

Short-Term Memory Impairment

DNA Health Report

REPORT CATEGORY —



COGNITION

Sample Client

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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

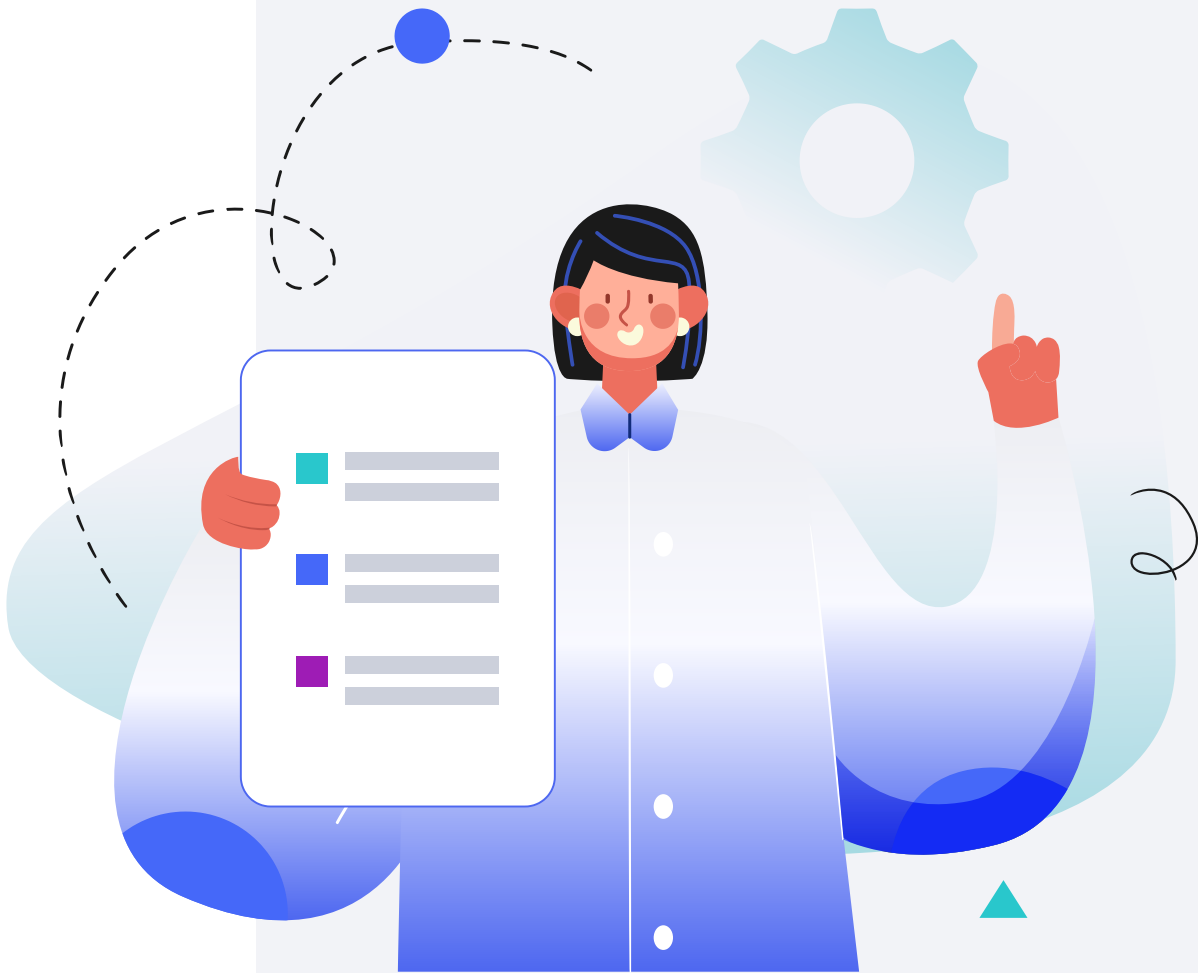
Male

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

Wait, what is this report about again? Forgetting where you just placed something or what someone just said can be annoying or even problematic. **Short-term memory** refers to the retention of information pieces (memory chunks) for **up to 30 seconds** [\[R\]](#).

For example, if someone tells you their phone number or another string of numbers and asks you to repeat it shortly, that task involves your short-term memory.

We need this type of memory to work and perform basic life tasks.

Contributing Factors

Key Takeaways:

- About **40%** of differences in people's short-term memory may be due to genetics.
- Other risk factors include poor sleep quality, lack of physical activity, stress, mental health disorders, and medical conditions affecting the brain.
- Loss of short-term memory is rare under the age of 50, but becomes more common with age beyond 60 years.
- If your genetic risk is high, your overall risk is going to still be low before age 50. If you are older, you may want to take action now on those factors you can change.
- Click the **next steps** tab for relevant lifestyle assessments.

Short-term memory refers to the retention of information pieces (memory chunks) for **up to 30 seconds**. Memory is a part of cognitive function, which has a **strong genetic component**. About **40%** of differences in people's short-term memory may be due to genetics. Involved genes may affect [\[R\]](#), [\[R\]](#), [\[R\]](#):

- Brain development
- Brain chemicals
- Blood vessel health

Keep in mind that lifestyle factors such as **sleep quality and physical activity** also have a significant impact on memory and other aspects of cognition. In other words, there are things you can do to boost your memory regardless of genetic predisposition [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#). It's important to note that **short-term memory loss** can be a symptom of a serious underlying condition such as dementia or Alzheimer's disease. It's best to consult a doctor if you have concerns about your memory.



MORE LIKELY

More likely to have short-term memory impairment based on 1,038,899 genetic variants we looked at

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
APOE	rs4420638	AA
NECTIN2	rs6857	CC
NECTIN2	rs2075650	AA
NECTIN2	rs157582	CC
PCDH20	rs9528369	CC
PCDH20	rs9528371	CC
PCDH20	rs9528370	GG
PCDH20	rs9539264	GG
PCDH20	rs9528377	CC
PCDH20	rs7319943	AA
PCDH20	rs2323486	TT
PCDH20	rs9528358	GG
PCDH20	rs11148561	AA
PCDH20	rs6562198	CC
PCDH20	rs7999738	TT
PCDH20	rs7987424	CC
PCDH20	rs1417468	AA
PCDH20	rs947025	GG
PCDH20	rs11619219	AA
PCDH20	rs7317350	GG
PCDH20	rs9539276	GG
PCDH20	rs9539274	CC
PCDH20	rs1417467	CC
PCDH20	rs1340808	TT
PCDH20	rs4886361	AA
PCDH20	rs4886360	GG
PCDH20	rs4886359	GG
PCDH20	rs9539278	GG
PCDH20	rs4884391	GG
PCDH20	rs9539273	AA
PCDH20	rs7319561	AA

GENE	SNP	GENOTYPE
PCDH20	rs9528383	AA
PCDH20	rs1417465	CC
PCDH20	rs9539246	CC
PCDH20	rs7324265	TT
PCDH20	rs6562204	TT
PCDH20	rs1538918	CC
PCDH20	rs2875068	AA
PCDH20	rs9528373	CC
PCDH20	rs7985087	GG

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	Sleep for 7+ Hours	2	Exercise At Least One Hour a Day1 hour
3	Aerobic Exercise (Cardio)1 hour	4	Yoga30 minutes
5	Relaxation Techniques30 minutes	6	Strength Training1 hour
7	Cognitive Training15 minutes	8	Meditation30 minutes
9	Mediterranean Diet	10	Mindfulness30 minutes
11	Pyrroloquinoline Quinone (PQQ)20 mg	12	Blueberries
13	Ashwagandha120 mg	14	American Ginseng200 mg
15	Blueberry Supplements500 mg	16	N-Back Training20 minutes
17	Cognitive Activity15 minutes	18	Binaural Beats30 minutes
19	Cocoa	20	Mindfulness Meditation30 minutes
21	Phosphatidylserine300 mg	22	Soy Isoflavones40 mg
23	Bacognize (Bacopa monnieri)300 mg	24	Dietary Iron10 mg
25	Soy	26	Acetyl-L-Carnitine500 mg
27	Pycnogenol100 mg	28	Alpha-GPC Choline300 mg
29	Whole Grains	30	Choline Supplements425 mg
31	Lemon Balm500 mg	32	Bifidobacterium Longum10 billion CFU

33	Phosphatidylserine And Phosphatidic Acid	300 mg	34	Laughter Therapy	30 minutes
35	Phosphatidylserine And DHA	100 mg	36	Boswellia	350 mg
37	BCAAs (Branched-Chain Amino Acids)	5 g	38	Kelp	500 mg
39	Avena Sativa	100 mg	40	Boswellia And Lemon Balm	300 mg
41	Silk Fibroin Hydrolysate		42	Spirulina	500 mg
43	Mulberry		44	Paraxanthine	100 mg
45	Leafy Green Vegetables		46	Celastrus	500 mg

1



Sleep for 7+ Hours

IMPACT

4 / 5

EVIDENCE

5 / 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

Sleep loss worsens overall cognitive function and all types of memory, including short-term memory [\[R, R\]](#).

Similarly, people with insomnia may have worse performance in working memory (both retention and manipulation of short-term memories) [\[R, R\]](#).

Taking short naps during the day may improve all aspects of memory, including short-term memory. However, naps during night shifts may be less effective [\[R, R, R\]](#).

Sleep helps by promoting memory consolidation [\[R, R, R, R\]](#).

2



Exercise At Least One Hour a Day

IMPACT

3 / 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

Regular exercise may improve cognitive function, including working and short-term memory. Cardio may be the most helpful [\[R, R, R, R, R, R\]](#).

Exercise may also improve and preserve all types of memory in older people, both healthy and with cognitive decline. **Strength training may be most effective in healthy older people** [\[R, R, R, R\]](#).

Combining exercise with cognitive training may further help in older people with cognitive decline [\[R, R\]](#).

Exercise may help by [\[R, R, R, R\]](#):

- Improving [blood flow in the brain](#)
- Reducing [inflammation](#)
- Improving brain cell communication

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 be the most helpful type of exercise to improve short-term and working memory in people of all ages, especially in interventions longer than 13 weeks [\[R, R, R, R\]](#).

A single bout of cardio may be beneficial, especially in people with lower baseline short-term memory. High-intensity cardio may be most effective [\[R, R\]](#).

Combining cardio with cognitive training may further help in older people with cognitive decline [\[R, R\]](#).

Exercise may help by [\[R, R, R, R\]](#):

- Improving [blood flow in the brain](#)
- Reducing [inflammation](#)
- Improving brain cell communication

4



Yoga

IMPACT

3 / 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

Regular yoga practice may improve short-term and working memory [\[R, R, R\]](#).

Yoga may help by reducing stress [\[R, R, R\]](#).

5

Relaxation Techniques

IMPACT3 / 5

EVIDENCE3 / 5

How to implement

Incorporate relaxation techniques such as deep breathing exercises, meditation, or yoga into your daily routine. Spend at least 15-30 minutes each day practicing one of these techniques, preferably in a quiet, comfortable space without interruptions.

TYPICAL STARTING DOSE

30 minutes

Description

Relaxation techniques encompass various methods like deep breathing, yoga, meditation, and progressive muscle relaxation, aimed at reducing stress and promoting mental and physical relaxation. Practicing these techniques regularly can help manage stress, improve mental clarity, and enhance overall emotional well-being.

We all get stressed from time to time.

[Stress](#) can help you deal with a challenge or avoid danger. However, **it’s not healthy to be stressed for a long time** [\[R, R\]](#).

Relaxation techniques such as [yoga](#) and [meditation](#) can relieve stress in different ways. Most of them focus on breathing and help you get rid of negative thoughts and emotions [\[R\]](#).

People use relaxation techniques to improve conditions like [\[R, R, R\]](#):

- Anxiety
- Depression
- Chronic pain

Progressive muscle relaxation is another relaxation technique. In this technique, you focus on tensing and relaxing different parts of your body. It is common to start with the toes and slowly work your way up to the neck and head [\[R, R\]](#).

Autogenic training is a relaxation technique that a person may carry out on their own. It uses exercises that take the mind’s attention to bodily sensations such as warmth and heaviness [\[R, R\]](#).

How it helps

Relaxation techniques may improve short-term memory and other cognitive functions. These include:

- Yoga [\[R, R, R\]](#)
- Meditation [\[R, R\]](#)
- Mindfulness [\[R, R, R, R\]](#)

Relaxation techniques may help by:

- Reducing stress [\[R, R, R, R\]](#)
- Improving focus [\[R, R, R\]](#)

6

Strength Training

IMPACT3 / 5

EVIDENCE3 / 5

How to implement

Engage in strength training exercises, such as weight lifting or bodyweight exercises, for 60 minutes per session, 2 to 3 times per week. Ensure you work all major muscle groups and rest each muscle group for at least 48 hours before exercising it again.

TYPICAL STARTING DOSE

1 hour

Description

Strength training, also called resistance or *anaerobic* training, contracts the muscles against an external resistance for short periods of time. This helps gain muscle strength, tone, and mass. This can include activities like weight lifting, pushups, and crunches.

Strength training, also known as resistance training, is a type of physical exercise that uses resistance to build strength, anaerobic endurance, and size [R]. Some of the most common strength training methods include [R]:

- Weight lifting
- Bodyweight exercises like push-ups, pull-ups, squats, and lunges.
- Resistance bands
- Plyometrics or explosive force exercises

The benefits of strength training are numerous, and include [R]:

- Increased muscle strength
- Improved bone health
- Reduced risk of injury
- Improved balance and coordination
- Enhanced mood
- Boost metabolism

Consult with a doctor before starting any new exercise program, especially if you have any health conditions.

How it helps

Regular exercise may improve cognitive function, including working and short-term memory. Although cardio may be more effective, strength training may also help [R, R, R].

In older people, strength training may improve short-term memory **only in those who are cognitively healthy** [R].

Exercise may help by [R, R, R, R]:

- Improving [blood flow in the brain](#)
- Reducing [inflammation](#)
- Improving brain cell communication

7



Cognitive Training

IMPACT

3 / 5

EVIDENCE

3 / 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

Training working memory may improve this cognitive function in both adults and children [\[R\]](#), [\[R\]](#).

Cognitive training programs may modestly improve short-term memory in older people [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#).

They may help by increasing [\[R\]](#), [\[R\]](#), [\[R\]](#):

- Connections between brain cells
- Blood flow in the brain

However, there is disagreement about the effectiveness of cognitive training. Experts are also not sure if it provides real-life improvements [\[R\]](#), [\[R\]](#), [\[R\]](#).

 PERSONALIZED TO YOUR GENES

Cognitive training may improve short-term memory more in people with your [COMT](#) gene variant [\[R\]](#). Individuals with your [DRD2](#) gene variant may see bigger working memory improvements from cognitive training [\[R\]](#). This variant also affects the [ANKK1](#) and [TTC12](#) genes.

YOUR GENETIC VARIANTS			
GENE	SNP	GENOTYPE	EVIDENCE
COMT	rs4818	CG	
ANKK1	rs1800497	GA	

8



Meditation

IMPACT

2 / 5

EVIDENCE

3 / 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

In people with cognitive decline, meditation may improve short-term and working memory [\[R\]](#), [\[R\]](#), [\[R\]](#).

Mindfulness meditation may improve working memory and other cognitive areas in people with normal cognition [\[R\]](#), [\[R\]](#), [\[R\]](#).

Meditation and other relaxation techniques may help by:

- Improving focus [\[R\]](#), [\[R\]](#), [\[R\]](#)
- Reducing stress [\[R\]](#)

9



Mediterranean Diet

IMPACT

2 / 5

EVIDENCE

2 / 5

How to implement

Incorporate a variety of primarily plant-based foods, such as fruits, vegetables, whole grains, nuts, and legumes, into every meal. Choose healthy fats, like olive oil, over saturated fats and consume fish and poultry at least twice a week. Limit red meat to a few times a month and include a moderate amount of dairy products. Opt for water and red wine in moderation as your beverages.

Description

The [Mediterranean diet](#) is based on the traditional cuisine from the Mediterranean regions. It moderates the intake of red meat and dairy, while being rich in fruits and vegetables, whole grains, and healthy fats ([olive oil](#)).

The [Mediterranean diet](#) focuses on traditional cuisine from the Mediterranean regions. It’s rich in [\[R\]](#):

- [Olive oil](#)
- Fruits and vegetables
- Whole grains
- Nuts and seeds
- Fish

This type of diet may **reduce inflammation and protect the brain and heart** [\[R, R, R, R\]](#).

Limited intake of animal products, saturated fat, and refined sugar likely contribute to the health benefits of the Mediterranean diet [\[R\]](#).

How it helps

High adherence to a Mediterranean diet is associated with better memory and other cognitive aspects. This diet may also slow down cognitive decline [\[R\]](#).

Adopting a Mediterranean diet for several years may help improve short-term memory and other areas of cognition, especially if the diet is rich in [extra virgin olive oil](#) [\[R, R, R\]](#).

The Mediterranean diet is rich in antioxidants and omega-3 fatty acids. They help protect brain cells and blood vessels against oxidative stress and inflammation [\[R, R, R\]](#).

10



Mindfulness

IMPACT

2 / 5

EVIDENCE

2 / 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 meditation may improve working memory and other cognitive areas [R, R, R].

A mindfulness-based stress reduction program may also improve working memory [R].

Mindfulness may help by:

- Improving focus [R]
- Reducing stress [R]

11



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 short-term memory and 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.

12



Blueberries

IMPACT

2 / 5

EVIDENCE

2 / 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

Consuming freeze-dried blueberries (24 g/day) may improve short-term memory and task switching in older adults [\[R\]](#).

Similarly, juices and smoothies made from blueberries (75-150 g) and other antioxidant-rich fruits may improve working memory in people of all ages [\[R\]](#), [\[R\]](#).

Blueberries are rich in antioxidants, which may help protect the brain from oxidative stress [\[R\]](#).

13



Ashwagandha

IMPACT2 / 5

EVIDENCE2 / 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 several studies, ashwagandha improved working and short-term memory in healthy people, those under stress, and people with Alzheimer’s disease [\[R\]](#), [\[R\]](#), [\[R\]](#).

Ashwagandha is believed to enhance the function of the brain by promoting acetylcholine activity, a significant neurotransmitter linked with memory and cognition.

14



American Ginseng

IMPACT

2 / 5

EVIDENCE

2 / 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](#) [\[R\]](#).

15



Blueberry Supplements

IMPACT2 / 5

EVIDENCE2 / 5

How to implement

Take a blueberry supplement capsule, usually ranging from 500 mg to 1000 mg, once daily. It's best to consume it with a meal to enhance absorption. Continue this regimen daily for at least 4 weeks to observe benefits.

TYPICAL STARTING DOSE

500 mg

Description

Blueberry supplements often contain concentrated extracts of blueberry compounds, including antioxidants like anthocyanins. They are used to support cognitive function, eye health, and overall antioxidant protection.

[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

In addition to eating the fruits, people can take different blueberry supplements, such as **blueberry powder or extract**.

How it helps

Taking blueberry supplements may improve working memory in elderly people. Studied forms include [\[R\]](#), [\[R\]](#):

- Purified blueberry extract (100 mg/day for 6 months)
- Whole blueberry powder (500-1000 mg/day for 6 months)
- Blueberry concentrate (30 mL/day for 12 weeks)

Similarly, a single dose of a blueberry and grape extract (600 mg) may improve working memory in young adults [\[R\]](#).

Blueberries are rich in antioxidants, which may help protect the brain from oxidative stress [\[R\]](#).

16



N-Back Training

IMPACT

2 / 5

EVIDENCE

2 / 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

In 2 non-placebo-controlled trials of 122 healthy participants, N-back training improved short-term memory. In a non-placebo-controlled trial of 60 participants, N-back training (12 sessions) improved verbal fluency and general cognition in young participants, and long- and short-term memory and general cognition in older participants [\[R, R\]](#).

N-back training may help by consistently challenging short-term memory, through tasks that require remembering multiple prior stimuli.

17



Cognitive Activity

IMPACT2 / 5

EVIDENCE2 / 5

How to implement

Engage in mentally stimulating activities, such as puzzles, reading, or learning a new skill, for at least 15 minutes daily. Consistency is key, so incorporate these activities into your daily routine for ongoing cognitive health benefits.

TYPICAL STARTING DOSE

15 minutes

Description

Engaging in cognitive activities, such as puzzles, reading, or learning new skills, can help maintain mental sharpness and potentially reduce the risk of age-related cognitive decline. Staying mentally active supports cognitive health and overall quality of life.

Some scientists like to think of the brain as a muscle. They say people should “use it or lose it” [\[R\]](#).

In line with this, keeping the brain stimulated may help support cognition [\[R\]](#).

There are many ways to keep your brain active. These include [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#):

- Reading a book
- Solving a word or number puzzle (e.g., crossword, Sudoku)
- Completing a jigsaw puzzle
- Learning a new language

How it helps

Cognitive activities can help stimulate the brain, improving cognitive functions like short-term memory through regular mental exercise.

A study highlighted that participation in activities such as reading, playing games, or engaging in social activities (for 6 months) may help maintain or improve memory and other cognitive functions in the elderly [\[R\]](#).

Research has shown that specific types of cognitive tasks can have varying effects on different aspects of memory and brain activity. For instance, tasks that require more complex cognitive functions may lead to improvements in working memory and other higher-order cognitive processes [\[R\]](#).

Continuous engagement in cognitive activities is associated with increased brain plasticity. This adaptability can enhance memory and learning capabilities, indicating that cognitive activities not only prevent decline but may also improve cognitive reserves. The stimulation from varied cognitive tasks contributes to maintaining and enhancing mental capabilities, particularly in older adults [\[R\]](#).

18



Binaural Beats

IMPACT

2 / 5

EVIDENCE

2 / 5

How to implement

Listen to binaural beats through headphones for 30 minutes to 2 hours daily. Choose frequencies that match your goal, such as relaxation or focus, and ensure a quiet, comfortable environment for the best experience.

TYPICAL STARTING DOSE

30 minutes

Description

Binaural beats are audio recordings that use specific sound frequencies to create a perception of a beating or pulsing sound in the brain. Some people use binaural beats for relaxation, meditation, and potential cognitive benefits.

Binaural beats are an **auditory illusion** perceived by the brain when two slightly different frequencies of sound are played into each ear (*bi* – two, *aural*- ear). When wearing earphones that are playing slightly different notes in each ear, our brain perceives the volume to pulse (oscillate) at a fixed rate. This is called a ‘beat.’

People use binaural beats to improve cognition, mood, and anxiety [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#).

How it helps

In one non-placebo-controlled trial with 25 healthy adults, a 20-minute combination of mechanical massage and binaural beats enhanced verbal short-term and long-term memory, and non-verbal long-term memory [\[R\]](#).

Binaural beats can enhance brainwave activity related to memory as they can help shift your brain into a frequency more conducive to learning and retaining information. Although not a treatment, consistent use of binaural beats may assist in improving your short-term memory.

19



Cocoa

IMPACT

2 / 5

EVIDENCE

2 / 5

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 any 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

In older people, cocoa (520-990 mg flavanols for 8-12 weeks) may help prevent the decline of short-term memory and other cognitive functions [\[R\]](#), [\[R\]](#).

Flavanols found in cocoa may improve blood flow to the brain and reduce oxidative damage to brain cells [\[R\]](#).

20

Mindfulness Meditation

IMPACT

2 / 5

EVIDENCE

2 / 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 (for 1 week) may improve working memory capacity and reduce the impact of stress on memory functioning. These benefits are particularly evident in high-stress environments where mindfulness meditation helps maintain memory performance levels [\[R\]](#).

Research has also shown that brief mindfulness meditation interventions can lead to improvements in visual short-term memory [\[R\]](#).

Mindfulness may be better at improving recognition memory but less than on other types of memory, such as autobiographical memory specificity, which involves the recall of specific personal events [\[R\]](#).

However, mindfulness meditation may also increase susceptibility to false memories. One study found that participants who engaged in mindfulness meditation were more likely to report critical non-studied items as being familiar, suggesting that while mindfulness might enhance certain aspects of memory, it may also make memories less reliable in specific contexts [\[R\]](#).

21



Phosphatidylserine

IMPACT

2 / 5

EVIDENCE

2 / 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 compound that supports brain health and can improve synaptic function, which aids memory recall. Therefore, taking it as a supplement could help improve short-term memory.

Phosphatidylserine supplementation (300 mg/day) may improve memory in people with Alzheimer's disease. It may increase vocabulary, picture-matching scores, and learning memory ability, and reduce free radical levels in the brain [\[R, R, R\]](#).

Studies found that people with age-associated memory impairment treated with phosphatidylserine showed improved performance on learning and memory tasks of daily life [\[R, R\]](#).

Phosphatidylserine containing omega-3 fatty acids may improve memory in elderly people with memory complaints, enhancing their quality of life and daily functioning [\[R\]](#).

22



Soy Isoflavones

IMPACT

2 / 5

EVIDENCE

2 / 5

How to implement

Take a soy isoflavone supplement containing 40 to 80 milligrams daily, ideally with food to improve absorption. This dosage can be continued on a daily basis for several months, but it's recommended to reevaluate its effectiveness and any potential side effects with a healthcare provider periodically.

TYPICAL STARTING DOSE

40 mg

Description

Soy isoflavones are natural compounds found in soybeans and soy products. They are phytoestrogens, which means they can mimic the effects of estrogen in the body and are associated with potential health benefits like menopausal symptom relief and improved heart health.

Soy is a common food in many cuisines around the world, especially Asian cuisines [\[R\]](#).

It's a great source of [\[R\]](#), [\[R\]](#):

- Plant-based protein
- Fiber
- Omega-3 fats
- Antioxidants (isoflavones)

Soy-based foods include [\[R\]](#):

- Tofu
- Tempeh
- Edamame
- Miso
- Natto

Soy protein and soy isoflavones are also available as supplements.

How it helps

Supplementation with soy isoflavones (60-160 mg/day for 6-26 weeks) may improve short-term memory and overall cognitive performance. Soy isoflavones may also work in older people and postmenopausal women [\[R\]](#), [\[R\]](#), [\[R\]](#).

Soy isoflavones may help by reducing oxidative damage and inflammation in brain cells [\[R\]](#).

23



Bacognize (Bacopa monnieri)

IMPACT2 / 5

EVIDENCE2 / 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

Bacopa extract (300-600 mg/day for 12 weeks) may improve several areas of memory, including short-term memory. However, the evidence is limited and often of low quality [\[R\]](#), [\[R\]](#).

Bacopa may help by [\[R\]](#):

- Increasing blood flow in the brain
- Reducing oxidative stress

24



Dietary Iron

IMPACT

2 / 5

EVIDENCE

2 / 5

How to implement

Incorporate iron-rich foods into your daily meals, such as red meat, chicken, turkey, fish, beans, lentils, tofu, cooked spinach, and fortified cereals. Aim for at least 18 mg of iron per day for adult women and 8 mg per day for adult men. It's also beneficial to pair these foods with vitamin C-rich foods like oranges, strawberries, or bell peppers to enhance iron absorption.

TYPICAL STARTING DOSE

10 mg

Description

Iron (Fe) is an essential mineral. It helps make [hemoglobin](#), a protein that carries oxygen to cells. In this way, iron **increases energy** and supports **brain and immune system function** [\[R, R, R\]](#).

Foods rich in iron include [\[R\]](#):

- Oysters
- White beans
- Beef
- Chocolate
- Spinach
- Fortified cereals

Women should be getting **8-18 mg** of iron per day, while **men** should be getting **8 mg** [\[R\]](#).

Groups at risk of iron deficiency include [\[R\]](#):

- Menstruating women
- Children
- Vegetarians
- Routine blood donors

How it helps

In those who are deficient, supplementing with iron or eating iron-enriched foods may improve memory [\[R, R, R\]](#).

Iron may help by:

- Supporting [dopamine](#) activity [\[R, R, R\]](#)
- Supporting brain function [\[R\]](#)

Please note: *A high dose of iron can be toxic. If you are not deficient, it is best to get iron from food. Talk to your doctor before taking iron supplements* [\[R\]](#).

25



Soy

IMPACT

2 / 5

EVIDENCE

2 / 5

How to implement

Incorporate soy-based products such as tofu, soy milk, and edamame into your daily diet. Aim for at least one serving per day, equivalent to about a cup of soy milk, a half-cup of cooked soybeans, or a 3-ounce piece of tofu.

Description

Soy is a legume native to East Asia, and its health benefits include being a source of plant-based protein, fiber, and various vitamins and minerals. It is known for its potential to support heart health, reduce cholesterol levels, and provide essential nutrients in vegetarian and vegan diets.

Soy is a common food in many cuisines around the world, especially Asian cuisines [\[R\]](#).

It's a great source of [\[R\]](#), [\[R\]](#):

- Plant-based protein
- Fiber
- Omega-3 fats
- Antioxidants (isoflavones)

Soy-based foods include [\[R\]](#):

- Soy beverages
- Tofu
- Tempeh
- Edamame
- Miso
- Natto

Soy protein and soy isoflavones are also available as supplements.

How it helps

Eating a diet rich in soy may improve short-term and working memory [\[R\]](#), [\[R\]](#).

Isoflavones found in soy may help by reducing oxidative stress and inflammation in brain cells [\[R\]](#).

26



Acetyl-L-Carnitine

IMPACT

2 / 5

EVIDENCE

2 / 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 aid in mitochondrial energy production critical for maintaining neuronal function, which is vital for cognitive processes, including short-term memory.

Acetyl-L-carnitine (ALC) may help improve short-term memory, particularly in individuals with Alzheimer's disease or other cognitive impairments [\[R\]](#).

Studies have shown that ALC can slow cognitive decline and improve memory-related tasks. For instance, one study found that ALC-treated patients showed less deterioration in short-term memory tests compared to those on placebo [\[R\]](#).

Another study reported improvements in recognition memory and other cognitive functions in patients treated with ALC [\[R\]](#).

Additionally, ALC has been shown to reverse memory deficits induced by scopolamine, a compound that mimics Alzheimer's symptoms [\[R\]](#).

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Pycnogenol

IMPACT

2 / 5

EVIDENCE

2 / 5

How to implement

Take 100 mg of pycnogenol supplement daily. This can be taken in a single dose or divided into two doses of 50 mg each, one in the morning and one in the evening.

TYPICAL STARTING DOSE

100 mg

Description

Pycnogenol (pine bark extract) is derived from the bark of the maritime pine (Pinus pinaster). It has been used in traditional n European folk medicine for centuries, and more recently as a supplement. The extract contains a group of bioactive compounds known as proanthocyanidins, which may be beneficial in supporting cardiovascular health, promoting skin health, and aiding in the management of various conditions related to inflammation and oxidative stress.

Pycnogenol comes from the bark of pine trees that grow in the Mediterranean [\[R, R\]](#).

It may improve [\[R, R, R, R, R, R\]](#):

- Athletic performance
- Seasonal allergies
- Cognitive function
- Joint health
- Varicose veins

How it helps

Pycnogenol (100-150 mg/day for 8-52 weeks) may boost short-term memory and other cognitive aspects [\[R, R, R, R, R, R\]](#).

Pycnogenol may help by reducing oxidative stress [\[R, R, R, R\]](#).

How to implement

TYPICAL STARTING DOSE

300 mg

Description

How it helps

It may also support cognitive recovery in stroke patients [R].

29



Whole Grains

IMPACT1 / 5

EVIDENCE2 / 5

How to implement

Incorporate at least three servings of whole grains into your daily diet. This can include consuming foods such as whole grain bread, brown rice, whole grain pasta, and oats. Aim to replace refined grains with whole grains at each meal for optimal benefits.

Description

Whole grains encompass a variety of grains like wheat, oats, and quinoa, where the entire grain kernel is intact. They are rich in fiber, vitamins, minerals, and antioxidants, supporting heart health and reducing the risk of chronic diseases.

Unlike refined grains, whole grains contain nutritious parts of the grain like bran and germ.

Whole grains provide many crucial nutrients, including:

- Fiber
- B-vitamins
- Iron
- Magnesium
- Phosphorus

Due to their high fiber content, whole grains don’t tend to spike blood sugar like refined grains do.

How it helps

Whole grains provide a steady supply of energy to the brain through glucose and have been linked to cognitive health.

Consuming whole grains (especially above 3 servings/day) may be associated with a slower rate of cognitive decline. Higher consumption of whole grains has been linked to better scores in global cognition, perceptual speed, and episodic memory, especially among African American people [\[R\]](#).

30



Choline Supplements

IMPACT1 / 5

EVIDENCE2 / 5

How to implement

Take choline supplements at a dosage of 425 mg to 550 mg daily, depending on age and gender, with a glass of water. It is best to consume choline supplements with a meal for optimal absorption. Continue this regimen daily as part of your dietary supplement routine.

TYPICAL STARTING DOSE

425 mg

Description

Choline is an essential nutrient that plays a crucial role in various bodily functions, including brain health, liver function, and metabolism. Incorporating choline-rich foods into your diet supports cognitive function and overall nutritional well-being.

[Choline](#) is a nutrient required for optimal health. Although the body makes some, we need to get choline from our diets to avoid deficiency [\[R\]](#).

It plays key roles in supporting [\[R\]](#), [\[R\]](#):

- DNA production
- Cell structure and function
- Brain, nerve, and heart health

Eggs and beef liver are the best sources of choline. If you can’t meet your daily requirements with food, consider taking a choline supplement such as [\[R\]](#):

- [Phosphatidylcholine](#) (PC)
- [Citicoline](#) (CDP-choline)
- [Alpha-GPC](#)
- [Lecithin](#)

They all supply choline, but each one has unique health perks you may prefer. Check out our posts on different choline-containing supplements to find out which one suits you best.

How it helps

A single dose of choline (500-2,000 mg) may improve working memory, executive function and other cognitive aspects. However, the evidence is weak and mixed [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#).

Please note: *Many supplement manufacturers source choline from soybeans and eggs. If you are allergic to these foods, read the labels carefully to avoid having a reaction. Medical bodies recommend against taking more than **3.5 g** of choline per day. High intake can cause complications such as low blood pressure and diarrhea* [\[R\]](#).

How to implement

TYPICAL STARTING DOSE

500 mg

Description

Lemon balm (*Melissa officinalis*) is an herb used in gardening and traditional medicine. **It's rich in antioxidants and relaxing components** [R, R].

- Relieve anxiety
- Improve sleep quality
- Reduce stress

How it helps

- Attention
- Memory performance
- Mathematical processing
- Calmness

32



Bifidobacterium Longum

IMPACT

1 / 5

EVIDENCE

1 / 5

How to implement

Take a Bifidobacterium longum supplement daily, with a typical dosage around 10 billion colony-forming units (CFUs). It can be consumed any time of day, but taking it with a meal might improve its absorption and effectiveness. Continue this regimen for at least 4 weeks to assess its benefits on digestive health.

TYPICAL STARTING DOSE

10 billion CFU

Description

Bifidobacterium longum is a beneficial probiotic strain known for its potential to support digestive health and boost the immune system.

[Bifidobacterium longum](#) is a [probiotic](#) bacterium naturally present in the human gastrointestinal tract. Its subspecies *B. longum subsp. infantis* is one of the earliest bacteria to colonize the infant gut [\[R\]](#).

People take *B. longum* to enhance immunity against infections and support gut health [\[R\]](#), [\[R\]](#), [\[R\]](#).

How it helps

Bifidobacterium Longum is a type of probiotic that studies suggest could improve brain function and memory. This is because it promotes a healthy gut, which, in turn, positively influences brain health, potentially enhancing short-term memory.

A study investigated the effect of Bifidobacterium longum BB68S (5 × 10e10 CFU/sachet) on cognitive functions among 60 healthy older adults without cognitive impairment. BB68S significantly improved subjects’ cognitive functions, especially immediate memory, visuospatial/constructional, attention, and delayed memory domains [\[R\]](#).

33



Phosphatidylserine And Phosphatidic Acid

IMPACT

1 / 5

EVIDENCE

1 / 5

How to implement

Take a combined supplement of phosphatidylserine and phosphatidic acid, with a typical dosage of 300-600 mg of phosphatidylserine and 600-1200 mg of phosphatidic acid daily, divided into two or three doses. This regimen should be followed consistently every day for at least 12 weeks to assess 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. Phosphatidic acid is a phospholipid naturally found in cell membranes, and is particularly abundant in soybeans. It plays a role in cell signaling and may have potential benefits in supporting muscle growth and recovery, as well as improving memory and mood.

How it helps

Phosphatidylserine and phosphatidic acid are components of cell membranes and can improve cell-to-cell communication in the brain, which can ultimately enhance memory function. Taking these supplements can therefore help improve short-term memory by promoting healthy brain cell functioning.

A 3-month double-blind, placebo-controlled study assessed the influence of three PS+PA capsules/day, (300 mg PS + 240 mg PA/day) [phosphatidylserine (PS) and phosphatidic acid (PA)] or placebo on memory and mood in functioning, non-depressive elderly people with memory problems. In the elderly, PS+PA [per protocol (PP) n = 31], unlike placebo (PP n = 26), significantly improved memory and prevented "winter blues" in a pre-post comparison. [\[R\]](#)

In a study involving 157 participants, PS-DHA supplementation was compared to a placebo for 15 weeks. The PS-DHA group showed significant improvements in verbal immediate recall compared to the placebo group. Post-hoc analysis indicated that participants with better baseline cognitive performance experienced notable enhancements in immediate and delayed verbal recall, learning abilities, and time to copy a complex figure with PS-DHA treatment. [\[R\]](#)

34



Laughter Therapy

IMPACT

1 / 5

EVIDENCE

1 / 5

How to implement

Dedicate at least 15-30 minutes a day to watch, listen to, or participate in activities that make you laugh, such as watching a comedy show, attending a stand-up comedy event, or engaging in laughter yoga sessions. Consistently incorporate these laughter-inducing activities into your daily routine for an ongoing period to harness the health benefits of laughter.

TYPICAL STARTING DOSE

30 minutes

Description

Laughter therapy has been shown to improve cardiovascular health, reduce stress, and boost the immune system. It can also help to improve mood, relieve pain, and increase social bonding.

How it helps

In a non-placebo-controlled trial of 10 patients with type 2 diabetes and 20 healthy controls, watching a 20-min humorous video improved learning ability, delayed recall, and visual recognition [R].

Laughter therapy may help by reducing stress and increasing endorphin levels. It supports better concentration and improved mental functionality, leading to a boosted memory.

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Phosphatidylserine And DHA

IMPACT

1 / 5

EVIDENCE

1 / 5

How to implement

Take a combined supplement of phosphatidylserine and DHA daily, with the phosphatidylserine dosage around 100 mg and DHA dosage around 500 mg. It is recommended to take this supplement with a meal to enhance absorption, and for ongoing support, consider taking it as part of your daily routine over an extended period, such as several months, to observe benefits.

TYPICAL STARTING DOSE

100 mg

Description

Phosphatidylserine is a naturally occurring phospholipid found in cell membranes, and plays a crucial role in cognitive function and memory support, and dietary supplements containing PS are often used to enhance mental clarity and focus. DHA is an omega-3 fatty acid primarily found in fatty fish like salmon, mackerel, and trout, and is known for supporting brain and heart health, and reducing inflammation.

How it helps

Phosphatidylserine improves the brain's ability to process information, improving memory function. DHA, a type of Omega-3 fatty acid, aids in maintaining and improving brain health, specifically aiding memory performance.

A 3-month double-blind, placebo-controlled study assessed the influence of three PS+PA capsules/day, (300 mg PS + 240 mg PA/day) [phosphatidylserine (PS) and phosphatidic acid (PA)] or placebo on memory and mood in functioning, non-depressive elderly people with memory problems. In the elderly, PS+PA [per protocol (PP) n = 31], unlike placebo (PP n = 26), significantly improved memory and prevented "winter blues" in a pre-post comparison. [\[R\]](#)

In a study involving 157 participants, PS-DHA supplementation was compared to a placebo for 15 weeks. The PS-DHA group showed significant improvements in verbal immediate recall compared to the placebo group. Post-hoc analysis indicated that participants with better baseline cognitive performance experienced notable enhancements in immediate and delayed verbal recall, learning abilities, and time to copy a complex figure with PS-DHA treatment. [\[R\]](#)

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Boswellia

IMPACT1 / 5

EVIDENCE1 / 5

How to implement

Take a 350 mg Boswellia supplement daily, ideally with a meal to enhance absorption.

TYPICAL STARTING DOSE

350 mg

Description

Boswellia is an herbal remedy derived from the resin of certain trees. It's known for its potential anti-inflammatory properties and is often used to support joint health.

[Boswellia](#), also known as frankincense, is the hardened sap of the *Boswellia serrata* tree [\[R\]](#).

In traditional medicine, boswellia is used for joint pain and gut conditions [\[R\]](#).

Today, some people use boswellia for [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#):

- Osteoarthritis
- IBD
- Skin aging
- Asthma
- Gum health

How it helps

Boswellia is known to have anti-inflammatory properties which could be beneficial in protecting brain health and cognitive functions. Its regular use may potentially improve mental capacity, thereby indirectly affecting and easing short-term memory issues.

In a double-blind, randomized, placebo-controlled clinical trial, patients with a history of traumatic brain injury (TBI) were assigned to either a placebo group (n = 34) or a K-Vie™ group (n = 46) for a 3-month treatment period. The study revealed significant (p < 0.05) cognitive function improvement in patients receiving K-Vie™ compared to those on placebo, as assessed through RAVLT, DSST, and TMT-B tests [\[R\]](#).

A 12-week study with 38 patients having Diffuse Axonal Injury (DAI) found that Boswellia Serrata (BS) resin did not significantly impact overall outcomes but showed potential cognitive benefits in DAI patients [\[R\]](#).

A double-blind clinical trial with 70 older adults in Iran investigated the impact of Boswellia serrata (BS) and Mellisa officinalis (MO) tablet extracts on memory. The group taking these tablets showed significant memory improvement across various measures compared to the placebo group (p < 0.0001) [\[R\]](#).

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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

In a non-placebo-controlled trial of 12 sailors, consuming a standard diet with a BCAA supplement composed of 50% valine, 35% leucine, and 15% isoleucine reduced the detrimental effects of an offshore sailing race on short-term memory [R].

BCAAs may help by influencing the production of serotonin and dopamine, which are essential for focus and mood.

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].*

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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 40 elderly participants, supplementation with fermented kelp (1.5 g/day) for 6 weeks improved short-term memory [\[R\]](#).

Kelp is rich in iodine, which supports the function of the thyroid gland. This gland plays a role in brain development and cognition.

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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 delayed word recall and working memory span in 3 placebo-controlled trials of 101 participants [\[R\]](#), [\[R\]](#), [\[R\]](#).

However, green *Avena sativa* extract (1500 mg/day taken for 12 weeks) failed to sustain cognitive benefits in the long term in a placebo-controlled trial of 37 older adults [\[R\]](#).

Avena sativa may enhance brain function and improve short-term memory by reducing inflammation and increasing blood flow to the brain. It's also rich in antioxidants, which can help protect brain cells from damage.

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Boswellia And Lemon Balm

IMPACT

1 / 5

EVIDENCE

1 / 5

How to implement

Take a boswellia supplement of 300-500 mg up to three times per day, combined with 300-500 mg of lemon balm in capsule form, also up to three times daily. It's advisable to start with the lower dosage and observe how your body reacts before increasing the dosage. Continue this regimen for at least one month to assess its effectiveness.

TYPICAL STARTING DOSE

300 mg

Description

Boswellia is an herbal remedy derived from the resin of certain trees. It's known for its potential anti-inflammatory properties and is often used to support joint health. Lemon balm is an herb known for its calming properties and potential to reduce anxiety and promote relaxation.

How it helps

Boswellia aids in reducing inflammation that can impair cognitive processes, including short-term memory. Lemon Balm may enhance mood and cognitive function, potentially improving short-term memory by calming overactivity in the mind.

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Silk Fibroin Hydrolysate

IMPACT

1 / 5

EVIDENCE

1 / 5

How to implement

Take silk fibroin hydrolysate supplements orally, usually available in capsule or powder form. For best results, follow the dosage instructions on the product label or as advised by a healthcare professional. Typically, it is taken once or twice daily.

Description

Silk fibroin hydrolysate is a type of protein that is broken down into smaller peptides and amino acids. It is a good source of essential amino acids and may help to improve gut health and reduce inflammation, among other benefits.

How it helps

Silk Fibroin Hydrolysate enhances brain function by promoting neuron connection and growth, improving your short-term memory. It also increases antioxidant activity in the brain, protecting your neurons from damage and further supporting memory improvement.

In a placebo-controlled trial of 76 healthy adults, supplementation with silk fibroin protein enzymatic hydrolysate (280-600 mg/day in two divided doses for 3 weeks) improved MQ, the learning gradient, the numbers of words remembered, the retrieval efficiency, and drawing/recall. The effect was dose-dependent, with an optimal dose of 400-600 mg [\[R\]](#).

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Spirulina

IMPACT

1 / 5

EVIDENCE

1 / 5

How to implement

Take 1-8 g of spirulina supplements daily, preferably with a meal to enhance absorption.

TYPICAL STARTING DOSE

500 mg

Description

Spirulina is a blue-green algae. It is rich in nutrients like protein, vitamins, and minerals, particularly vitamin B12 and iron, and is a source of antioxidants, chlorophyll, and phycocyanin. It can be found in powdered or tablet form as a supplement, and is often used to boost energy, support the immune system, and enhance overall nutrition. Additionally, spirulina.

[Spirulina](#) is a supplement made from blue-green algae that grows in fresh and marine water [\[R\]](#), [\[R\]](#).

Dried spirulina is up to 70% protein. It’s also rich in vitamins, antioxidants, and healthy fats. This makes it a great source of nutrition for both people and livestock [\[R\]](#), [\[R\]](#), [\[R\]](#).

People use spirulina supplements to reduce [\[R\]](#), [\[R\]](#):

- Cholesterol
- Blood pressure
- Blood sugar

How it helps

Spirulina is a source of antioxidants, which help reduce inflammation in the brain, potentially improving memory function. It's also rich in B vitamins tied to improved brain health and memory recall.

In one study, spirulina maxima extract (SM70EE) significantly improved visual learning and visual working memory test results and enhanced vocabulary in older adults with mild cognitive impairment [\[R\]](#).

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Mulberry

IMPACT

1 / 5

EVIDENCE

1 / 5

How to implement

Take a mulberry supplement at a dosage of 500mg to 1,000mg per day, preferably with meals to enhance absorption. This should be continued daily for at least 3 months to observe potential health benefits.

Description

Mulberries are the fruit of the mulberry tree, often used in traditional medicine and cuisine. It is a source of vitamins and antioxidants, potentially offering health benefits such as blood sugar control and immune support.

How it helps

Mulberries contain antioxidants which help protect brain cells from damage. This protection may enhance memory function, potentially improving short-term memory.

In one study, anthocyanin-rich mulberry milk enhanced working memory in healthy working-age adults, possibly by suppressing cortisol and boosting crucial brain chemicals [\[R\]](#).

Another study found similar benefits in children [\[R\]](#).

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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 short-term memory 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.

How to implement

Description

How it helps

Eating about one serving per day of green leafy vegetables is linked with a slower rate of cognitive decline. This effect is attributed to the high levels of nutrients such as vitamin K, lutein, folate, and kaempferol found in these vegetables [R].

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Celastrus

IMPACT

0 / 5

EVIDENCE

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How to implement

Celastrus is available in various forms, including capsules, oil, and powder. Capsules are the most convenient and commonly used form, while oil can be taken orally or used topically. Follow the dosage instructions provided on the supplement label or as advised by a healthcare professional. Typical doses range from 500 mg to 1,000 mg per day, depending on the form of the supplement and individual needs. Taking Celastrus with a meal can help improve absorption and reduce the risk of digestive discomfort.

TYPICAL STARTING DOSE

500 mg

Description

Celastrus (*Celastrus paniculatus*), commonly known as "intellect tree", is a plant used in Ayurvedic medicine for its cognitive and neurological benefits. The seeds and oil of Celastrus are the primary parts utilized for medicinal purposes.

People typically take Celastrus to help with:

- Cognitive function
- Stress
- Anxiety
- Inflammation
- Neurodegenerative diseases

How it helps

Celastrus improved short-term memory in several animal studies [\[R\]](#), [\[R\]](#), [\[R\]](#).

However, human research is lacking.

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.

✓ Zinc	17.12 umol/L 7.659.1812.2419.89	9 Nov 2025
✓ Vitamin B12	687 pg/mL 20040010001100	9 Nov 2025
! Homocysteine	12.84 umol/L 5915100	9 Nov 2025