rs2045193	CC
CSMD1	rs1011587	AA
ARMC2	rs1575676	TT
/	rs390296	CC
ATP5PD	rs11077773	TT
HNF4G	rs16939046	TT
ACP1	rs11542478	AA

GENE	SNP	GENOTYPE
SHLD1	rs4815868	AA
DCDC2	rs793834	GG
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	Aerobic Exercise (Cardio)	1 hour	2	Behavioral Sleep Extension	
3	Omega-3 (Fish Oil)	500 mg	4	Pyrroloquinoline Quinone (PQQ)	20 mg
5	American Ginseng	200 mg	6	Circadian Rhythm Alignment	
7	Theacrine		8	Zinc	10 mg
9	Ayurvedic Zinc	15 mg	10	Avoid Lead Exposure	
11	Desert Olive Tree Pearls		12	Zembrin	
13	Ashwagandha	120 mg	14	Decaffeinated Coffee	
15	Chewing		16	Histidine	500 mg
17	BCAAs (Branched-Chain Amino Acids)	5 g	18	Low-Glutamate Diet	
19	Concord Grape Juice		20	Bhastrika Yoga (Bellows Breathing)	5 minutes
21	Paraxanthine	100 mg	22	L-Ornithine L-Aspartate and BCAAs	3 g
23	Rhodiola	500 mg	24	Balance And Mobility Training	30 minutes
25	Berries		26	Kelp	500 mg
27	Kanna (Sceletium Tortuosum)	50 mg	28	Progressive Muscle Relaxation	10 minutes
29	Brown Seaweed	500 mg	30	Avoid Organophosphate Pesticide Exposure	
31	L-Ornithine L-Aspartate	3 g	32	Hydroxytyrosol	5 mg

33	Vinpocetine		34	Blueberries	
35	Ginger	500 mg	36	B Vitamins	
37	Cognitive Training	15 minutes	38	L-Carnitine	500 mg
39	Creatine	4 g	40	Meditation	30 minutes
41	Flavonoids		42	Practice Exercise Snacks	1 minutesute
43	Mindfulness Meditation	30 minutes	44	Kava	200 mg
45	Acetyl-L-Carnitine	500 mg	46	Alanylglutamine	1 g
47	Gotu Kola		48	L-Tyrosine	500 mg
49	L-Theanine	100 mg	50	Policosanol	5 mg
51	Tai Chi	1 hour	52	Ginkgo	120 mg
53	Green Tea	400 mg			

1



Aerobic Exercise (Cardio)

IMPACT3 / 5

EVIDENCE3 / 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

Studies show that [exercise](#) is one of the most important ways to support brain health. Exercise may improve [brain blood flow](#), reduce [inflammation](#), and stimulate the growth of new brain cells [[R](#), [R](#), [R](#), [R](#)].

Aerobic exercise may improve reaction time and other areas of cognitive function [[R](#), [R](#), [R](#), [R](#), [R](#)].

Exercise may be even more effective when combined with cognitive training and diet changes [[R](#), [R](#), [R](#)].

2



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 involves extending your sleeping hours, may enhance reaction time by allowing the brain to rest, recharge, and process information more effectively. A well-rested brain reacts more quickly and accurately, reducing the delay in physical responses.

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, R].

3



Omega-3 (Fish Oil)

IMPACT2 / 5

EVIDENCE2 / 5

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 fatty acids may improve reaction time in healthy adults and children. Tested formulations include:

- DHA (0.4-1.16 g/day) [\[R\]](#), [\[R\]](#), [\[R\]](#)
- EPA-rich fish oil [\[R\]](#)
- DHA-rich fish oil (1.1 g/day DHA and 0.4 g/day EPA) [\[R\]](#)
- Omega-3 (2.25 g/day) plus policosanol (10 mg/day) [\[R\]](#)

Fish oil also improved reaction time in a trial on children and adolescents with ADHD [\[R\]](#).

4



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.

5



American Ginseng

IMPACT2 / 5

EVIDENCE2 / 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

In [3 placebo-controlled trials of 145 healthy participants](#), supplementation with American ginseng extract (100-400 mg) **improved working memory, attention, choice reaction time, mental fatigue, and calmness** [\[R\]](#), [\[R\]](#), [\[R\]](#).

A multi-ingredient supplement with American ginseng, bacopa, and whole coffee fruit extract **improved working memory and prefrontal cortex activation during a working memory task** in a [placebo-controlled trial of 40 healthy adults](#) [\[R\]](#).

American ginseng extract taken for 4 weeks also **improved working memory** in a [placebo-controlled trial of 64 patients with schizophrenia](#) [\[R\]](#).

6



Circadian Rhythm Alignment

IMPACT

2 / 5

EVIDENCE

1 / 5

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

Circadian rhythm alignment interventions with controlled light exposure, fixed meal times, caffeine avoidance, and exercise improved stress and reaction time during the typical 'suboptimal' morning hours in a non-placebo-controlled trial [\[R\]](#).

7



Theacrine

IMPACT

2 / 5

EVIDENCE

1 / 5

How to implement

Take a theacrine supplement, commonly found in doses ranging from 50mg to 300mg, daily in the morning. It's advisable to start with a lower dose to assess tolerance before gradually increasing to a more effective dose. Theacrine is typically taken for periods of up to eight weeks followed by a break to prevent habituation.

Description

Theacrine is a natural compound found in certain tea leaves and kucha tea. It is structurally similar to caffeine but has a smoother, longer-lasting effect without the typical jitters or crashes, making it a potential stimulant and cognitive enhancer.

How it helps

Theacrine, a natural compound found in certain teas, can boost mental clarity and improve reaction time by stimulating the central nervous system. It achieves this by blocking adenosine receptors in the brain, which helps to promote alertness and reduce feelings of fatigue.

A double-blind, randomized, placebo-controlled trial in 48 tactical personnel members, found that the combination of caffeine (150 mg), methylliberine (100 mg), and theacrine (50 mg) provided **similar benefits on reaction times (RT) during a vigilance task in comparison with caffeine (300 mg)** without a significant rise in DBP. However, it did increase systolic blood pressure as much as caffeine [\[R\]](#).

Another double-blinded, randomized crossover experimental with 24 young adults found that a multi-ingredient energy supplement (MIES, containing theacrine 25 mg, L-theanine, ashwagandha, and coffee fruit extract, among others, 30 min after one or two servings of a MIES) **increased cerebral-cortical activation** recorded via electroencephalography and **reaction time during an attention-switching task** while **increasing sensitivity to target stimuli** in a dose-dependent manner [\[R\]](#).

8



Zinc

IMPACT

2 / 5

EVIDENCE

1 / 5

How to implement

Take a 15 mg zinc supplement daily, ideally with a meal to enhance absorption.

TYPICAL STARTING DOSE

10 mg

Description

Zinc is an essential mineral found in various foods, including meat, dairy, and nuts. It is crucial for immune function, wound healing, DNA synthesis, and maintaining healthy skin and nails. Zinc supplements are sometimes used to support immune health and manage zinc deficiencies.

[Zinc](#) is an essential mineral. Your body needs it to [\[R\]](#), [\[R\]](#):

- Defend against disease
- Protect DNA from damage
- Heal wounds
- Control blood sugar

Some of the best sources of zinc include **shellfish, pork, beef, and beans**. It is also available as a supplement [\[R\]](#).

Adults should get **8-11 mg of zinc** per day [\[R\]](#).

How it helps

Zinc helps maintain your immune system, which can indirectly support faster recovery time after an illness. However, there's no direct evidence showing that zinc improves reaction time.

9



Ayurvedic Zinc

IMPACT

2 / 5

EVIDENCE

1 / 5

How to implement

Take an Ayurvedic zinc supplement, specifically in the form of zinc picolinate, at a dose of 15-30 mg daily. This should be consumed with a meal to enhance absorption and reduce stomach upset. Recommend continuation for a period of 3 months before evaluating its benefits on your health.

TYPICAL STARTING DOSE

15 mg

Description

Ayurvedic zinc formulations are believed to support immune health and overall well-being through traditional Ayurvedic practices. They are used to balance bodily functions and enhance vitality.

How it helps

Ayurvedic Zinc can help enhance cognitive abilities, which includes improving your reaction time. It helps in neurotransmission, the process which allows for quick responses and actions.

10



Avoid Lead Exposure

IMPACT

1 / 5

EVIDENCE

3 / 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

An analysis of 12 studies showed that occupational lead exposure is associated with neurological damage. The main parameters evaluated for possible neurological damage were related to memory aspects, reaction time, intelligence, attention disorders, and mood changes [\[R\]](#).

A review of 2 meta-analyses on occupational lead exposure indicates impairments measured with two tests covering Logical Memory and Visual Reproduction, as well as Simple Reaction, Attention Test d2, Block Design, and Picture Completion [\[R\]](#).

11



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].

12



Zembrin

IMPACT

1 / 5

EVIDENCE

1 / 5

How to implement

Take a Zembrin supplement of 25mg once daily, typically in the morning with or without food. Continue daily for an intended period of at least 2 weeks to evaluate its effects on mood and cognitive function.

Description

Zembrin is a patented extract derived from the Sceletium tortuosum plant, native to South Africa. It is used for its potential to support mood and reduce stress and anxiety, as it contains alkaloids believed to interact with the brain's serotonin receptors.

How it helps

In a placebo-controlled trial of 60 recreationally trained men, supplementation with Zembrin (25 mg/day) for 8 days improved complex reactive performance that required subjects to respond to repeated visual stimuli with a cognitive load [R].

Zembrin enhances brain function, especially in areas tied to mental clarity and cognitive flexibility, which may strengthen reaction time.

13



Ashwagandha

IMPACT

1 / 5

EVIDENCE

1 / 5

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

In a placebo-controlled trial of 60 patients with bipolar disorder, supplementation with ashwagandha (500 mg/day) improved performance at the Flanker neutral response time test [\[R\]](#).

Ashwagandha may help by enhancing brain function and concentration. It stimulates neural activity, which could lead to faster decision-making and responses.

14



Decaffeinated Coffee

IMPACT

1 / 5

EVIDENCE

1 / 5

How to implement

Replace your regular coffee intake with decaffeinated coffee. Aim to consume it in the same quantities and at the same times you would normally drink caffeinated coffee. This adjustment can be made indefinitely to reduce caffeine intake without altering your routine significantly.

Description

Decaffeinated coffee allows individuals to enjoy the flavor and aroma of coffee without the stimulating effects of caffeine, making it a suitable choice for those who are sensitive to caffeine or want to reduce their intake. It can still provide antioxidants and potential benefits like improved alertness.

How it helps

Decaffeinated coffee can help improve reaction time as it still contains small amounts of caffeine, a stimulant known to enhance alertness and cognitive function. However, the benefits may be less pronounced compared to regular coffee due to lower caffeine content.

In a study with 70 healthy adults, divided into caffeinated and decaffeinated coffee groups, both showed significant post-intervention improvements in reaction time and mood but no effect on muscle strength. Caffeinated coffee notably enhanced mood compared to decaffeinated coffee. In conclusion, decaffeinated coffee has a modest stimulating effect on reaction time and mood, but caffeinated coffee yields more pronounced improvements [\[R\]](#).

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.

15



Chewing

IMPACT

1 / 5

EVIDENCE

1 / 5

How to implement

Incorporate chewing thoroughly into your daily eating habits by ensuring each bite is chewed 20-30 times before swallowing. Practice this technique at every meal and with snacks to improve digestion and satiety.

Description

Chewing can help to reduce the tendency to overeat by keeping your mouth busy and providing a sense of fullness. It can also help to improve your metabolic rate and increase your energy levels. Additionally, chewing can help to improve your attention span and reduce stress levels.

How it helps

In a non-placebo-controlled trial of 133 volunteers, chewing gum improved selective and sustained attention, alertness, mood, and reaction time [\[R\]](#).

Chewing stimulates blood flow to the brain and increases arousal, making you more alert.

16



Histidine

IMPACT

1 / 5

EVIDENCE

1 / 5

How to implement

Take 500-1000 mg of histidine supplement per day, ideally with a meal. It is best to start with a lower dose, such as 500 mg, to assess tolerance and then adjust as needed up to 1000 mg. Consistent daily intake for at least 4 to 8 weeks may be necessary to notice benefits.

TYPICAL STARTING DOSE

500 mg

Description

Histidine is an essential amino acid that plays a role in protein synthesis and the formation of histamine. It is important for overall health and is found in various protein-rich foods.

A histidine supplement of up to 14 mg/kg/d can be taken to meet the needs not achieved through diet.

You can also increase your dietary histidine intake. Histidine is found in protein-rich foods such as meat, chicken, fish, beans, oats, and wheat. It's especially high in the Japanese food ingredient dashi or dried bonito, often used for soup stock [R].

How it helps

Histidine, an essential amino acid, is beneficial to improve reaction time as it plays an essential role in the production of histamine, a neurotransmitter involved in the brain's alertness mechanisms. Increasing histidine levels can potentially enhance the alertness and response speed of your nervous system.

In a placebo-controlled trial of 20 subjects with high fatigue and sleep disruption scores, supplementation with L-histidine for 2 weeks **reduced mental fatigue, shortened reaction time for the working memory task, and increased clear thinking and attentiveness** [R].

17



BCAAs (Branched-Chain Amino Acids)

IMPACT

1 / 5

EVIDENCE

1 / 5

How to implement

Take a BCAA supplement that provides about 5-10 grams of branched-chain amino acids, divided into 2-3 doses per day, preferably around your workout times or between meals. This regimen can be followed daily, especially on training days for muscle support and recovery.

TYPICAL STARTING DOSE

5 g

Description

BCAAs, or **branched-chain amino acids**, are a group of three essential amino acids: **leucine**, **isoleucine**, and **valine**. They are found in dietary protein sources, especially meat, dairy, and legumes.

BCAAs, or **branched-chain amino acids**, are a group of three essential amino acids: **leucine**, **isoleucine**, and **valine**. They are found in dietary protein sources, especially meat, dairy, and legumes [\[R\]](#).

BCAAs play a vital role in protein synthesis, muscle growth, and energy production. People use BCAA supplements to support exercise and muscle performance, liver health, and more [\[R\]](#), [\[R\]](#).

How it helps

Supplementation with BCAAs improved multiple-choice reaction time during exercise in 3 trials of 33 healthy volunteers [\[R\]](#), [\[R\]](#), [\[R\]](#).

BCAAs may help by reducing fatigue and maintaining mental acuity.

Please note: *There is not enough safety data for long-term BCAA supplementation at doses above **12 g/day**. Increased BCAA intake may be linked to type 2 diabetes [\[R\]](#).*

18



Low-Glutamate Diet

IMPACT

1 / 5

EVIDENCE

1 / 5

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 impair reaction time by overstimulating the nervous system.

19



Concord Grape Juice

IMPACT

1 / 5

EVIDENCE

1 / 5

How to implement

Drink 8-12 ounces of 100% Concord grape juice daily. Continue this practice as part of your daily diet to see potential health benefits.

Description

Concord grape juice is rich in antioxidants and may offer cardiovascular benefits by supporting heart health and potentially reducing blood pressure. Consuming this juice in moderation as part of a balanced diet may contribute to overall cardiovascular well-being.

How it helps

Red grape juice, rich in antioxidant compounds, boosts brain functions, particularly memory and learning, which can potentially improve reaction time. Additional research is required to confirm these effects.

A double-blind study with 20 healthy adults found that 230 ml of purple grape juice improved reaction time and increased calmness compared to a placebo. Starting with grape juice had lasting positive effects on memory and calmness [\[R\]](#).

20



Bhastrika Yoga (Bellows Breathing)

IMPACT

1 / 5

EVIDENCE

1 / 5

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 may help by improving lung capacity and oxygen flow to the brain, which promotes sharper mental clarity and faster cognitive responses.

21



Paraxanthine

IMPACT

1 / 5

EVIDENCE

1 / 5

How to implement

Take a paraxanthine supplement of approximately 100-200 mg per day, orally. This is best done in the morning to avoid interference with sleep patterns. Continue this daily for a period assessed by its benefits on your health or as recommended by a healthcare provider.

TYPICAL STARTING DOSE

100 mg

Description

Paraxanthine, also known as 1,7-dimethylxanthine, is a natural metabolite of caffeine. It is utilized primarily as a stimulant to increase alertness and energy levels, and is found in caffeinated beverages like coffee, tea and energy drinks. Supplement forms offer more concentrated doses that may help with energy levels and alertness.

How it helps

In 2 placebo-controlled trials of 25 healthy volunteers, a single paraxanthine dose (50-200 mg) improved response time to cognitive challenges and other cognitive parameters [R, R].

Paraxanthine stimulates the release of neurotransmitters like dopamine and glutamate that are important for cognition. This stimulation helps improve mental alertness, memory, and concentration, making it beneficial for cognitive functions.

22



L-Ornithine L-Aspartate and BCAAs

IMPACT

1 / 5

EVIDENCE

1 / 5

How to implement

For adults, take an oral supplement containing L-ornithine L-aspartate in doses of 3 to 6 grams per day, divided into two to three doses, along with branched-chain amino acids (BCAAs) in a dose of approximately 5 to 20 grams per day, also divided into two to three doses. This regimen should be followed daily for a period of time as advised by a healthcare provider, usually several weeks to months, depending on individual health goals and conditions.

TYPICAL STARTING DOSE

3 g

Description

L-ornithine is an amino acid often used to reduce exercise-related fatigue and support muscle recovery. It is also studied for its role in promoting detoxification processes in the body. L-aspartate is an amino acid used in dietary supplements to support liver function, improve exercise performance, as well as playing a role in energy metabolism. BCAAs, including leucine, isoleucine, and valine, are amino acids that support muscle protein synthesis, reduce exercise-induced muscle damage, and may enhance physical performance.

How it helps

In a placebo-controlled trial of 11 endurance-trained men, supplementation with L-ornithine L-aspartate (12 g) plus branched-chain amino acids (16 g) improved multiple-choice reaction time during high-intensity exercise and sped up plasma ammonia elimination during recovery [\[R\]](#).

L-ornithine L-aspartate and BCAAs may help improve brain health and cognitive function, which can enhance reaction time.

23



Rhodiola

IMPACT

1 / 5

EVIDENCE

1 / 5

How to implement

Take 500 mg of rhodiola supplement daily, preferably in the morning to avoid potential interference with sleep.

TYPICAL STARTING DOSE

500 mg

Description

Rhodiola is a plant native to the arctic regions of Europe and Asia, where it's traditionally used to enhance stamina, combat stress and fatigue, and improve mental performance and resilience in harsh environments. Its main compounds include rosavins and salidroside.

[Rhodiola](#) (*Rhodiola rosea*) is a plant that grows in the mountains of eastern Europe and Asia [\[R\]](#).

Rhodiola is an *adaptogen*, meaning that it may help you adapt to stress. According to early research, this herb may help with [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#):

- Fatigue
- Burnout
- Low mood

How it helps

In a placebo-controlled trial of 26 healthy male students, supplementation with rhodiola extract (600 mg/day) for 4 weeks improved simple and choice reaction time [\[R\]](#).

24



Balance And Mobility Training

IMPACT

1 / 5

EVIDENCE

1 / 5

How to implement

Incorporate balance and mobility exercises into your routine three to four times per week. Each session should last approximately 30 minutes and include activities such as standing on one foot, walking heel to toe, and tai chi or yoga. Start with simple exercises and gradually increase difficulty as your balance improves.

TYPICAL STARTING DOSE

30 minutes

Description

Balance and mobility training exercises, such as yoga or tai chi, can improve stability and reduce the risk of falls, particularly among older adults. These exercises enhance overall physical function.

How it helps

A study examined the effects of balance and mobility training, both alone and combined with cognitive training, in older adults. Both groups showed improved timed up and go (TUG), TUG cognitive (TUGcog), and TUG manual (TUGman) tasks after 12 weeks, maintaining improvements at a 12-week follow-up, while the control group showed no changes. No significant differences were observed between the groups with and without cognitive training [\[R\]](#).

Balance and mobility training exercises improve coordination and reflexes, helping to fine-tune reaction time.

25



Berries

IMPACT

1 / 5

EVIDENCE

1 / 5

How to implement

Incorporate a variety of berries such as strawberries, blueberries, raspberries, and blackberries into your daily diet. Aim for at least one cup of fresh or frozen berries every day, either as a snack, part of your breakfast (such as in oatmeal or yogurt), or as a dessert.

Description

Berries, such as strawberries, blueberries, and raspberries, are packed with antioxidants, vitamins, and fiber. Regular consumption of berries may support heart health, improve cognitive function, and contribute to overall well-being.

How it helps

Berries are rich in antioxidants, which help to protect brain cells from damage and reduce inflammation, potentially leading to improvements in brain function and reaction time. Regular consumption could therefore hasten mental processing and reaction capabilities.

In a study with 40 participants aged 20-30, consuming a mixed berry smoothie improved cognitive performance and reduced fatigue compared to a placebo. Berry intervention maintained accuracy and led to quicker response times during the study [\[R\]](#).

26



Kelp

IMPACT

1 / 5

EVIDENCE

1 / 5

How to implement

Take a kelp supplement daily, ensuring the dosage aligns with the product's label, typically ranging from 600 to 1000 micrograms of iodine. It's important to not exceed the recommended dosage to avoid potential thyroid issues. Use for ongoing nutritional support, especially if your diet lacks iodine.

TYPICAL STARTING DOSE

500 mg

Description

Kelp is a type of seaweed rich in iodine and other minerals. Incorporating kelp into the diet may help support thyroid function and provide essential nutrients.

Kelp is a source of iodine, vitamins K, A, C, E, and B-vitamins, along with some thiamin, riboflavin, and niacin. The highest type is kombu kelp, which contains 2,984 mcg of iodine per seaweed sheet (1 gram).

How it helps

In a placebo-controlled trial of 60 healthy volunteers, supplementation with kelp 30 minutes before lunch improved accuracy on digit vigilance and choice reaction time [\[R\]](#).

27



Kanna (Sceletium Tortuosum)

IMPACT

1 / 5

EVIDENCE

1 / 5

How to implement

Take a kanna supplement, typically available in capsules or powder form, at a dosage of 50-200 mg daily. It is best consumed with meals to improve absorption. Start with the lower end of the dosage range and gradually increase as needed. Continual use for up to 8 weeks is considered safe, with a break or evaluation afterwards.

TYPICAL STARTING DOSE

50 mg

Description

Kanna, a traditional South African herb, is sometimes used to alleviate stress and anxiety. It contains compounds that may have mood-enhancing and stress-reducing effects when used responsibly.

Kanna or [Sceletium tortuosum](#) is a South African herb. It is traditionally used to support emotional and mental well-being by native South African people [\[R\]](#).

How it helps

In a placebo-controlled trial of 60 recreationally trained men, supplementation with kanna extract (25 mg/day) for 8 days improved complex reactive performance that required subjects to respond to repeated visual stimuli with a cognitive load [\[R\]](#).

Kanna may enhance brain function, especially in areas tied to mental clarity and cognitive flexibility, which may strengthen reaction time.

28



Progressive Muscle Relaxation

IMPACT

1 / 5

EVIDENCE

1 / 5

How to implement

Set aside at least 10-15 minutes daily in a quiet, comfortable spot where you won't be disturbed. Start by tensing the muscles in your feet for 5 seconds, then relax for 30 seconds, and progressively work your way up through the major muscle groups of your body, tensing then relaxing each for 5 and 30 seconds respectively.

TYPICAL STARTING DOSE

10 minutes

Description

Progressive Muscle Relaxation is a relaxation technique involving the systematic tensing and releasing of muscle groups to reduce muscle tension, stress, and anxiety. Regular practice can lead to improved physical and mental relaxation.

Progressive muscle relaxation is a relaxation technique focused on releasing muscle tension. In this technique, you focus on tensing and relaxing different parts of your body, one after the other, to relieve stress [R](#), [R](#)].

It is common to start with the toes and slowly work your way up to the neck and head. Try to focus on a single muscle group at a time (for example, the calf muscles). Tense these muscles for 5-10 seconds, then relax for 20-30 seconds before moving on to the next muscle group [R](#), [R](#)].

How it helps

In a non-placebo-controlled trial of 26 soccer players, progressive muscle relaxation (12 sessions of 7 and 16 muscle groups) reduced heart rate, and perceived exertion while improving reaction time [R](#)].

Progressive muscle relaxation may help by relieving stress and increasing one's ability to focus.

29



Brown Seaweed

IMPACT

1 / 5

EVIDENCE

1 / 5

How to implement

Take a supplement containing brown seaweed extract, such as Fucus vesiculosus or Ascophyllum nodosum, in capsule or powder form. Aim for a daily dosage of 500-1000 mg, preferably with meals to enhance absorption. Continue this regimen for at least 8-12 weeks to evaluate its effects on your health.

TYPICAL STARTING DOSE

500 mg

Description

Brown seaweed, such as kelp and wakame, is a nutrient-dense marine alga often used in Asian cuisine and dietary supplements. It's a natural source of essential minerals like iodine and may offer various health benefits, including thyroid support and potential antioxidant effects.

How it helps

In a placebo-controlled trial of 60 healthy volunteers, supplementation with brown seaweed 30 minutes before lunch improved accuracy on digit vigilance and choice reaction time [\[R\]](#).

How to implement

Description

Organophosphates (OP) are the most widely used pesticides worldwide. They include [R]:

- Chronic exposure to OPs has been linked to [R, R]:

- Fertility problems
- Cognitive problems
- Nerve damage
- Cancer and gene damage

How it helps

Reducing exposure to organophosphate pesticides can help improve your reaction time. These pesticides are neurotoxins that can slow down the brain's processing speed, thus affecting your ability to react quickly to stimuli.

In a study with 51 participants, no immediate effects were found after one spraying season, but exposed female workers showed longer reaction times, reduced motor steadiness, increased tension, depression, fatigue, and more CNS symptoms compared to controls [R].

31



L-Ornithine L-Aspartate

IMPACT

0 / 5

EVIDENCE

0 / 5

How to implement

Take 3 to 6 grams of L-Ornithine L-Aspartate daily, divided into two to three doses, with water. This regimen can be followed daily for up to 6 months to support liver health and help in reducing symptoms of high ammonia levels.

TYPICAL STARTING DOSE

3 g

Description

L-ornithine is an amino acid often used to reduce exercise-related fatigue and support muscle recovery. It is also studied for its role in promoting detoxification processes in the body. L-aspartate is an amino acid used in dietary supplements to support liver function, improve exercise performance, as well as playing a role in energy metabolism.

How it helps

In a placebo-controlled trial of 11 endurance-trained men, supplementation with L-ornithine L-aspartate (12 g) plus branched-chain amino acids (16 g) improved multiple-choice reaction time during high-intensity exercise and sped up plasma ammonia elimination during recovery [\[R\]](#).

32



Hydroxytyrosol

IMPACT

0 / 5

EVIDENCE

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.

33



Vinpocetine

IMPACT

0 / 5

EVIDENCE

0 / 5

How to implement

Take vinpocetine as a supplement with a dose of 10mg three times daily. It's best consumed with meals to enhance its absorption.

Description

Vinpocetine is a synthetic compound derived from the periwinkle plant, used as a dietary supplement. It may support cognitive function and enhance blood flow to the brain, potentially benefiting memory and mental clarity.

How it helps

Vinpocetine enhances blood flow to the brain which can improve cognitive functions like reaction time. It also reduces inflammation and oxidative stress, which both negatively impact reaction time.

34



Blueberries

IMPACT

0 / 5

EVIDENCE

0 / 5

How to implement

Incorporate a half to one cup of fresh or frozen blueberries into your daily diet. You can add them to your breakfast cereal, smoothies, or enjoy them as a snack on their own.

Description

Blueberries are a nutritious fruit packed with antioxidants, vitamins, and fiber. They are known for their potential to support brain health, reduce the risk of chronic diseases, and promote overall well-being.

[Blueberries](#) are enjoyed all around the world for their sweet taste and nutritional benefits. They may support [\[R\]](#):

- Heart health
- Cognitive function
- Normal blood sugar levels

How it helps

Blueberries are rich in antioxidants, which can help protect cells and tissues from oxidative stress. This can contribute to better overall brain health and cognitive function, potentially improving reaction times.

35



Ginger

IMPACT

0 / 5

EVIDENCE

0 / 5

How to implement

Take a 500 mg ginger supplement daily, preferably with a meal to enhance absorption and minimize potential stomach discomfort.

TYPICAL STARTING DOSE

500 mg

Description

Ginger is a versatile spice known for its potential anti-inflammatory and digestive benefits. It may help alleviate nausea, reduce muscle soreness, and support gastrointestinal comfort when consumed as part of a balanced diet.

[Ginger root](#) is a cooking spice and a traditional remedy. People mostly use it to relieve [\[R\]](#):

- Nausea
- Menstrual cramps
- Joint pain

How it helps

Ginger has elements that improve brain function, aiding in quicker thought processes and sharper recognition. This could help improve your reaction time by heightening your alertness.

36



B Vitamins

IMPACT

0 / 5

EVIDENCE

0 / 5

How to implement

Take a B vitamin complex supplement once daily, preferably with your morning meal to enhance absorption. The supplement should include a range of B vitamins such as B1 (thiamine), B2 (riboflavin), B3 (niacin), B5 (pantothenic acid), B6 (pyridoxine), B7 (biotin), B9 (folate), and B12 (cobalamin). Ensure consistency by taking it at the same time each day.

Description

B vitamins help the body function properly. Two examples are [vitamin B9 \(folate\)](#) and [vitamin B12](#). They play essential roles in [\[R, R, R, R\]](#):

- DNA formation
- Metabolism
- Energy production

You can get these vitamins from [\[R, R, R, R, R\]](#):

- Animal products
- Green leafy vegetables
- Citrus fruits
- Fortified foods
- Supplements

Adults should be getting **400 micrograms (mcg) of folate** and **2.4 mcg of vitamin B12** every day [\[R, R\]](#).

Folate deficiency is rare but can happen in people that don’t eat enough fruits and vegetables. Alcoholics and lactating mothers may also be at an increased risk [\[R\]](#).

Vitamin B12 deficiency often takes years to develop, as the body is able to store large amounts in the liver. Groups that may be at an increased risk include [\[R, R\]](#):

- Vegans
- Pregnant women
- Older people
- People with gut issues

How it helps

B Vitamins, including B6, B9, and B12, play a crucial role in brain health by supporting nerve function and the production of DNA and neurotransmitters, which may positively influence reaction time over the long term.

37



Cognitive Training

IMPACT

0 / 5

EVIDENCE

0 / 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 exercises, which often involve computer-based programs designed to enhance various aspects of cognitive function, can improve reaction time by strengthening neural connections in the brain.

38



L-Carnitine

IMPACT

0 / 5

EVIDENCE

0 / 5

How to implement

Take 500 mg of L-carnitine supplement daily with a glass of water, preferably with a meal to enhance absorption.

TYPICAL STARTING DOSE

500 mg

Description

L-carnitine is an amino acid-like compound that plays a role in energy metabolism and helps prevent toxic substances from building up in cells. It is often used in dietary supplements for its potential to support muscle recovery, reduce fatigue, and enhance athletic performance.

[L-carnitine](#) is a compound that helps you burn fat. It also prevents toxic substances from building up in cells [\[R\]](#).

Your body can usually make enough carnitine to meet its needs. You can also get it from **meat and dairy products** [\[R\]](#).

People use L-carnitine for [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#):

- Heart problems
- Overactive thyroid
- Fertility problems
- Blood sugar control
- Weight control

How it helps

L-Carnitine is a supplement which helps your body produce energy by utilizing fat stores. However, there's no conclusive evidence that it directly improves reaction time.

39



Creatine

IMPACT

0 / 5

EVIDENCE

0 / 5

How to implement

Take 4 grams of creatine supplement daily, ideally mixed with water or juice. This dosage can be maintained consistently without needing specific periods of cycling on or off.

TYPICAL STARTING DOSE

4 g

Description

Creatine is a popular dietary supplement among athletes and bodybuilders, known to enhance muscle performance during short bursts of high-intensity activities. It may help improve exercise performance and support muscle growth when used as directed.

[Creatine](#) is a compound naturally produced by the body. It’s stored in the muscles and brain [\[R\]](#).

During exercise, creatine is released to boost performance and help build muscles. For this reason, it’s a popular supplement among athletes [\[R, R\]](#).

Sources of creatine include [\[R\]](#):

- Red meat
- Seafood
- Supplements

How it helps

Creatine supplementation can improve short-term memory and reasoning. Additionally, it has been shown to help with cognitive processing, potentially leading to quicker reaction times especially in situations of sleep deprivation.

40



Meditation

IMPACT

0 / 5

EVIDENCE

0 / 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

Meditation, particularly mindfulness and focused attention practices, can enhance concentration and attention control, which may translate into faster reaction times.

41



Flavonoids

IMPACT

0 / 5

EVIDENCE

0 / 5

How to implement

Incorporate flavonoid-rich foods into your diet daily, such as berries, apples, pears, onions, kale, and dark chocolate. Aim for at least 2-3 servings of these foods each day to maximize flavonoid intake.

Description

Flavonoids are a group of plant compounds that give color and flavor to fruits and vegetables. They are commonly taken as supplements for their antioxidant and anti-inflammatory effects

Flavonoids are a group of plant compounds that give color and flavor to fruits and vegetables. They are commonly taken as supplements for their antioxidant and anti-inflammatory effects [\[R\]](#).

Phlebotonics are products used for hemorrhoids and other vein problems. Most of them contain flavonoids. In certain countries, they are available as over-the-counter medications [\[R\]](#).

How it helps

Dietary flavonoids, present in fruits and vegetables like berries and leafy greens, have been associated with improved brain health and cognitive functions.

42



Practice Exercise Snacks

IMPACT

0 / 5

EVIDENCE

0 / 5

How to implement

Integrate short bursts of physical activity, each lasting about 1 to 2 minutes, into your daily routine at least two to three times a day. These 'exercise snacks' can include activities like doing a set of stairs, rapid bodyweight exercises, pull-ups, push-ups, sit-ups, or brisk walking.

TYPICAL STARTING DOSE

1 minutesute

Description

Staying physically active is essential for maintaining overall health and well-being. **Exercise snacks** are brief, frequent bursts of physical activity integrated into daily routines, helping combat the health risks associated with prolonged sitting and sedentary behavior, such as obesity and cardiovascular issues. Examples include taking the stairs or doing quick exercises during work breaks.

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

Exercise snacks are short, quick bursts of physical activity performed throughout the day, designed to break up prolonged periods of sitting or inactivity. These brief bouts of exercise can be as short as a few minutes and are incorporated into daily routines to boost overall physical activity levels.

Exercise snacks are crucial for health because they combat the negative effects of sedentary behavior, such as prolonged sitting, which is associated with an increased risk of obesity, cardiovascular diseases, diabetes, and musculoskeletal issues. They help improve blood circulation, regulate blood sugar levels, and enhance mood and cognitive function.

Examples of exercise snacks include taking the stairs instead of the elevator, doing a few minutes of bodyweight exercises (e.g., squats or push-ups) during work breaks, or walking briskly for a few minutes after meals. These short, frequent bursts of activity contribute to a more active lifestyle and can significantly benefit overall health by reducing the risks associated with excessive sitting.

How it helps

Leading an active lifestyle, including engaging in regular physical activities such as sports or brisk walking, maintains overall brain health, which may positively influence reaction times.

43



Mindfulness Meditation

IMPACT

0 / 5

EVIDENCE

0 / 5

How to implement

Practice mindfulness meditation for 10-20 minutes daily. Find a quiet, comfortable place to sit or lie down, then focus on your breath, observing thoughts and sensations without judgment. Consistency is key, so try to incorporate it into your daily routine, perhaps in the morning or before bed.

TYPICAL STARTING DOSE

30 minutes

Description

Mindfulness meditation involves focused attention on the breath or a specific point of focus to cultivate mindfulness and reduce stress. Regular meditation practice is associated with improved mental clarity, emotional regulation, and overall well-being.

How it helps

Mindfulness meditation practices can improve one's ability to focus and process external stimuli more quickly, which is essential for prompt reaction time.

44



Kava

IMPACT

0 / 5

EVIDENCE

0 / 5

How to implement

Take a 200 mg kava supplement daily, ideally in the evening or as directed by healthcare provider, for periods of stress or anxiety. Do not exceed the recommended dosage without medical advice.

TYPICAL STARTING DOSE

200 mg

Description

Kava is a traditional Pacific Island beverage known for its calming effects. When consumed in moderation, kava may help reduce anxiety and promote relaxation.

[Kava](#) (*Piper methysticum*) is a tropical plant. An extract from the root of this plant is also simply called kava [\[R\]](#).

Kava root is an important part of South Pacific traditional medicine. **People there use it to relax an anxious mind** [\[R\]](#).

According to limited research, kava may help with [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#):

- Sleep disorders
- Mood disorders
- Drug withdrawal

How it helps

Kava may help improve the speed of visual information processing, learning, and memory in the brain, potentially improving reaction time. It also has calming properties that help reduce stress and anxiety, which could indirectly lead to better reaction times.

How to implement

TYPICAL STARTING DOSE

500 mg

Description

Carnitine is a protein building block (amino acid). It comes in many forms, such as acetyl-L-carnitine [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 can benefit cognitive function and mental performance. Supplementation may enhance processing speed and overall reaction time.

46



Alanylglutamine

IMPACT

0 / 5

EVIDENCE

0 / 5

How to implement

Take alanylglutamine as a dietary supplement by mixing the prescribed dose, typically around 1 to 3 grams, into a beverage of your choice, such as water or juice. Consume this mixture once daily, preferably post-exercise or as directed by a healthcare professional.

TYPICAL STARTING DOSE

1 g

Description

Alanylglutamine is a dipeptide composed of the amino acids alanine and glutamine. It is used as a dietary supplement and is believed to support gut health and recovery from exercise.

How it helps

Alanylglutamine supplement helps improve Reaction Time by enhancing the efficiency of energy usage in brain cells, thus quickening their response time. This can lead to faster cognitive processing and improved reaction times.

47



Gotu Kola

IMPACT

0 / 5

EVIDENCE

0 / 5

How to implement

Take a Gotu Kola supplement, available in capsule or powder form, daily. Dosages typically range from 500mg to 2000mg daily, divided into two or three doses. It's recommended to start with the lower dose to assess tolerance and then increase if necessary. Continue for 4 to 6 weeks to evaluate the benefits.

Description

Gotu kola is an herb used in traditional medicine for its potential to improve cognitive function, reduce inflammation, and support skin health.

[Gotu kola](#) or Pennywort (*Centella asiatica*) is an herb used in Tai-Chi tradition and Ayurvedic and Chinese Traditional Medicine.

Gotu kola is used as an antioxidant and anti-inflammatory. Traditional uses include:

- Wound healing [\[R\]](#).
- Improving leg circulation [\[R\]](#)

How it helps

Gotu Kola enhances brain function, improving memory and cognition. Consequently, it can potentially aid in reducing your reaction time by increasing alertness and mental clarity.

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L-Tyrosine

IMPACT

0 / 5

EVIDENCE

0 / 5

How to implement

Take 500-2000 mg of L-Tyrosine supplement daily, preferably 30 minutes before meals or snacks. This can be taken in one dose or divided into two doses throughout the day. Continue this supplementation daily for a duration of at least a few weeks to assess its effects on your body.

TYPICAL STARTING DOSE

500 mg

Description

L-tyrosine is an amino acid used by the body to produce important neurotransmitters and hormones. It may help improve cognitive function, stress response, and overall mood regulation.

[Tyrosine](#) is a **non-essential amino acid**. This means that our bodies can make it from other amino acids like [phenylalanine](#). We can also get tyrosine from **protein-rich foods**, such as [\[R\]](#), [\[R\]](#):

- Red meat and poultry
- Dairy, especially cheese
- Legumes (e.g., soybeans and beans)
- Fish
- Nuts
- Eggs

Tyrosine can also be taken as a supplement. People often use it to maintain mental performance during demanding and stressful tasks [\[R\]](#), [\[R\]](#), [\[R\]](#).

How it helps

L-Tyrosine is an amino acid that the body uses to produce brain chemicals, which helps improve mental alertness and focus. This leads to potentially better reaction times as it enhances your brain's ability to quickly process information.

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L-Theanine

IMPACT

0 / 5

EVIDENCE

0 / 5

How to implement

Take 100-400 mg of L-theanine supplement daily. It can be consumed at any time of the day, with or without food.

TYPICAL STARTING DOSE

100 mg

Description

L-theanine is an amino acid found in tea leaves, known for its calming and relaxation-promoting effects. It is often used to reduce stress and anxiety and may contribute to improved focus and cognitive performance.

[L-theanine](#) is an amino acid found in black and [green tea](#) [\[R\]](#).

People take L-theanine as a supplement to [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#):

- Improve cognition
- Boost immunity
- Relieve anxiety and stress

How it helps

L-Theanine is an amino acid that promotes relaxation without sedation. It is known to improve attention and reaction time response, especially when combined with caffeine.

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Policosanol

IMPACT

0 / 5

EVIDENCE

0 / 5

How to implement

Take 5 to 20 milligrams of policosanol orally, once daily in the evening with a meal. Continue this regimen for at least 2 to 3 months to evaluate its effects on cholesterol levels.

TYPICAL STARTING DOSE

5 mg

Description

Policosanol is a supplement derived from the waxy coating of sugar cane and yams. It was developed in Cuba, and is used primarily for its potential to lower cholesterol levels and improve cardiovascular health.

How it helps

Policosanol has been reported to improve cognitive function and sharpen mental reflexes, which can in turn enhance reaction time. By improving blood flow to the brain, it reduces the time taken to process and respond to stimuli.

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Tai Chi

IMPACT

0 / 5

EVIDENCE

0 / 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, with its emphasis on slow, deliberate movements and breathing, can enhance proprioception and neural coordination, potentially improving reaction time in dynamic situations.

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Ginkgo

IMPACT

0 / 5

EVIDENCE

0 / 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 known to enhance blood circulation, thus improving oxygen flow to the brain and potentially sharpening cognitive functions like reaction time. Additionally, it's suggested it supports neuronal health, which could improve reaction capabilities.

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Green Tea

IMPACT

0 / 5

EVIDENCE

0 / 5

How to implement

Consume 400 mg of green tea extract daily. This can be taken in the form of capsules or tablets available that specify the amount of green tea extract. Ensure the supplement is taken according to the product's specific instructions, usually once a day with water.

TYPICAL STARTING DOSE

400 mg

Description

Tea is a beverage made by steeping the leaves of the *Camellia sinensis* plant in hot water. It comes in various types, including black, green, white, and herbal teas, and is known for its diverse flavors and potential health benefits due to antioxidants and other bioactive compounds.

[Green](#) and black tea are made from the same plant (*Camellia sinensis*). This plant is processed in different ways to make each type of tea [\[R, R\]](#).

Tea contains antioxidants called **flavonoids**, which may help prevent [\[R, R, R, R\]](#):

- Heart disease
- Cancer
- Diabetes

How it helps

Green tea contains L-theanine, an amino acid that can increase alertness and improve reaction time by promoting a state of calm attentiveness.

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.