SelfDecode™

Attention

DNA Health Report

REPORT CATEGORY

COGNITION

Sample Client

Report date: 03 September 2025

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Table of Contents

03 Introduction

04 Your genetics

06 Your recommendations

Personal information

NAME

Sample Client

SEX AT BIRTH

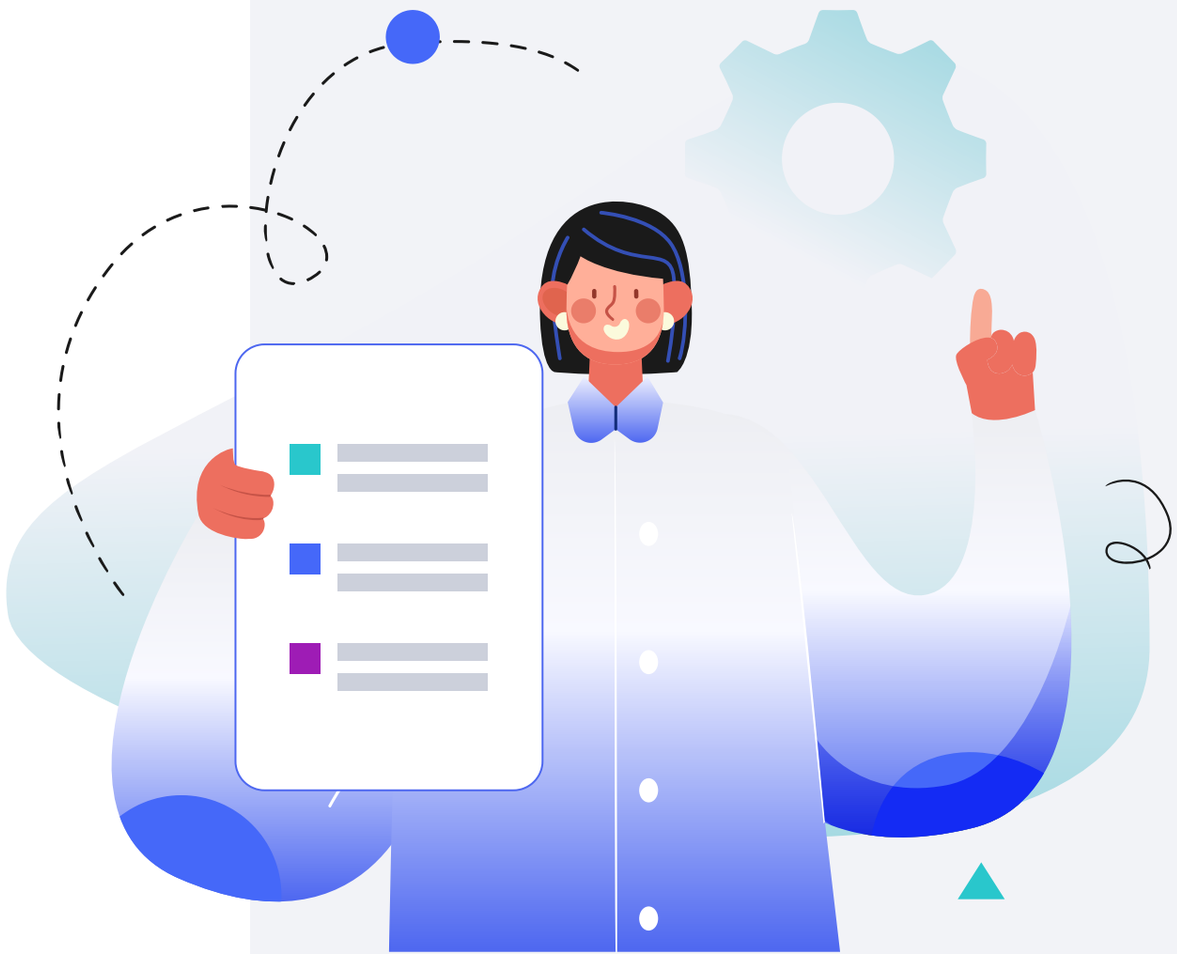
Male

HEIGHT

5ft 9" 175.0cm

WEIGHT

165lb 75.0kg



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.

Introduction

Cases of ADHD have boomed since the turn of the century, with a massive 43% increase. The majority of these cases are in children. Today, around 6.4 million American children aged 4-17 have ADHD [R, R].

The ADHD cliche is that of a child struggling to concentrate on their schoolwork or being hyperactive all the time. But this isn't the whole story of ADHD; it also affects around 4.4% of American adults [R].

Struggling to focus your attention can have a big impact on your life, including your ability to work effectively.

That said, living with ADHD doesn't have to prevent you from achieving greatness. Researchers now believe that Leonardo da Vinci, the painter of the Mona Lisa, may have had ADHD [R].

Even modern-day celebrities like Michael Phelps and will.i.am have shared their own experiences of living with ADHD and how they harnessed their condition to drive their success [R, R].

So, maybe you're seeking greatness. Maybe you only want to do those regular things without constant distraction. Regardless, you should have control over your own ability to concentrate.

Unfortunately, because we don't know what causes attention disorders such as ADHD, that's easier said than done.

One factor that may contribute to the risk of ADHD is genetics, although the environment likely also plays a role. Targeting your genetics can potentially help increase your attention span [R].

For example, coffee may sharpen your attention if you carry a particular variant of the ***CYP1A2*** gene. In addition, you may be more prone to attention problems after a bad night's sleep if you carry a particular variant of the ***COMT*** or ***ADA*** genes [R, R, R, R].

You can take targeted action by figuring out the genetic factors linked to your attention struggles. This can include getting a cup of coffee before an important meeting or optimizing your sleep.

These are just some examples of how genetics may influence attention. In this report, you will learn more about the genetics of attention, and what you can do to target your genes in order to potentially sharpen your focus.

Read on to find out more about:

- **How your genetics play a role in attention**
- **Your genetic risk score based on over 270,000 genetic variants**
- **Personalized recommendations based on your genetics**

About Attention

Key Takeaways:

- Up to **80%** of differences in people's chances of developing ADHD may be due to genetics.
- About **6.4 million** American children aged 4-17 have ADHD, along with **4% of adults**.
- Risk factors include: smoking, drug or alcohol use during pregnancy, toxins, brain injuries, and being male.
- ADHD can lead to substance abuse and money problems in adults.
- Since the condition is rare in adults, a high genetic risk is not necessarily a reason to worry.
- Click the **Recommendations** tab for potential dietary and lifestyle changes and **next steps** for relevant labs.

TYPICAL

Typical likelihood of ADHD based on 263,165 genetic variants we looked at

We've all struggled to stay focused on an important task. However, some people have more trouble paying attention than others.

The most important part of the brain for attention and focus is the *prefrontal cortex*. This region also helps you plan and solve problems [R].

Other parts of the brain help to filter important information without having to think about it. This allows you to avoid distractions [R].

Problems in these brain regions may make it harder to stay focused. Some people have so much difficulty focusing that it interferes with their daily lives. This is a sign of *attention-deficit/hyperactivity disorder* (ADHD) [R].

ADHD affects millions of children and teenagers in the US. More boys are diagnosed with ADHD than girls [R].

Children and teens with ADHD tend to have trouble with school. They might also experience problems with relationships [R, R, R, R].

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
LPCAT1	rs27072	CC
DLC1	rs2410116	GG
COMT	rs4680	AG
TPH2	rs1843809	TT
MFHAS1	rs13439086	TC
AXIN2	rs8074751	AA
MUC15	rs10767556	GA
ANAPC4	rs28612433	TC
FBN3	rs35624673	CT
BDNF	rs56164415	GG
/	rs9545903	CT
CHRNA4	rs1044396	GG
CLPTM1L	rs11564750	GG
SLC26A5	rs144525	CC
PLXDC2	rs10828015	CT
BLOC1S2	rs35835615	CC
TPH2	rs1386497	AA
LGR4	rs11030104	AA
HTR2C	rs3813929	C
BDNF	rs6265	TC

Attention problems often continue into adulthood. Adults with ADHD are more likely to experience [R]:

- Substance abuse
- Car accidents
- Money problems

Treatment for ADHD usually includes talk therapy and medication [R].

The cause of ADHD is unknown. Risk factors include [R]:

- Maternal use of cigarettes, drugs, or alcohol during pregnancy
- Environmental toxins
- Brain injuries
- Genetics

Up to 80% of differences in people's chances of developing ADHD may be attributed to genetics. Genes involved in ADHD may influence [R, R, R, R, R, R, R]:

- Dopamine (*DRD4*, *DRD5*, *COMT*)
- Serotonin (*HTR1B*, *SLC6A4*, *SNAP25*)
- Brain cell growth (*BAIAP2*)

GENE	SNP	GENOTYPE
ANKK1	rs1800497	GA
MAOA	rs6323	G
COMT	rs4633	TC
SLC6A2	rs3785151	CG
CES1	rs1566652	GT
DRD1	rs265981	AG
SFXN1	rs5326	CT
DRD1	rs686	GA
KCTD3	rs6540899	AG
PFKP	rs1537617	GA
SNAP25	rs362987	AC
CNTLN	rs10962864	CT
SNAP25	rs3746544	GT
EXOC1L	rs895614	AG
CNTLN	rs6475111	CT
ZNF584	rs35782676	CT
DTNBP1	rs760761	AG
ADA	rs73598374	TC
HTR1B	rs6296	GC
DTNBP1	rs2619528	TC
DTNBP1	rs2619522	CA
DTNBP1	rs1018381	AG
SNAP25	rs363039	GA
ESD	rs7984966	TT
IL10RB	rs77224013	GG
SLC6A2	rs3785143	CC
C21ORF62	rs112686226	AA
TNR	rs6686722	CC
SPATA7	rs61975260	CC
HERC2	rs4778174	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
1	Sleep for 7+ Hours	
2	Cognitive-Behavioral Therapy (CBT)	
3	Psychotherapy	1 hour
4	Meditation	30 minutes
5	Behavioral Sleep Extension	
6	Mindfulness	30 minutes
7	Dietary Iron	10 mg
8	Avoid Organochlorine Pesticide Exposure	
9	Mindfulness Meditation	30 minutes
10	Avoid PCBs	
11	Yoga	30 minutes
12	Caffeine	100 mg
13	Avoid PAHs Exposure	
14	Strength Training	1 hour
15	Practice Exercise Snacks	1 minutesute

1 Sleep for 7+ Hours

IMPACT 5 / 5

EVIDENCE 3 / 5

How to implement

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

Description

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

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

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

Ways to sleep better include [R]:

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

How it helps

Short sleep duration is linked to attention problems and ADHD [R, R, R].

This is likely because sleep loss reduces the activity of brain regions involved in attention [R, R, R, R, R, R, R].

Optimizing sleep may help improve [R, R, R, R]:

- Attention
- Mood
- Quality of life

PERSONALIZED TO YOUR GENES

In people with your *COMT* gene variant, a lack of sleep may have a stronger impact on attention [R, R].
In people with your *ADA* gene variant, a lack of sleep may have a stronger impact on attention [R].

YOUR GENETIC VARIANTS

GENE	SNP	GENOTYPE	EVIDENCE
COMT	**rs4680**	AG	●●●
ADA	**rs73598374**	TC	●●

2

Cognitive-Behavioral Therapy (CBT)

IMPACT 4 / 5

EVIDENCE 4 / 5

How to implement

Schedule weekly sessions with a certified cognitive-behavioral therapist for a period of 5 to 20 weeks. Engage actively in exercises assigned by your therapist both during sessions and as homework to apply CBT strategies to daily life.

Description

Cognitive-behavioral therapy (CBT) is a psychotherapeutic approach that has been effective in treating various mental health conditions by helping individuals identify and change negative thought patterns and behaviors. It is widely used for conditions like depression, anxiety, and phobias.

Psychotherapy (talk therapy) involves talking about your health with a licensed therapist. It may improve the way you react to certain experiences [R].

Talk therapy is a great way to improve many conditions, including [R, R, R, R]:

- Depression
- Anxiety disorders
- PTSD
- OCD
- Substance use disorder
- Bipolar disorder

Cognitive-behavioral therapy (CBT) is a type of talk therapy. CBT aims to change the way you think about your life and yourself. Through CBT, a therapist can help you develop healthy coping mechanisms [R].

How it helps

Cognitive-behavioral therapy (CBT) improved ADHD symptoms in 7 non-placebo-controlled trials of 403 adults. This psychotherapy was more effective when combined with medication [R, R, R, R, R, R, R].

Four meta-analyses (the most recent one with 9 studies) found that CBT has medium to large effects on core ADHD symptoms, as well as anxiety and depression [R, R, R, R].

CBT can change the thoughts and behaviors of ADHD by teaching people techniques to control the core symptoms and reinforcing appropriate behaviors while discouraging the inappropriate ones [R, R, R].

3

Psychotherapy

IMPACT 4 / 5

EVIDENCE 4 / 5

How to implement

Schedule and attend regular sessions with a licensed psychotherapist, typically once a week for 50-60 minutes, over a period of several months to years depending on your individual needs and progress. Consistency is key, and the duration can vary widely based on personal goals and the type of psychotherapy being practiced.

TYPICAL STARTING DOSE

1 hour

Description

Psychotherapy is a broad term for therapeutic approaches that address mental and emotional health issues through talking and counseling. It can be used to treat a wide range of psychological and emotional challenges.

Psychotherapy (talk therapy) involves talking about your health with a licensed therapist. It may improve the way you react to certain experiences and help reduce stress [R, R].

Psychotherapy is a great way to improve many conditions, including [R, R, R, R, R, R]:

- Depression
- Anxiety disorders
- PTSD
- OCD
- Weight problems
- Eating disorders

Cognitive-behavioral therapy (CBT) is a type of psychotherapy. CBT aims to change the way you think about your life and yourself. Through CBT, a therapist can help you develop healthy coping mechanisms [R].

How it helps

Cognitive-behavioral therapy (**CBT**) is often used for ADHD. It may help adults improve their attention, hyperactivity and impulse control [R, R, R, R, R, R].

CBT may help ADHD by improving connectivity between brain cells [R].

4 Meditation

IMPACT 3 / 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

Different meditation modalities moderately improved sustained attention, selective attention, executive attention, and attentional control (among other cognitive aspects) and increased the gray matter volume of brain areas involved in attention in multiple non-placebo-controlled trials of over 700 people. Among them, mindfulness meditation specifically focuses on increasing sustained attention and reducing mind wandering [R, R, R, R, R, R, R, R, R, R, R, R, R, R, R].

In 3 non-placebo-controlled trials of 119 older people, meditation improved cognitive function (including sustained attention) while preventing cognitive decline and the thinning of the cortex [R, R, R].

A meta-analysis of 163 studies concluded that meditation has a medium impact on attention but small effects on other cognitive aspects. Another meta-analysis (13 trials including 270 children and 339 adults) found meditation-based therapies effective at reducing core ADHD symptoms. In adults, they also improved working memory and inhibition. However, the authors warned about the small number, high heterogeneity, and risk of bias of the included studies [R, R].

Meditation may help by training the brain to improve focus and ignore distractions.

5

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

Extending sleep duration can help manage Attention Deficit Hyperactivity Disorder (ADHD) by improving focus and reducing impulsive behavior. In simpler terms, more sleep allows the brain to rest properly, better manage itself and have improved control over attention.

In a series of non-placebo-controlled trials, sleep interventions demonstrated significant impacts on attention. Sleep restriction in 72 adolescents led to increased inattentive and oppositional symptoms, while extension reduced them. In 15 students and 34 children, extending sleep improved daytime alertness. Additionally, 50 tactical athletes undergoing 4 nights of sleep extension showed improvements in psychomotor vigilance. In 121 short-sleeping obese participants, sleep extension led to a 10% increase in attention. Finally, a study of 14 healthy men found that 6 nights of sleep extension improved sustained attention and reduced lapses in psychomotor vigilance tasks [R, R, R, R, R, R].

6 Mindfulness

IMPACT 3 / 5

EVIDENCE 3 / 5

How to implement

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

TYPICAL STARTING DOSE

30 minutes

Description

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

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

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

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

How it helps

Mindfulness has large effects on core ADHD symptoms in both adults and children according to 3 meta-analyses (the most recent one with 31 studies). In children, it may be more effective when applied to both them and their parents. However, the authors warned about the need for more studies with a better methodology [R, R, R].

Mindfulness emphasizes an observant and nonreactive attitude toward one's thoughts, emotions, and body state, ultimately improving attention and self-regulation abilities [R, R].

7 Dietary Iron

IMPACT 3 / 5

EVIDENCE 3 / 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

Low levels of iron are linked to ADHD [R, R, R].

In those who are deficient, supplementing with iron or eating iron-enriched foods may improve attention [R, R, R, R, 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].

8

Avoid Organochlorine Pesticide Exposure

IMPACT 3 / 5

EVIDENCE 3 / 5

How to implement

Minimize exposure by choosing organic fruits and vegetables, thoroughly washing produce before consumption, and avoiding areas where organochlorine pesticides are applied. Consider using air purifiers in homes close to agricultural areas to reduce indoor pesticide levels.

Description

Reducing organochlorine pesticide exposure involves minimizing contact with pesticides like DDT, which can accumulate in the body and potentially lead to adverse health effects, including disruption of hormonal functions and carcinogenicity.

How it helps

Organochlorine pesticides are chemicals that can disrupt the functioning of the nervous system. If you have Attention Deficit Hyperactivity Disorder, reducing exposure to these chemicals can help lessen the symptoms, as they may exacerbate the condition.

A meta-analysis of 19 studies associated maternal exposure to organochlorine pesticides with **22% higher risk of ADHD in the offspring** [R].

9

Mindfulness Meditation

IMPACT 3 / 5

EVIDENCE 3 / 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

Different meditation modalities moderately improved sustained attention, selective attention, executive attention, and attentional control (among other cognitive aspects) and increased the gray matter volume of brain areas involved in attention in multiple non-placebo-controlled trials of over 700 people. Among them, mindfulness meditation specifically focuses on increasing sustained attention and reducing mind wandering [R, R, R, R, R, R, R, R, R, R, R, R, R, R, R].

Mindfulness meditation has large effects on core ADHD symptoms in both adults and children according to 3 meta-analyses (the most recent one with 31 studies). In children, it may be more effective when applied to both them and their parents. However, the authors warned about the need for more studies with a better methodology [R, R, R].

Mindfulness emphasizes an observant and nonreactive attitude toward one's thoughts, emotions, and body state, ultimately improving attention and self-regulation abilities [R, R].

10 Avoid PCBs

IMPACT 3 / 5

EVIDENCE 3 / 5

How to implement

To avoid PCBs (Polychlorinated Biphenyls), do not use old electrical equipment manufactured before 1977, avoid consuming fish from contaminated waters, especially larger species such as shark and swordfish which are higher in the food chain, and check for and properly dispose of any old fluorescent lighting fixtures that may contain PCBs. Pay attention to local advisories regarding the safety of locally caught fish and wildlife.

Description

PCBs are toxic chemicals that can cause cancer, reproductive problems, and developmental problems. Avoiding exposure to PCBs is important for protecting your health.

Polychlorinated biphenyls (PCBs) are man-made chemicals. They were used in the industry until their **ban in 1979**. PCBs are considered **persistent organic pollutants** (POPS) due to their slow degradation in the environment. They may also **accumulate** in the food chain and the human body [R, R].

We may be exposed to PCBs through contaminated [R, R]:

- **Food** (e.g., fish, meat, rice)
- Soil
- Air

PCBs may have toxic effects on [R, R]:

- Immunity
- Nervous system
- Reproductive system
- Hormone levels

They may also increase the risk of cancer and reduce lifespan [R, R].

How it helps

Avoiding PCBs, which are environmental toxins, can be beneficial for attention conditions as they're known to interfere with the brain's chemistry and may exacerbate attention problems. Reducing exposure to toxins like PCBs can create a healthier environment for brain cells, potentially improving attention and focus.

A study of 46 children associated exposure to PCBs with **lower accuracy, drift rate, and task-related brain activity, and increased ADHD symptoms such as hyperactivity** [R].

11

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

A meta-analysis of 22 studies found moderate benefits of yoga on cognitive performance (especially memory, attention, and processing speed). However, the authors warned about the small size and high heterogeneity of the included studies [R].

Another meta-analysis (12 studies and 912 participants) found yoga moderately beneficial for improving attention, executive function, processing speed, and memory in older people [R].

In 4 trials (2 of them non-placebo-controlled) of 100 children with ADHD, yoga interventions lasting 6-12 weeks reduced hyperactivity and inattention [R, R, R, R].

Yoga may help by promoting mindfulness and concentration.

12

Caffeine

IMPACT 3 / 5

EVIDENCE 3 / 5

How to implement

Consume 100 to 200 mg of caffeine supplement daily, ideally in the morning to avoid interference with sleep. This can be in the form of a pill or powder, taken with water. Avoid exceeding 400 mg per day to prevent side effects.

TYPICAL STARTING DOSE

100 mg

Description

Caffeine is a natural stimulant found in coffee, tea, and certain other beverages and foods. In moderate amounts, it can help increase alertness and concentration, potentially enhancing cognitive function and physical performance.

People drink coffee for an energy and mood boost. Caffeine is the main ingredient responsible for these effects [R, R].

Caffeine may also [R, R, R]:

- Support heart health
- Maintain healthy blood sugar

Caffeine is also found in some topical products for hair loss [R].

How it helps

Multiple clinical reviews have confirmed the potential of caffeine to increase mental alertness in low-to-moderate doses (40-300 mg). The effects were even more pronounced in non-regular users and during sleep deprivation [R, R, R].

In a placebo-controlled trial of 36 participants, caffeine (100-200 mg) exhibited dose-dependent effects on alertness and attention. When people who usually do not drink caffeinated products consume high doses of caffeine, they have a higher increase in brain function. Regular and tolerant users may still feel the same effects, but to a smaller extent [R].

In 2 placebo-controlled trials of 70 sleep-deprived participants, a total daily dose of 800 mg of caffeine significantly improved alertness, reaction speed, and accuracy. Similarly, caffeine (100 mg) improved driving performance in a placebo-controlled trial of 12 sleep-deprived people [R, R, R].

Importantly, caffeine may mainly improve cognitive aspects such as attention in the short term. A meta-analysis of 10 studies and over 400k participants couldn't find any long-term benefits of regular coffee consumption on cognitive function [R].

13

Avoid PAHs Exposure

IMPACT 3 / 5

EVIDENCE 3 / 5

How to implement

Minimize your exposure to Polycyclic Aromatic Hydrocarbons (PAHs) by avoiding or reducing consumption of charred, grilled, or smoked foods, not smoking or avoiding secondhand smoke, and limiting time spent in areas with heavy traffic or industrial fumes. Use exhaust fans in kitchens and ensure proper ventilation when cooking at high temperatures to reduce indoor levels of PAHs.

Description

PAHs or Polycyclic Aromatic Hydrocarbons are harmful substances found in smoke and grilled foods. Try to limit exposure to them for better health. For example, avoid inhaling smoke from cigarettes or barbeques and choose alternative cooking techniques over grilling. Minimizing PAHs can reduce the risk of several health issues, particularly lung and skin diseases.

How it helps

A meta-analysis of 6 studies and 2799 participants concluded that exposure to PAHs increases the risk of ADHD by 2.5-fold in adults, but not in children [R].

Another meta-analysis (16 studies) associated prenatal exposure to PAHs with attention (by 3-fold), social behavior (by 60%), motor (by 91%), and neurodevelopmental problems (by 2.1-fold) in children [R].

14 Strength Training

IMPACT 3 / 5

EVIDENCE 3 / 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

Two meta-analyses (the largest one with 12 trials) concluded that strength training improves attention, executive function, and other cognitive aspects in adults older than 50-60 years old [R, R].

However, a meta-analysis of 12 trials found that strength training has no beneficial effects on attention in younger adults [R].

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

- Improving blood flow in the brain
- Reducing inflammation
- Improving brain cell communication

15

Practice Exercise Snacks

IMPACT 3 / 5

EVIDENCE 3 / 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

Several meta-analyses found beneficial effects of staying active on attention in children, adolescents, and young and older adults [R, R, R].

In children with ADHD, physical activity may improve anxiety, depression, and aggressive behavior according to a meta-analysis of 14 studies [R].