SelfDecode™

Dirty Genes Functional DNA Report

Health Report

REPORT CATEGORIES

- MENTAL HEALTH
- COGNITION
- NUTRITION
- HEART & BLOOD VESSELS
- LONGEVITY

Sample Client

Report date: 28 July 2025

Powered by omicsedge

Table of Contents

Personal information

NAME

Sample Client

SEX AT BIRTH

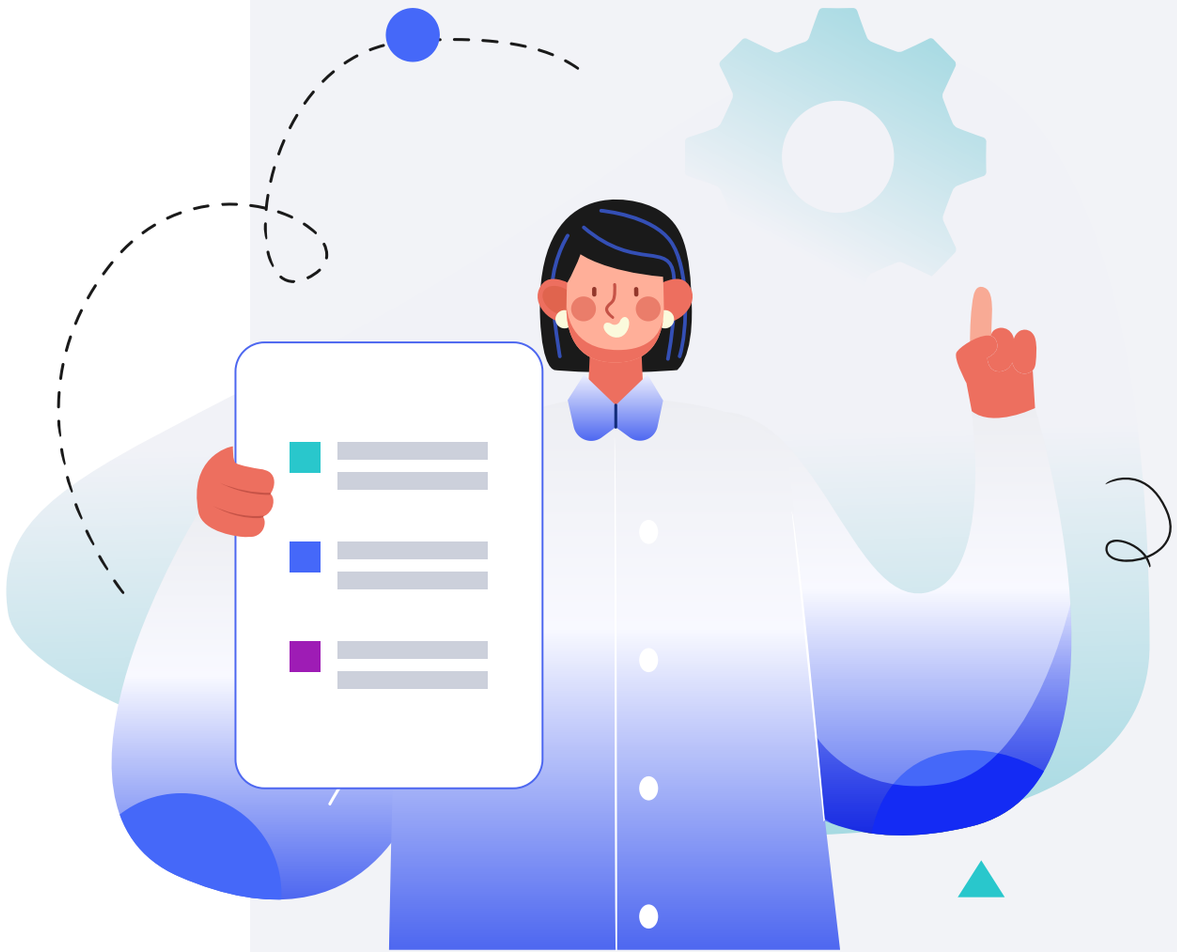
Male

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.

Summary

Your genes are like switches that control how your body functions, but some don't work at full capacity. When genetic variations cause genes to operate suboptimally, we call them "dirty genes." These variations are incredibly common and may explain symptoms you've been experiencing.

This report examines seven key genes that impact your daily health:

- **MTHFR** affects methylation and detoxification
- **COMT** determines how quickly you clear stress hormones like dopamine and adrenaline
- **DAO** controls histamine breakdown and food sensitivities
- **MAOA** regulates mood-related neurotransmitters
- **GST & GPX** handle toxin elimination
- **NOS3** manages circulation and blood pressure
- **PEMT** supports liver function and cell membranes.

Whether you're dealing with brain fog, anxiety, food intolerances, mood swings, fatigue, or cardiovascular issues, understanding which of your genes are "dirty" can provide the missing piece to your health puzzle. This isn't about genetic fate—it's about working with your unique blueprint to optimize your well-being.

This summary report contains:

Overview of Your Results

Dirty Genes

LOWER ACTIVITY

MTHFR

Likely lower MTHFR activity

HIGHER ACTIVITY

MAOA (Dopamine/Serotonin)

Likely higher MAOA activity

LOWER ACTIVITY

GSTA1 (Detox/ Glutathione)

Predisposed to lower GSTA1 activity

TYPICAL ACTIVITY

COMT

Likely typical COMT activity

TYPICAL ACTIVITY

DAO (Histamine)

Likely typical DAO activity

TYPICAL ACTIVITY

GPX4 (Selenium & Glutathione)

Predisposed to typical GPX4 activity

TYPICAL ACTIVITY

NOS3 (Cardiovascular)

Likely typical NOS3 activity

TYPICAL ACTIVITY

PEMT (Choline)

Likely typical PEMT activity

HIGHER ACTIVITY

GSTP1 (Detox)

Likely higher GSTP1 activity

HIGHER ACTIVITY

GPX1 (Glutathione/Detox)

Likely higher GPX1 activity

Recommendations Overview

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	Methylfolate	400 mcg
2	Dietary Folate	
3	Betaine (TMG)	500 mg
4	Leafy Green Vegetables	
5	Avoid High-Dose Niacin Supplements	35 mg
6	Zinc	15 mg
7	Dietary Riboflavin (Vitamin B2)	
8	Riboflavin (Vitamin B2)	25 mg
9	SAM-e	200 mg
10	Meditation	30 minutes
11	Mindfulness	30 minutes
12	Sleep for 7+ Hours	
13	Avoid Cannabis	
14	Limit Coffee Intake	
15	Dietary Choline	
16	Avoid Exposure to Heavy Metals	
17	Choline Supplements	425 mg
18	Green Tea	400 mg
19	White Mulberry	

Your Results in Details

Dirty Genes

The symptoms you experience—persistent fatigue, unexplained mood changes, food sensitivities, or difficulty handling stress—aren't random occurrences. They're often clues pointing to how your genes are functioning. When certain genes operate differently than optimal, they create patterns of symptoms that can seem unrelated but actually share common genetic roots.

This report will walk you through your genetic variations and, more importantly, what you can do about them. You'll learn targeted strategies for nutrition, lifestyle, and environmental changes that work with your genetics rather than against them. Think of this as your personalized roadmap to better health.

Remember: having genetic variations doesn't mean you're broken or destined for poor health. Millions of people carry these same variations and live vibrant, healthy lives once they understand how to support their unique genetic needs. Your genes are simply asking for specific support, and this report will show you exactly how to provide it.

LOWER ACTIVITY

MTHFR

Likely lower MTHFR activity

HIGHER ACTIVITY

MAOA (Dopamine/Serotonin)

Likely higher MAOA activity

LOWER ACTIVITY

GSTA1 (Detox/ Glutathione)

Predisposed to lower GSTA1 activity

TYPICAL ACTIVITY

COMT

Likely typical COMT activity

TYPICAL ACTIVITY

DAO (Histamine)

Likely typical DAO activity

TYPICAL ACTIVITY

GPX4 (Selenium & Glutathione)

Predisposed to typical GPX4 activity

TYPICAL ACTIVITY

NOS3 (Cardiovascular)

Likely typical NOS3 activity

TYPICAL ACTIVITY

PEMT (Choline)

Likely typical PEMT activity

HIGHER ACTIVITY

GSTP1 (Detox)

Likely higher GSTP1 activity

HIGHER ACTIVITY

GPX1 (Glutathione/Detox)

Likely higher GPX1 activity

MTHFR

Key Takeaways:

- MTHFR is an enzyme that helps your body process folate, an important nutrient for many body functions and processes.
- If you have lower MTHFR activity due to genetics, make sure you include folate-rich foods in your diet, like fruits and vegetables or other fortified foods. This is even more important with pregnancy.

The most common *MTHFR* SNP is **rs1801133** (C677T). The **'A' variant** of this SNP decreases the activity of the MTHFR enzyme. People with two 'A' variants may have about 16% lower blood folate levels ('A' equals 'T' on the opposite DNA strand) [R].

The **'G' variant*** of another SNP, **rs1801131** (A1298C), also decreases MTHFR enzyme activity, but less so than rs1801133. The effects of this variant may only be meaningful in people who also have the other low-activity variant, rs1801133-AA ('G' equals 'C' on the opposite DNA strand) [R, R, R, R, R].

Read this blog post for more details about MTHFR variants and potential ways to reduce their impact.

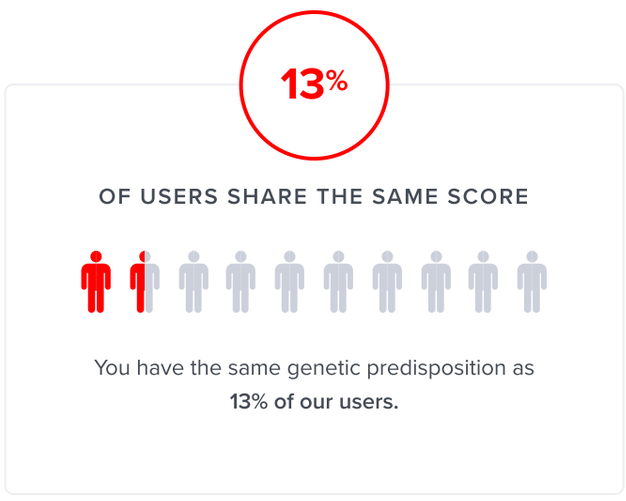
If you carry a lower-activity variant, make sure your diet is healthy, well-balanced, and contains plenty of folate-rich food sources. These include [R, R, R]:

- Spinach
- Black-eyed and green peas
- Asparagus
- Lettuce
- Avocado
- Broccoli
- Citrus fruits
- Fortified rice, bread, and pasta

Some sources recommend methylfolate supplements instead of folic acid. Methylfolate supplements would in theory bypass the MTHFR enzyme, which converts folic acid to methylfolate. However, even if you have lower-activity *MTHFR* variants, experts say you can still process folic acid without any issues [R].

LOWER ACTIVITY

Likely lower MTHFR activity based on the genetic variants we looked at



Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
MTHFR	rs1801133	AA
MTHFR	rs1801131	TT

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

Importantly, CDC notes that folic acid is the only folate supplement proven to reduce neural tube defects. Methylfolate supplements have not been properly studied [R].

In addition to folate, there is some evidence that people with *MTHFR* variants may do better if they get more riboflavin (vitamin B2). This vitamin helps MTHFR work properly [R, R, R, R, R, R, R, R, R, R].

Good sources of riboflavin include [R, R]:

- Eggs
- Dairy (milk, cheese, yogurt)
- Lean and organ meats
- Green vegetables
- Fortified cereals
- Mushrooms
- Almonds

MAOA (Dopamine/Serotonin)

There are multiple *MAOA* variants affecting enzyme activity. While low-activity variants lead to increased levels of the monoamine neurotransmitters dopamine, serotonin, and norepinephrine, variants with high activity decrease them. Among them, two of the most well-researched ones are rs6323, rs1137070, and rs909525. Their “G”, “T”, and “C” alleles, respectively, encode MAOA proteins with higher activity [R].

The first low-activity variants described were associated with increased aggressiveness, which earned *MAOA* the nickname “the Warrior gene.” This received high media coverage and raised the ethical question of whether carriers of certain variants should be held fully responsible for their actions. In some cases, it even resulted in sentence reductions [R, R, R, R]!

Other conditions associated with lower MAOA activity include:

- Autism [R, R, R]
- Schizophrenia [R, R, R]
- Suicidal behavior [R, R, R]
- Alcoholism [R, R, R]
- Substance use disorder [R, R]
- Obesity [R, R, R]

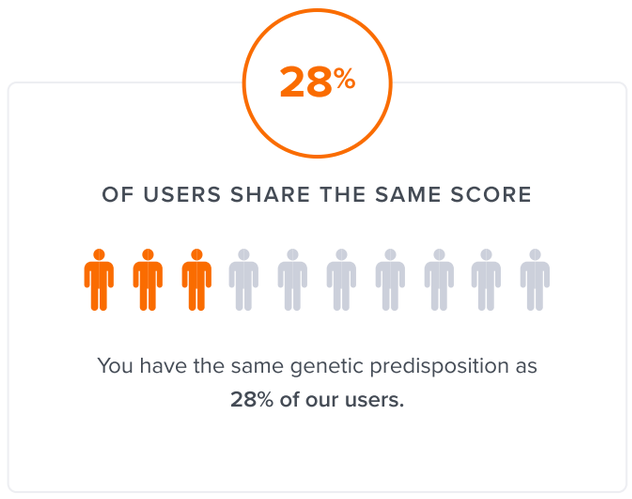
In contrast, variants with high activity lead to reduced dopamine, serotonin, and norepinephrine levels. These variants have been associated with the following conditions:

- Depression [R, R, R, R]
- Panic disorder [R, R]
- Obsessive-compulsive disorder [R, R]
- ADHD [R, R, R, R, R]
- Tourette syndrome [R, R]
- Heavy smoking [R, R, R]
- Parkinson’s disease [R, R]
- Migraines [R, R]
- Chronic fatigue syndrome [R]

Drugs that block MAOA can improve several of these conditions and are commonly prescribed for mood disorders. However, inhibitors of another monoamine oxidase version (MAOB) are

HIGHER ACTIVITY

Likely higher MAOA activity based on the genetic variants we looked at



Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
MAOA	rs6323	G
MAOA	rs1137070	T

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

preferred in the case of Parkinson's disease because they are more effective for motor symptoms and brain cell death [R, R].

MAOA also plays a role in **histamine metabolism**. It breaks down histamine by removing an amine group, primarily in brain and gut tissues. When MAOA activity is reduced, histamine remains active longer, potentially contributing to prolonged allergy symptoms or sensitivity reactions.

Nevertheless, keep in mind that the research on the health effects of *MAOA* variants is very complex, and often results in mixed or inconsistent findings. Factors that may modify the associations of specific *MAOA* variants with health conditions include:

- Their combination with other *MAOA* variants
- Many other genes
- Gender and sex hormone levels
- Environmental factors

GSTA1 (Detox/ Glutathione)

The most studied GSTA1 variant is **rs3957357**. The **A allele** is associated with reduced enzyme activity compared to the G allele. Individuals carrying the A allele may have decreased detoxification capacity, particularly for specific environmental toxins and medications [R].

One study investigated the link between this SNP and Balkan Endemic Nephropathy (BEN) - a mysterious kidney disease that occurs almost exclusively in certain rural areas along the Danube River in southeastern Europe. People with the A allele were 60% more likely to have BEN. The study also suggested that GSTA1 is involved in **fungal toxin** (ochratoxin) metabolism [R].

This variant may also be linked to [R, R, R, R, R]:

- Higher odds of liver cancer
- Stronger adverse effects of chemo
- Higher odds of asthma and allergies
- Lower hemoglobin levels
- Lower free testosterone levels

Another GSTA1 variant, rs3957356, has shown similar associations. These two variants are almost always inherited together, meaning that you likely have either none or both of them.

LOWER ACTIVITY

Predisposed to lower GSTA1 activity based on the genetic variants we looked at

20%

OF USERS SHARE THE SAME SCORE

You have the same genetic predisposition as **20% of our users.**

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
GSTA1	rs3957357	AA

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

COMT

One common variant of the *COMT* gene, rs4680, may affect COMT enzyme activity. Some people call rs4680 the “worrier or warrior” variant [R, R].

The “G” allele of this variant is linked to a higher COMT enzyme activity. People with two copies of this allele (GG) have been nicknamed the “warriors.” They break down stress-related chemical messengers more quickly. This may help improve their performance under stress [R].

On the negative side, “warriors” may have lower cognitive performance under relaxed conditions [R, R, R].

People with two copies of the “A” allele (AA) may have lower COMT enzyme activity. They have been nicknamed the “worriers.” They break down stress-related chemical messengers more slowly in the brain. For this reason, they may be more vulnerable to stress. This includes an increased susceptibility to heart disease, possibly due to the effects of these chemical messengers on blood pressure and heart rate [R, R, R, R].

The good news is that "worriers" may become more emotionally resilient with age. They also tend to have enhanced cognitive performance under relaxed conditions. Interestingly, "worriers" seem to have a more pronounced placebo response due to higher dopamine levels [R, R, R, R, R].

People carrying both alleles (AG) tend to be in between the described extremes [R, R].

Did you know? People with “warrior” genetics may be more likely to engage in combat sports, justifying the nickname of this variant [R].

However, keep in mind that your cognitive function and response to stress are also influenced by other factors, such as:

- Other variants in the *COMT* gene
- Many other genes
- Environmental factors

TYPICAL ACTIVITY

Likely typical COMT activity based on the genetic variants we looked at

45%

OF USERS SHARE THE SAME SCORE

You have the same genetic predisposition as **45% of our users.**

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
COMT	rs4680	AG

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

DAO (Histamine)

Four *AOC1* variants have been associated with lower levels of the DAO enzyme and higher incidence of migraine: rs1049793, rs2052129, rs10156191, and rs1049742 [R, R, R].

In almost every case, the minor allele reduces DAO activity, possibly by producing a non-functional or less functional version of the enzyme. Lower DAO enzyme activity reduces the body's capacity to break down and deactivate histamine, potentially leading to inflammation and pain [R, R, R].

The exception to the rule is rs2052129, at which the minor 'T' allele, associated with lower DAO levels, seems to be protective against migraines, but only in men. In women, there was no statistical difference between any genotype [R].

Two other minor variants, 'T' at rs2268999 and 'A' at rs2071514, have also been linked to lower DAO activity [R].

Some of these variants have also been associated with hypersensitive responses to non-steroidal anti-inflammatory drugs [R].

TYPICAL ACTIVITY

Likely typical DAO activity based on 5 genetic variants we looked at

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
AOC1	rs1049793	GC
AOC1	rs1049742	CC
AOC1	rs10156191	CC
AOC1	rs2268999	AA
AOC1	rs2052129	GG
AOC1	rs35070995	AA

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

GPX4 (Selenium & Glutathione)

The main GPX4 variant is rs713041. Its “T” allele may be linked to:

- Colorectal cancer [R]
- Stroke [R]
- Poor prognosis of breast cancer [R]
- Pancreas inflammation [R]
- Vitamin B deficiencies [R]

However, some studies did not confirm the above findings [R, R].

Some studies even found **protective associations** between this variant and:

- High blood pressure in pregnancy [R]
- DNA damage [R]
- Heart problems in people with diabetes [R]
- Endometriosis [R]
- Alzheimer’s disease [R]

Scientists are unsure about the reason behind these conflicting findings. This variant seems to be **beneficial when enough dietary selenium is available**, so people carrying it should pay special attention to selenium intake [R].

TYPICAL ACTIVITY

Predisposed to typical GPX4 activity based on the genetic variants we looked at

80%

OF USERS SHARE THE SAME SCORE

You have the same genetic predisposition as **80% of our users.**

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
GPX4	rs713041	CT

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

NOS3 (Cardiovascular)

Among the different *NOS3* polymorphisms, rs1799983 has been most widely studied. The ‘T’ variant produces a protein that can’t reach its activation sites in cell membranes, ultimately decreasing NO production [R].

In line with the beneficial cardiovascular effects of NO, the ‘T’ variant has been associated with an increased risk of coronary heart disease and heart attack in several studies. It’s also more frequent in children with congenital heart disease and predicts a faster progression of heart damage in people with diabetes [R, R, R, R].

However, overproducing ‘GG’ genotype may also have negative effects on the heart. It’s associated with reduced heart function in people with kidney disease, increased risk of death in those with high blood pressure, and heart failure in African-Brazilians [R, R, R].

The ‘T’ allele of rs1549758 has also been associated with an increased risk of coronary heart disease and hypertension but is usually inherited with the ‘T’ allele of rs1799983, meaning you will most likely have both or neither of them [R].

Another SNP, rs2070744, is also linked to an increased risk of coronary heart disease. The ‘C’ allele can be bound by a protein that blocks *NOS3* production. However, the ‘T’ variant at this polymorphism is the one associated with myocardial infarction [R, R, R].

These variants may exert their harmful effects through their associations with:

- Higher blood pressure [R, R, R, R, R, R, R, R, R, R, R]
- Higher vessel stiffness and blood cholesterol [R, R, R, R]
- Increased risk of complications after heart surgery [R, R, R]
- Reduced effectiveness of conventional and alternative therapies [R, R]

The minor variants of rs179983 and rs2070744 have also been associated with:

- Worse athletic performance in power sports [R, R, R, R, R, R]
- Longer and more frequent migraines [R, R, R, R]

TYPICAL ACTIVITY

Likely typical NOS3 activity based on 2 genetic variants we looked at

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
NOS3	rs2070744	TC
NOS3	rs1549758	CT
NOS3	rs3918226	CT

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

On the bright side, they are also linked to:

- Improved performance in aerobic sports and soccer [R, R, R]
- Greater decreases in triglycerides, cholesterol, and blood pressure in response to unsaturated fats such as omega-3 fatty acids and extra virgin olive oil [R, R, R, R, R]

Finally, the ‘T’ allele of rs3918226 also results in lower NOS3 levels and is associated with a higher risk and severity of heart and coronary events. Fortunately, this allele is extremely rare and most people (81-99%) have the ‘CC’ genotype [R, R, R].

PEMT (Choline)

Certain *PEMT* variant make the gene less responsive to estrogen stimulation. This prevents estrogen from binding to this gene and boosting its expression. As a result, PEMT activity drops and the liver doesn't make enough choline to prevent deficiency [R, R].

A study identified one *PEMT* variation, rs12325817, strongly associated with choline deficiency. Women with a 'G' allele were 25 times more likely to experience organ damage on a low-choline diet (<50 mg/70 kg daily) [R].

The research team added 33 women to the study and identified four additional variants with a weaker effect: rs4646343-T, rs3760188-T, rs1531100-A, and rs4646365-T. The last two were significant only in postmenopausal women and their impact was marginal [R].

The first three variants —rs12325817, rs4646343, rs3760188— are almost always inherited together, which means you will either have all risk alleles or none of them. Similarly, the last two —rs1531100 and rs4646365—are always inherited together.

Another polymorphism, rs7946, has been associated with reduced PEMT function. Carriers of the minor 'T' variant can't produce enough PC. In one lab test, the "TT" genotype resulted in a 30% loss of PEMT function [R].

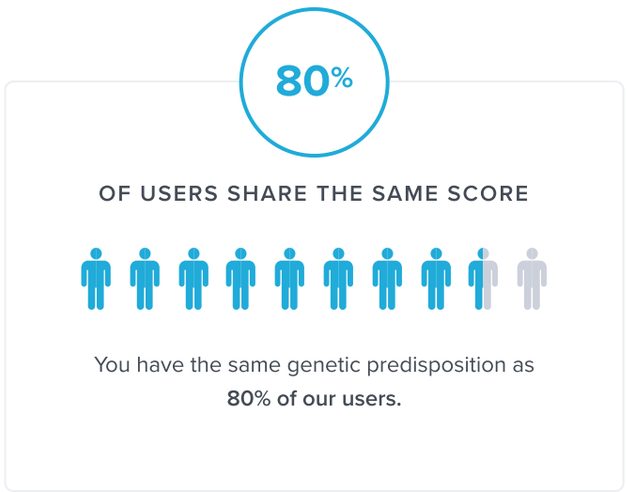
In addition to choline deficiency, these variants have been associated with an increased risk of:

- Heart disease
- Fatty liver

However, they have also been linked to lower obesity rates.

TYPICAL ACTIVITY

Likely typical PEMT activity based on the genetic variants we looked at



Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
PEMT	rs1531100	AA
PEMT	rs4646365	TT
PEMT	rs4646343	GT
PEMT	rs7946	CT
PEMT	rs3760188	CT
PEMT	rs12325817	CC

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

GSTP1 (Detox)

The main GSTP1 gene variant is **rs1695 or Ile105Val**. The "**G**" allele of this variant changes the GSTP1 structure and reduces its activity. As a result, it may impact the body's ability to detoxify various substrates, including carcinogens, drugs, and products of oxidative stress.

Studies have linked it to:

- Increased drug toxicity (chemotherapy) [R]
- Increased mercury toxicity [R]
- Higher odds of asthma due to smoke exposure ("GG" genotype) [R]
- Higher odds of breast cancer [R]
- Allergic reactions in people exposed to air pollution [R]

However, some studies **failed to confirm** the link between this variant and asthma, mercury toxicity, or cancer [R, R, R, R].

The effects of rs1695-G on breast cancer may be more pronounced in women who eat less **cruciferous vegetables**. This finding makes sense given that cruciferous vegetables are rich in glutathione and other antioxidants [R].

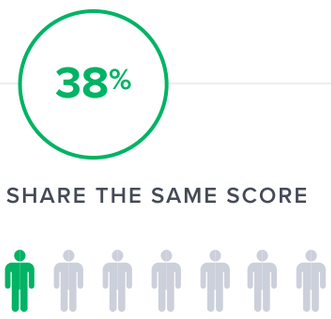
Another important GSTP1 variant is **rs1138272 or Ala114Val**. Its minor "**T**" allele may be linked to:

- Stronger effects of smoking on Parkinson's disease [R]
- Increased mercury toxicity [R]
- Nerve problems [R]

However, many studies **didn't find the negative effects** of this variant on detox ability and cancer [R, R, R, R, R].

HIGHER ACTIVITY

Likely higher GSTP1 activity based on the genetic variants we looked at



OF USERS SHARE THE SAME SCORE

You have the same genetic predisposition as **38% of our users.**

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
GSTP1	rs1695	AA
GSTP1	rs1138272	CC

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

GPX1 (Glutathione/Detox)

One study found a direct link between a common *GPX1* variant and human longevity. According to a cohort of elderly Danish people born in 1905, the heterozygous **genotype 'AG' at rs1050450 was significantly more common in the very elderly** than in the general population [R].

The authors of the study suggested there could be some kind of survival benefit for the 'AG' genotype, but they did not speculate as to why the heterozygote might have an advantage over 'AA' and 'GG' [R].

That said, other studies have strongly suggested that the **'G' allele at rs1050450 confers higher GPx activity**, which is linked to better health outcomes [R, R].

Along with other variants, like rs1800668 and rs3811699, this variant has also been linked to [R, R, R, R, R, R, R]:

- Rheumatoid arthritis
- Kashin-Beck disease
- Heart disease
- Some types of cancer

Kashin-Beck disease (KBD) is a bone disease that causes arthritis-like joint pain, enlarged joints, and decreased range of motion. People with KBD tend to have significantly higher oxidative stress and significantly lower selenium, suggesting that the disease could be caused (at least in part) by poor GPx activity [R, R].

Please note: These three variants are closely linked, so if you have a "bad" allele at one, you will likely also have "bad" alleles at others.

HIGHER ACTIVITY

Likely higher GPX1 activity based on the genetic variants we looked at

43%

OF USERS SHARE THE SAME SCORE

You have the same genetic predisposition as **43% of our users.**

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
GPX1	rs1050450	GG

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

Recommendations Details

1 Methylfolate

Take an L-methyl folate supplement (400-800 micrograms daily), ideally with a meal, to improve absorption. This dosage is recommended for adults, including pregnant women, to support overall health, especially to reduce the risk of neural tube defects in developing fetuses. Continue daily use as part of your regular supplement routine.

TYPICAL STARTING DOSE

400 mcg

Helps with these Symptoms & Conditions:

Artery Hardening | Cognitive Decline

Helps with these Goals:

Cognitive Function | Fat Loss | Libido | Mood

Helps with these DNA Risks:

MTHFR

How it helps

MTHFR

IMPACT 5 / 5

EVIDENCE 5 / 5

People with lower MTHFR activity may have 16% lower folate levels, and they tend to have increased homocysteine [R].

Supplementation with folate (0.5-1 mg/day) may lower homocysteine levels. It may work in healthy people, those with [R, R, R, R, R, R, R]:

- Heart problems
- Cognitive decline
- High blood sugar

CDC notes that **folic acid** is the only supplement proven to reduce birth defects due to low folate [R].

2 Dietary Folate

Increase your intake of folate-rich foods such as leafy green vegetables, fruits, nuts, and legumes. Aim to consume these foods daily, incorporating them into various meals throughout the day to meet the recommended dietary allowance of 400 micrograms for adults.

Helps with these Symptoms & Conditions:

Cognitive Decline | Food Allergies

Helps with these Goals:

Energy | Mood

Helps with these DNA Risks:

⚠ MTHFR

How it helps

⚠ MTHFR

IMPACT 5 / 5 | EVIDENCE 5 / 5

People with lower MTHFR activity may have 16% lower folate levels, and they tend to have increased homocysteine [R].

High dietary intake of folate is associated with lower homocysteine levels [R, R].

It's always a good practice to get plenty of folate by eating a variety of fresh fruits and vegetables. This is especially true for people with lower MTHFR activity. Folate in food sources is natural or "active" form. In theory, this means it is equally beneficial for people with lower MTHFR activity [R, R, R, R, R].

Rich sources of folate include [R, R]:

- Beef liver
- Spinach
- Black-eyed peas
- Asparagus
- Citrus fruits

3 Betaine (TMG)

To take Betaine (TMG) as a supplement, consume 500-2000 mg daily, preferably with a meal to enhance absorption. It is recommended to start at the lower end of the dosage range and adjust based on personal tolerance and effectiveness. This supplement can be taken indefinitely for ongoing support of heart health and liver function.

TYPICAL STARTING DOSE
500 mg

Helps with these Goals:

Fat Loss

Strength

Helps with these DNA Risks:

MTHFR

How it helps

MTHFR

IMPACT 3 / 5

EVIDENCE 2 / 5

TMG or betaine helps turn homocysteine into methionine. For this reason, it plays a key role in the methylation cycle.

People with lower MTHFR activity and poor methylation may have reduced betaine production. To make up for this effect, consume a variety of betaine-rich foods such as [R]:

- Liver meats
- Quinoa
- Beets
- Wheat germ
- Spinach

Supplementing with TMG (1.5-4 g/day for 6-24 weeks) may lower homocysteine levels, which tend to be higher in people with impaired MTHFR function [R, R].

Homocystinuria is a rare genetic disorder that results in elevated homocysteine levels in the urine. In people with this condition, TMG is approved by the FDA to lower urinary homocysteine [R].

A study of 860 mothers observed much lower neural tube defect (NTD) rates for the highest vs. lowest dietary intakes of choline, betaine, and methionine. NTDs are of particular concern for people with reduced MTHFR activity due to impaired methylation [R].

According to preliminary findings, early betaine supplementation may improve outcomes in cases of MTHFR deficiency [R].

Please note: *Doses above 4 g/day may increase LDL and triglyceride levels. TMG supplementation can cause a person's urine and sweat to smell fishy* [R, R].

4 Leafy Green Vegetables

Incorporate at least one serving of leafy green vegetables, such as spinach, kale, or Swiss chard, into your diet daily. This can be done by adding them to salads, smoothies, or as a side dish to your meals.

Helps with these Symptoms & Conditions:

Artery Hardening

Helps with these Goals:

Longevity | Memory | Short Term Memory

Helps with these DNA Risks:

MTHFR

How it helps

MTHFR

IMPACT 3 / 5

EVIDENCE 2 / 5

Research indicates that higher intake of dark green leafy vegetables is associated with a lower risk of cutaneous squamous cell carcinoma (SCC) in people carrying specific MTHFR gene variants [R].

Additionally, a study found that people with the MTHFR TT genotype may experience increased benefits from high green vegetable intake, which may lower their risk of breast cancer compared to those with low intake [R].

Leafy green vegetables may help due to their high folate content.

5 Avoid High-Dose Niacin Supplements

Ensure your daily intake of niacin (vitamin B3) from supplements does not exceed 35 mg, which is the upper intake level for adults, to prevent the risk of negative side effects like flushing and liver damage. Always check the label of your supplement to confirm the niacin dosage.

TYPICAL STARTING DOSE

35 mg

Helps with these DNA Risks:

MTHFR

How it helps

MTHFR

IMPACT 2 / 5

EVIDENCE 1 / 5

MTHFR is essential for converting homocysteine to methionine. High doses of niacin can exacerbate the accumulation of homocysteine in individuals with reduced MTHFR function.

This is because niacin in large amounts can deplete methyl donors like SAMe (S-adenosylmethionine), which are needed for homocysteine metabolism [R].

6 Zinc

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

TYPICAL STARTING DOSE

15 mg

Helps with these Symptoms & Conditions:

Artery Hardening | Food Allergies | Hair Loss | Underactive Thyroid

Helps with these Goals:

Cognitive Function | Focus | Libido | Memory | Mood

Helps with these DNA Risks:

MTHFR

How it helps

MTHFR

IMPACT 2 / 5

EVIDENCE 2 / 5

Zinc is important for folate absorption and healthy methylation. Ensure that your zinc levels are optimal [R].

If you are deficient in zinc, your gut enzymes can't break down folate into the form you can absorb [R, R].

Zinc also helps folate carry out its role in the body [R].

7 Dietary Riboflavin (Vitamin B2)

Include riboflavin-rich foods in your daily diet, such as milk, cheese, eggs, lean meats, green leafy vegetables (like spinach), almonds, and fortified cereals. Aim for an intake of 1.1 to 1.3 mg of riboflavin per day for adults, as recommended by dietary guidelines.

Helps with these DNA Risks:

MTHFR

How it helps

MTHFR

IMPACT 1 / 5

EVIDENCE 2 / 5

There is some evidence that people with MTHFR variants may do better if they get more riboflavin (vitamin B2) [R, R, R, R, R, R, R, R].

This vitamin helps MTHFR work properly [R, R, R].

Good sources of riboflavin include [R, R]:

- Eggs
- Dairy
- Lean and organ meats
- Green vegetables
- Fortified cereals

8

Riboflavin (Vitamin B2)

Take a riboflavin (vitamin B2) supplement daily, with a dose ranging from 5mg to 400mg, depending on the specific health concern or advice from a healthcare provider. Swallow the supplement with water, preferably with a meal to enhance absorption. This regimen can be continued long-term or as directed by a healthcare professional.

TYPICAL STARTING DOSE

25 mg

Helps with these Goals:

Mood

Helps with these DNA Risks:

MTHFR

How it helps

MTHFR

IMPACT 1 / 5

EVIDENCE 3 / 5

There is some evidence that people with MTHFR variants may do better if they get more riboflavin (vitamin B2) [R, R, R, R, R, R, R, R].

For example, supplementing with riboflavin may decrease blood pressure more in people with reduced MTHFR activity [R, R, R, R].

This vitamin helps MTHFR work properly [R, R, R].

9 SAM-e

Take 400-1600 mg of SAM-e as a supplement daily, preferably on an empty stomach to enhance absorption. It is often recommended to start with low dosage and observe how your body responds over a few weeks, adjusting as necessary under the guidance of a healthcare provider.

TYPICAL STARTING DOSE

200 mg

Helps with these Goals:

Longevity | Mood

10 Meditation

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

Helps with these Symptoms & Conditions:

Artery Hardening

Helps with these Goals:

Cognitive Function | Creativity | Energy | Focus | Longevity | Memory | Mood | Short Term Memory

11 Mindfulness

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

Helps with these Symptoms & Conditions:

Cognitive Decline

Helps with these Goals:

Cognitive Function | Creativity | Energy | Fat Loss | Focus | Libido | Longevity | Memory | Mood | Short Term Memory

12 Sleep for 7+ Hours

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.

Helps with these Symptoms & Conditions:

Artery Hardening | Cognitive Decline | Hair Loss | Hashimoto's Disease | Underactive Thyroid

Helps with these Goals:

Cognitive Function | Creativity | Energy | Fat Loss | Focus | Libido | Longevity | Memory | Mood | Short Term Memory

13 Avoid Cannabis

Stop any form of cannabis use, including smoking, vaping, edibles, and topical applications. If you currently use cannabis, it's recommended to cease usage immediately and seek support or counseling if necessary for cessation.

14 Limit Coffee Intake

Reduce your coffee consumption to no more than 2-3 cups (approximately 200-300 mg of caffeine) per day. Try to avoid drinking coffee after 2 PM to minimize potential impacts on sleep.

15 Dietary Choline

Increase your intake of choline-rich foods such as eggs, beef liver, chicken liver, fish, peanuts, and dairy products. Aim for an adult intake of about 425 mg to 550 mg of choline per day through these food sources, as part of your regular diet.

Helps with these Goals:

- Fat Loss

16 Avoid Exposure to Heavy Metals

To avoid exposure to heavy metals, ensure you're not using cosmetic products with heavy metals, opt for organic foods to minimize pesticide exposure, and use filters for drinking water to remove possible contaminants. Check for lead-based paints in older homes and avoid cooking or storing food in uncoated metal containers. When possible, choose glass or BPA-free plastics instead.

Helps with these Symptoms & Conditions:

- Artery Hardening

Helps with these Goals:

- Fat Loss
- Longevity
- Memory
- Strength

17 Choline Supplements

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

Helps with these Goals:

- Cognitive Function
- Focus
- Memory
- Short Term Memory

18 Green Tea

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

TYPICAL STARTING DOSE

400 mg

Helps with these Symptoms & Conditions:

- Artery Hardening
- Cognitive Decline

Helps with these Goals:

- Cognitive Function
- Energy
- Fat Loss
- Focus
- Longevity
- Memory
- Mood

19 White Mulberry

Take a supplement containing 500mg of white mulberry extract three times daily with meals. Continue this regimen for at least three months to evaluate its effects on blood sugar levels.

Helps with these Goals:

- Fat Loss

Helps with these DNA Risks:

- MAOA (Dopamine/Serotonin)

How it helps

MAOA (Dopamine/Serotonin)

IMPACT 1 / 5

EVIDENCE 1 / 5

In a rat study, physical exercise greatly reduced MAOA activity. The oral administration of white mulberry extract restored this activity to normal values [R].

White mulberry extract (2,400 mg/day for 12 weeks) may reduce weight [R].