SelfDecode™

100X Wildly Healthy Functional DNA Report

Health Report

REPORT CATEGORIES

- GUT HEALTH
- NUTRITION
- HEART & BLOOD VESSELS
- SLEEP
- INFLAMMATION & AUTOIMMUNITY
- DETOX

Sample Client

Report date: 28 July 2025

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Personal information

NAME

Sample Client

SEX AT BIRTH

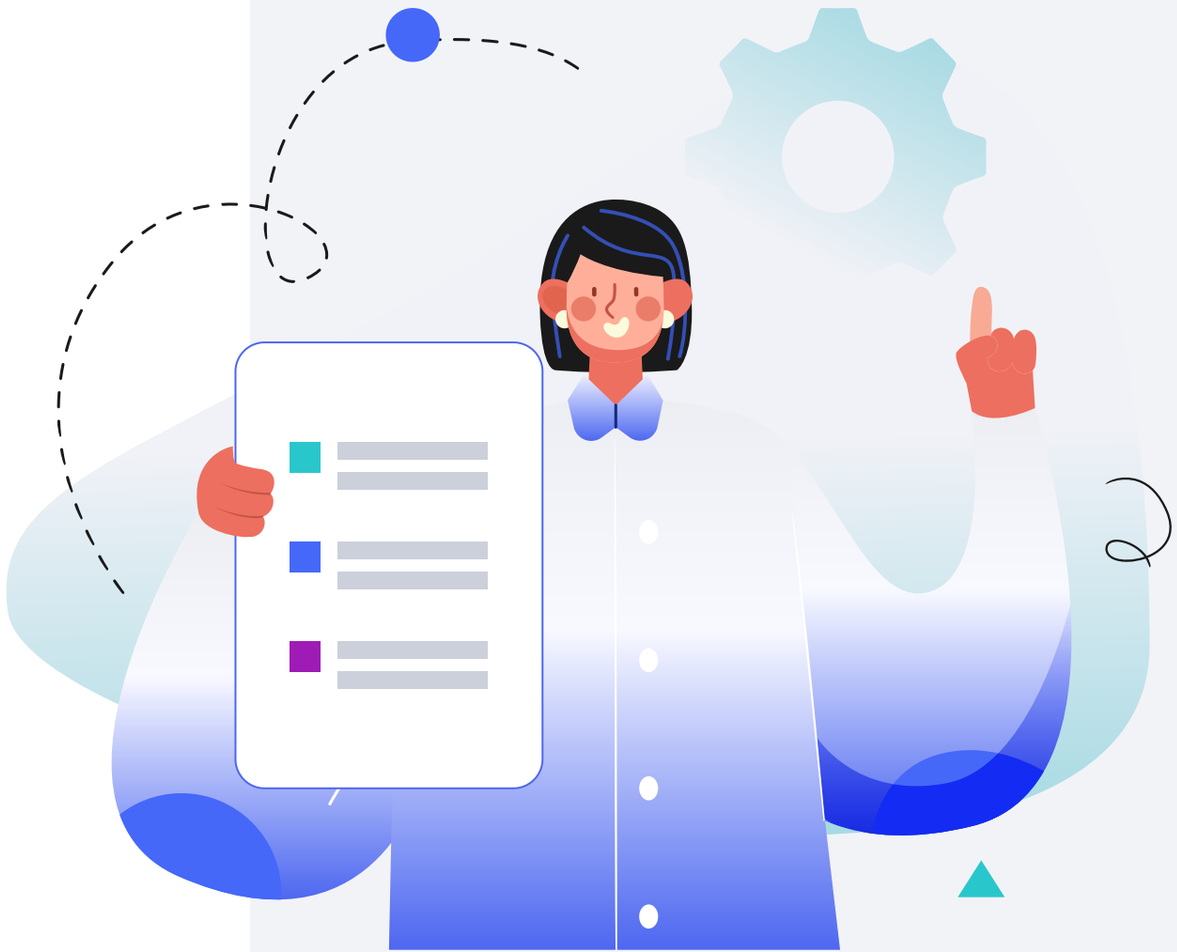
Male

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 tell a fascinating story about how your body interacts with the world around you - from the foods you eat to how you respond to exercise, and even how you age. In this comprehensive analysis, we explore genetic variations that influence seven key areas of your health and well-being.

We'll decode genetic factors that affect your nutritional needs and dietary responses, examine markers that impact your exercise performance and recovery time, and understand how your genes influence your sleep patterns. The report also delves into genetic variations that shape your mood and behavior patterns, and explores how your genes interact with your gut microbiome - the trillions of beneficial bacteria that support your health.

Additionally, we'll investigate genetic predispositions related to various health conditions, helping you understand potential risk factors that you can proactively address. Finally, we'll explore genetic markers associated with longevity and healthy aging.

Remember that genes aren't your destiny - they're more like a blueprint that interacts with your lifestyle choices and environment. Understanding your genetic tendencies can help you make more informed decisions about your health journey, always in partnership with your healthcare providers.

This summary report contains:

66 Genetic Results

50 Recommendations

Overview of Your Results

Diet & Nutrition

INCREASED NEED

Zinc

Likely increased need for zinc

TYPICAL

Carbohydrate Metabolism

Predisposed to typical carbohydrate metabolism

TYPICAL RESPONSE

Saturated Fat

Predisposed to typical saturated fat response

TYPICAL NEED

Vitamin A

Likely typical need for vitamin A

TYPICAL ACTIVITY

COL5A1 (Collagen)

Likely typical COL5A1 activity

TYPICAL NEED

Vitamin D

Likely typical need for vitamin D

TYPICAL NEED

Omega-3

Likely typical need for omega-3s

TYPICAL NEED

Vitamin E

Likely typical need for vitamin E

TYPICAL LIKELIHOOD

Iron Overload

Typical likelihood of iron overload

TYPICAL NEED

Vitamin C

Likely typical need for vitamin C

TYPICAL NEED

Vitamin B12

Likely typical need for vitamin B12

TYPICAL NEED

Magnesium

Likely typical need for magnesium

TYPICAL LIKELIHOOD

Celiac Disease

Typical likelihood of celiac disease

TYPICAL ACTIVITY

PPARA (Keto Diet)

Likely typical PPARA activity

BETTER

Fat Metabolism

Predisposed to better fat metabolism

LOWER

Caffeine Sensitivity

Predisposed to lower caffeine sensitivity

HIGHER ACTIVITY

CYP1A2 (Detox)

Likely higher CYP1A2 activity

HIGHER ACTIVITY

FADS1/2 (Fatty Acid Metabolism)

Likely higher FADS1/2 activity

HIGHER ACTIVITY

GSTP1 (Detox)

Likely higher GSTP1 activity

Folate & Methylation

LOWER ACTIVITY

MTHFR

Likely lower MTHFR activity

LOWER ABILITY

Methylation

Predisposed to lower methylation ability

INCREASED NEED

Folate (Functional)

Predisposed to increased need for folate

LOWER ACTIVITY

MTHFD1 (Folate/ Methylation)

Likely lower MTHFD1 activity

LOWER ACTIVITY

MTR (Methylation)

Likely typical MTR activity

TYPICAL NEED

Choline

Likely typical need for choline

TYPICAL ACTIVITY

PEMT (Choline)

Likely typical PEMT activity

TYPICAL ACTIVITY

MTRR (Methylation)

Likely typical MTRR activity

Exercise & Recovery

LOWER ACTIVITY

SOD2 (Oxidative Stress)

Likely lower SOD2 activity

LOWER

Tolerance to Exercise Intensity

Predisposed to lower tolerance to high-intensity exercise

TYPICAL

Strength

Predisposed to typical strength

TYPICAL

Power

Likely typical power performance

TYPICAL ACTIVITY

ACTN3 (Power)

Likely typical ACTN3 activity

TYPICAL ACTIVITY

PPARGC1A (Fitness/Blood Sugar)

Likely typical PPARGC1A activity

TYPICAL

Exercise Recovery

Predisposed to typical recovery after exercise

TYPICAL ACTIVITY

TNF Gene (Inflammation)

Likely typical TNF activity

TYPICAL ACTIVITY

IL6 Gene (Inflammation)

Likely typical IL6 activity

HIGHER

Endurance

Predisposed to higher endurance

LOWER ACTIVITY

ACE (Fitness/ Cardiovascular)

Likely lower ACE activity

Sleep

WORSE GENETICS

NPAS2 (Mood/ Sleep Schedule)

Likely worse NPAS2 genetics

TYPICAL

Sleep Quality

Predisposed to typical sleep quality

TYPICAL LIKELIHOOD

Circadian Rhythm

Typical likelihood of circadian rhythm imbalances

TYPICAL ACTIVITY

ADORA2A (Anxiety)

Likely typical ADORA2A activity

DEEP

Deep Sleep (ADA)

Likely a deep sleeper

Mood & Behavior

MORE LIKELY

Low Mood

More likely to have chronically low mood

SLIGHTLY LOWER LEVELS

BDNF

Relatively lower BDNF levels

TYPICAL LIKELIHOOD

Anxiety

Typical likelihood of anxiety

TYPICAL ACTIVITY

COMT

Likely typical COMT activity

LOWER ACTIVITY

FAAH (Cannabinoids)

Likely lower FAAH activity

Microbiome

LOWER

Gut Microbiome Diversity

Predisposed to lower gut microbiome diversity

HIGHER LEVELS

TMAO

Predisposed to higher TMAO levels

TYPICAL LEVELS

Bifidobacterium

Predisposed to typical Bifidobacterium levels

TYPICAL LEVELS

Bifidobacterium Bifidum

Predisposed to typical B. bifidum levels

TYPICAL LEVELS

Bifidobacterium Breve

Predisposed to typical B. breve levels

TYPICAL LEVELS

Bifidobacterium Longum

Predisposed to typical B. longum levels

Health Conditions

TYPICAL

Heart Health

Predisposed to typical heart health

TYPICAL

Insulin Resistance

Predisposed to typical insulin resistance

TYPICAL LEVELS

Inflammation (CRP)

Predisposed to typical CRP levels

LOWER ACTIVITY

IL1B (Inflammation/ Fatigue)

Likely lower IL1B activity

Longevity

LOWER ACTIVITY

UCP1 (Weight)

Likely lower UCP1 activity

WORSE

Mitochondrial Health (Functional)

Predisposed to worse mitochondrial health

TYPICAL

Longevity

Predisposed to typical longevity

TYPICAL ACTIVITY

TERT (Longevity)

Likely typical TERT activity

TYPICAL ACTIVITY

OBFC1 (Longevity)

Likely typical OBFC1 activity

TYPICAL ACTIVITY

SIRT1 (Longevity)

Likely typical SIRT1 activity

TYPICAL

Oxidative Stress

Likely typical oxidative stress

LESS LIKELY

Cognitive Decline

Less likely to have cognitive decline

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	Strength Training	1 hour
2	Sleep for 7+ Hours	
3	Omega-3 (Fish Oil)	500 mg
4	Green Tea	400 mg
5	Probiotics	10 billion
6	Mediterranean Diet	
7	Coffee	
8	Yoga	30 minutes
9	Social Activity	1 hour
10	Walking	30 minutes
11	Methylfolate	400 mcg
12	Tai Chi	1 hour
13	Dietary Folate	
14	Extra Virgin Olive Oil (EVOO)	
15	Fish	
16	Magnesium	250 mg
17	Cherries	
18	Lion's Mane	500 mg
19	Bifidobacterium Breve	10 billion CFU
20	Beta-Alanine	2 g
21	Propolis	
22	Limit Manganese Exposure	
23	Fermented Foods	
24	Psychotherapy	1 hour
25	Cognitive-Behavioral Therapy (CBT)	
26	Laughter Therapy	30 minutes
27	Interpersonal Therapy	50 minutes
28	Psychodynamic Therapy	
29	Meditation	30 minutes
30	Carnosine	1000 mg

31	Spend Time in Nature	2 hours	32	SAM-e	200 mg
33	Tryptophan	500 mg	34	Acceptance and Commitment Therapy (ACT)	
35	High-Intensity Interval Training (HIIT)	30 minutes	36	5-HTP	100 mg
37	Morning Bright Light Therapy	20 minutes	38	Zinc	10 mg
39	Avoid Sugary Foods & Drinks		40	Dietary Antioxidants	
41	Practice Exercise Snacks	1 minutesute	42	DHEA (Dehydroepiandrosterone)	25 mg
43	Repetitive Transcranial Magnetic Stimulation		44	St. John's Wort	300 mg
45	Limit Calorie Intake		46	Transcendental Meditation	20 minutes
47	Glutamine	5 g	48	Fruits	
49	Mindfulness Meditation	30 minutes	50	Avoid Iron Supplements (Unless Deficient)	

Your Results in Details

Diet & Nutrition

Ever wonder why some people thrive on certain diets while others don't? This section explores the genetic factors that influence how your body processes different nutrients - from carbohydrates and fats to vitamins and minerals. We examine genes that affect your metabolism, nutrient absorption, and food sensitivities, including how your body handles substances like caffeine and gluten. Understanding these genetic variations can help explain why certain dietary approaches may work better for you than others, and guide you toward more personalized nutrition choices.

For more detailed information and a personalized diet plan, please check out our Diet & Nutrition report.

INCREASED NEED

Zinc

Likely increased need for zinc

TYPICAL

Carbohydrate Metabolism

Predisposed to typical carbohydrate metabolism

TYPICAL RESPONSE

Saturated Fat

Predisposed to typical saturated fat response

TYPICAL NEED

Vitamin A

Likely typical need for vitamin A

TYPICAL ACTIVITY

COL5A1 (Collagen)

Likely typical COL5A1 activity

TYPICAL NEED

Vitamin D

Likely typical need for vitamin D

TYPICAL NEED

Omega-3

Likely typical need for omega-3s

TYPICAL NEED

Vitamin E

Likely typical need for vitamin E

TYPICAL LIKELIHOOD

Iron Overload

Typical likelihood of iron overload

TYPICAL NEED

Vitamin C

Likely typical need for vitamin C

TYPICAL NEED

Vitamin B12

Likely typical need for vitamin B12

TYPICAL NEED

Magnesium

Likely typical need for magnesium

TYPICAL LIKELIHOOD

Celiac Disease

Typical likelihood of celiac disease

TYPICAL ACTIVITY

PPARA (Keto Diet)

Likely typical PPARA activity

BETTER

Fat Metabolism

Predisposed to better fat metabolism

LOWER

Caffeine Sensitivity

Predisposed to lower caffeine sensitivity

HIGHER ACTIVITY

CYP1A2 (Detox)

Likely higher CYP1A2 activity

HIGHER ACTIVITY

FADS1/2 (Fatty Acid Metabolism)

Likely higher FADS1/2 activity

HIGHER ACTIVITY

GSTP1 (Detox)

Likely higher GSTP1 activity

Zinc

Some people have higher zinc levels than others. This may partly be due to genetics. Genes involved may influence zinc metabolism [R, R, R].

Genetically higher zinc levels may be causally associated with [R, R]:

- Gut inflammation (lower risk)
- Fasting glucose (improved)

However, it may also be causally associated with [R, R, R, R, R]:

- Kidney stones (increased risk)
- Longevity (reduced)
- Varicose veins (increased risk)
- Heart health (reduced)
- Joint pain (increased risk)

INCREASED NEED

Likely increased need for zinc based on 8 genetic variants we looked at

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
SLC30A8	rs13266634	CC
SLC30A8	rs11558471	AA
CA2	rs1532423	GG
SORBS3	rs4872479	GG
SLC5A6	rs11126936	GG
SLC39A8	rs233804	CC
SCAMP5	rs2120019	TC
NBDY	rs4826508	C

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

Carbohydrate Metabolism

For much of our history, we were all nomadic hunter-gatherers. We ate what we could find: roots, plants, berries, nuts, fish, and meat. This varied by location, climate, and season. At this point in time, the way the body processed and responded to complex carbs wasn't very relevant [R, R].

About 12,000 years ago, farming changed that. Suddenly, there were more starchy foods such as grains in our diets. More carbs meant more readily available energy. But this also meant more blood sugar spikes and a higher risk of metabolic disorders. Luckily, variants in genes like *TCF7L2* allowed us to process these new food sources in a more productive, less harmful way [R].

The *TCF7L2* gene affects insulin release after eating foods like grains. It is one of the genes most strongly associated with **diabetes.** Depending on which variant of this gene you carry, your body may respond differently to carbs [R].

The "farmer" variant (rs7903146-C) is linked to a better response to carbs. **In people with this variant, carbs don't tend to spike blood sugar.** The "hunter-gatherer" variant (rs7903146-T) is linked to a worse response to carbs [R, R, R].

Other variants also shape our genetic predisposition to carbohydrate metabolism. They include:

- ***PPARG* rs1801282-G**: linked to better metabolism and longevity markers on a low-carb diet [R, R, R]
- ***FTO* rs9939609-A**: linked to obesity, especially on a high-carb diet [R, R]
- ***IRS1* rs2943641-C**: linked to better carb metabolism (mixed evidence) [R, R, R]
- ***CETP* rs5883-T and rs3764261-C**: linked to lower obesity rates and better metabolic profiles on a low-carb/high-fat diet [R, R]

Additional variants that may have a smaller or indirect impact on carb metabolism include:

- **ADIPOQ -11391 G>A** (rs17300539): Associated with alterations in adiponectin levels, which can influence glucose and carbohydrate metabolism.

TYPICAL

Predisposed to typical carbohydrate metabolism based on 16 genetic variants we looked at

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
TCF7L2	rs7903146	CT
AMY2B	rs4244372	AT
IRS1	rs2943641	TC
TAS1R2	rs35874116	TT
SLC2A2	rs5400	GG
FTO	rs1121980	GG
ADRB2	rs1042714	GC
ANKK1	rs1800497	GA
LEPR	rs1137101	AG
FTO	rs9939609	TT
PPARG	rs1801282	CC
CETP	rs5883	CC
NLRC5	rs3764261	AA
FABP2	rs1799883	CC
ADRB3	rs4994	AA
PPARG	rs3856806	CC
RFC4	rs17300539	GG

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

- **ADRB2 Gln27Glu C>G** (rs1042714): Linked to differences in β2-adrenergic receptor function, which may affect glucose uptake and metabolism.
- **DRD2 C>T** (rs1800497): Linked to dopamine receptor function, which may influence eating behaviors (sugar and carb cravings) and glucose regulation.
- **TAS1R2 Ile191Val G>A** (rs35874116)**:** Impacts the sweet taste receptor, potentially influencing sugar intake and carbohydrate metabolism.
- **SLC2A2 Thr110Ile C>T** (rs5400): Affects glucose transporter 2 (GLUT2), which is key in glucose sensing and carbohydrate metabolism (linked to higher sugar intake but better metabolism!)

Saturated Fat

Some people may tolerate more saturated fat than others. This difference may be genetic. If they eat a lot of saturated fats, people who are sensitive to saturated fat may have a higher risk of [R, R, R]:

- Elevated cholesterol
- Weight gain
- Reduced bone strength

TYPICAL RESPONSE

Predisposed to typical saturated fat response based on 42 genetic variants we looked at

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
TLR4	rs5030728	GG
PPARA	rs135549	TT
APOA1	rs670	CC
ABCA1	rs2230806	CC
TCF7L2	rs7903146	CT
SIDT2	rs5070	GG
FTO	rs1121980	GG
SIDT2	rs2854117	CC
APOE	rs429358	TT
ADAM10	rs2070895	GG
STAT6	rs1799986	CT
CETP	rs5882	AG
APOB	rs693	AG
FTO	rs1558902	TT
FTO	rs1421085	TT
FTO	rs17817449	TT
STAT3	rs2293152	GC
LPL	rs13702	TC
AHSG	rs4917	CT
CD36	rs1984112	AG
CLOCK	rs1801260	AG
CLOCK	rs4580704	CC
PKDREJ	rs4253778	GC
PEX11A	rs894160	CT
FCER1G	rs5082	AA
PPARG	rs1801282	CC
PCSK7	rs662799	AA

GENE	SNP	GENOTYPE
FTO	rs9939609	TT
AGT	rs699	GG
ACE	rs4343	AA
APOC1	rs405509	GG
ADAM10	rs1800588	CC
PPARA	rs1800206	CC
MED24	rs1568400	TT
PPARG	rs10865710	GG
SIDT2	rs964184	CC
STAT3	rs8069645	AA
STAT3	rs744166	AA
APOE	rs7412	CC
PPARG	rs3856806	CC
LPL	rs328	CC
MC4R	rs12970134	GG
LPL	rs1121923	GG
STAT3	rs1053005	TT

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

Vitamin A

Some people may have higher blood levels of vitamin A after consuming vitamin A or provitamin A-rich foods or supplements.

This may partly be due to genetics. Genes involved may influence:

- Vitamin A transport in and out of cells [R]
- Vitamin A metabolism (i.e., the conversion of beta-carotene into vitamin A) [R, R]

To optimize vitamin A absorption in the gut, try to eat vitamin A-rich foods with meals that are higher in fat. This is because vitamin A is fat-soluble [R].

Genetically higher vitamin A levels may play a role in [R, R, R, R]:

- Longevity
- Joint Pain
- Joint Inflammation
- High Blood Sugar

TYPICAL NEED

Likely typical need for vitamin A based on 6 genetic variants we looked at

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
BCO1	rs7501331	CT
C16ORF46	rs11645428	GG
FFAR4	rs10882272	CT
BCO1	rs12934922	AA
C16ORF46	rs6564851	TT
BCO1	rs6420424	GG
BCO1	rs4889294	TT

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

COL5A1 (Collagen)

Variants resulting in reduced type V collagen may increase the risk of injuries. This may be because carriers of these variants may have weaker ligaments, tendons, and muscles. One of such variants is **rs12722**. Its minor 'T' allele has been associated with an increased risk of:

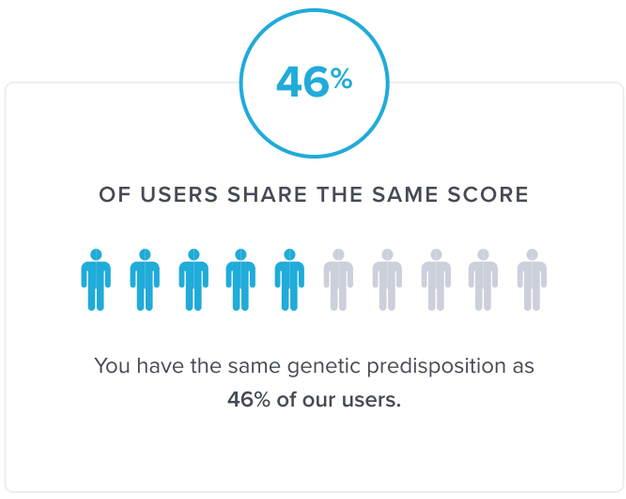
- Achilles tendon injury [R, R]
- Anterior cruciate ligament injury [R, R]
- Tennis elbow [R, R]
- Carpal tunnel syndrome [R]
- Muscle cramps [R]

People with the 'TT' genotype may also have more severe (but not more frequent) muscle injuries. Probably due to the association of this variant with soft tissue injuries, carriers may have lower odds of elite rugby status [R, R].

On the bright side, this genotype has also been associated with improved endurance performance in runners. Moreover, the 'T' variant may reduce the risk of rotator cuff injury [R, R].

TYPICAL ACTIVITY

Likely typical COL5A1 activity based on the genetic variants we looked at



Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
COL5A1	rs12722	TC

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

Vitamin D

Key Takeaways:

- Vitamin D is an essential nutrient that you need outside sources of to achieve adequate levels. It is important for mood, immunity, heart health, and blood sugar control.
- Vitamin D levels can be impacted by intensity and amount of sun exposure, age, skin color, and your genetics.
- If you are genetically predisposed to needing more vitamin D, you may want to consider supplementation and addressing possible issues like sun exposure.
- Click the **next steps** tab for relevant labs.

TYPICAL NEED

Likely typical need for vitamin D based on 1,766 genetic variants we looked at

Vitamin D is an essential nutrient. **Your body needs vitamin D for strong bones**. Our skin naturally makes vitamin D when exposed to sunlight. We also get small amounts of vitamin D from foods such as fatty fish, egg yolks, beef liver, and mushrooms [R,R].

Around **20-40%** of differences in people's vitamin D levels may be due to genetics [R].

Genes that influence vitamin D levels may play a role in its [R]:

- Production
- Activation
- Transport
- Breakdown

Besides genetics, the following factors also influence vitamin D levels [R]:

- Sun exposure
- Skin color
- Age

Genetically high vitamin D levels may be causally associated with positive outcomes for:

- Alzheimer's [R,R,R]
- COPD [R,R]

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
COPB1	rs2060793	GG
COPB1	rs12794714	AA
COPB1	rs10832289	TT
GC	rs2282679	GT
COPB1	rs10741657	GG
GC	rs7041	AC
CYP1B1	rs1800440	CT
VDR	rs1544410	CT
VDR	rs2228570	GA
/	rs189918701	GG
/	rs558560635	GG
/	rs375984409	GG
PDE3B	rs571484036	AA
COPB1	rs117913124	GG
GC	rs222026	TT
GC	rs4588	TG
VDR	rs731236	AG
GC	rs11723621	GA
PDE3B	rs201501563	TT
RRAS2	rs117206369	TT
/	rs201561609	TT
ADH1B	rs1229984	TC
GC	rs113938679	GG
CYP2R1	rs117576073	GG
/	rs561089663	GG
PSMA1	rs577185477	TT
/	rs557657187	GG

- Uterine fibroids [R]
- Migraines [R]
- Heart Failure [R,R]
- Psoriasis [R]
- Lupus [R]
- Delirium [R]
- Hypertension [R]
- Rosacea [R]
- Total Testosterone [R]
- Muscle loss [R,R]
- Muscle mass [R]
- CRP [R,R]
- Longevity [R,R]
- Lower cholesterol, lipoprotein particles, and phospholipids within VLDL and IDL [R]
- Higher HDL cholesterol [R]
- Lower triglycerides [R]
- Higher adiponectin [R]
- eGFR (lower) [R]
- Primary biliary cholangitis [R]

Genetically lower vitamin D levels may be causally associated with negative outcomes for:

- Multiple sclerosis [R,R,R,R,R,R,R,R,R]
- Pneumonia [R]
- Gut Inflammation: ulcerative colitis, non-infective colitis, and Crohn's disease [R]
- Lupus [R,R,R]
- Psoriasis R,R]
- Longevity [R,R,R,R,R,R]

A blood test is the only reliable way to determine vitamin D status [R].

GENE	SNP	GENOTYPE
NADSYN1	rs12785878	GG
PSMA1	rs554808052	CC
GC	rs565277381	TT
/	rs567415847	GG
/	rs529640451	CC
NADSYN1	rs536006581	AA
COPB1	rs148514005	CC
/	rs185433896	AA
PDE3B	rs188480917	CC
GC	rs3775150	TT
NPFFR2	rs143106299	AA

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

Omega-3

Some people may have lower blood levels of omega-3s than others. This means that they may have an increased need for omega-3s [R, R, R, R, R, R].

This may be partly due to genetics. Genes involved may influence omega-3 metabolism [R, R, R, R, R, R].

TYPICAL NEED

Likely typical need for omega-3s based on 54 genetic variants we looked at

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
WDR70	rs7736605	GG
CITED2	rs10499212	GG
TNFSF10	rs11914753	CC
FADS2	rs174579	CC
TMEM258	rs174532	GG
AHI1	rs2092556	TT
AHI1	rs4896151	CC
AHI1	rs1547079	TT
G2E3	rs7149414	GG
/	rs6553050	TT
MAP7	rs13191834	TT
COL11A1	rs11164689	GT
/	rs2129588	CC
ADRA1A	rs558455	GG
TMEM258	rs108499	TC
SNX17	rs4665972	CC
TSPAN31	rs2277324	AG
PRR11	rs2291193	GA
SYCP2L	rs953413	AG
MYOM1	rs949306	AG
/	rs11235247	GG
FADS2	rs174583	CC
FADS2	rs174577	CC
FADS2	rs174576	CC
FADS2	rs174550	TT
FADS2	rs174547	TT
FADS2	rs174546	CC

GENE	SNP	GENOTYPE
TMEM258	rs174538	GG
TMEM258	rs174537	GG
TMEM258	rs174535	TT
MACROD2	rs12481689	AA
KCNK17	rs6921231	AA
FADS1	rs2727270	CC
FADS2	rs1535	AA
TMEM258	rs102275	TT
ANKS1A	rs3800433	GG
WSB1	rs17703271	TT
PIK3C2A	rs7949405	AA
MAU2	rs10401969	TT
TMEM132D	rs265603	TG
FADS1	rs99780	CC

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

Vitamin E

Some people may have higher vitamin E levels than others. These differences may be partly due to genetics. Genes involved may influence [R]:

- Vitamin metabolism
- Fat metabolism

Genetically higher vitamin E levels may be causally associated with:

- Heart health [R, R]
- Stroke [R]
- Bone health [R]

Vitamin E is a fat-soluble nutrient. To help your body absorb more of it, try eating vitamin E-rich foods with meals that are higher in healthy fats [R, R].

TYPICAL NEED

Likely typical need for vitamin E based on 4 genetic variants we looked at

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
PAFAH1B2	rs12272004	CC
SIDT2	rs964184	CC
CYP4F2	rs2108622	CC
SCARB1	rs11057830	GA
F5	rs6025	CC

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

Iron Overload

Specific genetic variants in the *HFE* gene are associated with iron overload and play a role in the body's iron absorption and regulation processes.

HFE (rs1800562, C282Y): the rs1800562 variant (C282Y) is responsible for most hemochromatosis cases. All people with the **AA** genotype are predisposed to this condition However, only about **25% of men** and **15% of women** with this genotype are expected to develop the symptoms. People with **one A allele** at rs1800562 may have higher iron stores, but they are not likely to develop iron overload [R, R].

HFE (rs1799945, H63D): another *HFE* variant, rs1799945 (H63D), results in a protein that can't properly control the amount of iron released from cells. People with the G allele may be at increased risk of iron overload **if they also carry one copy of the A allele**. However, only 2-3% of them may develop it [R, R].

HFE (rs1800730, S65C): finally, the *HFE* rs1800730 variant is associated with a small proportion of all hereditary hemochromatosis cases [R].

On the other hand, one BMP2 variant may be linked to a reduced iron overload. People with the "G" allele at rs235756 (especially "GG") have reduced iron storage, which may be beneficial in case of iron overload. This gene affects the production of hepcidin, a crucial iron transporter [R].

TYPICAL LIKELIHOOD

Typical likelihood of iron overload based on the genetic variants we looked at

97%

OF USERS SHARE THE SAME SCORE

You have the same genetic predisposition as **97% of our users.**

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
BMP2	rs235756	AG
HFE	rs1800562	GG
HFE	rs1799945	CC
HFE	rs1800730	AA
TF	rs1049296	CC

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

Vitamin C

Key Takeaways:

- Vitamin C supports a number of important body functions, like immunity, heart and lung health, wound healing, and collagen production.
- Being genetically predisposed to needing more vitamin C means you may want to consider supplementing with vitamin C.
- It is very difficult to get vitamin C deficiency in the modern, western world.
- Click the **next steps** tab for relevant labs.

Vitamin C deficiency or *scurvy* is extremely rare in developed countries. Milder forms may cause [R]:

- Poor wound healing
- Gum bleeding
- Skin lesions
- Joint pain

Genetically lower levels of vitamin C may be causally associated with an increased risk for high blood sugar [R].

In turn, genetically higher levels of vitamin C may be causally associated with:

- Lower risk of heart disease [R, R]
- Lower risk of Alzheimer's disease [R]
- Improved longevity [R]

TYPICAL NEED

Likely typical need for vitamin C based on 11 genetic variants we looked at

40th

PERCENTILE

Your risk is **greater than 40% of the population** and **lower than 60% of the population.**

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
SLC23A1	rs4257763	GG
LTA4H	rs117885456	GG
GLB1L	rs13028225	CT
GSTO2	rs156697	GA
AKT1	rs10136000	GG
FADS2	rs174547	TT
SYCP3	rs2559850	GA
MAF	rs56738967	CG
SLC23A1	rs33972313	CC
TBX2	rs9895661	TT
RER1	rs6693447	TT
RGS14	rs10051765	CC
GSTA1	rs7740812	AA

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

Vitamin B12

Key Takeaways:

- Vitamin B12 is important for making energy and red blood cells, building DNA, and nerve function.
- It is most easily obtained via animal products like meat, eggs, dairy, and fortified foods.

- If you have an increased need or you tested as deficient, you may want to examine your current diet. You should talk to your doctor before taking B12 supplements.

- Click the **next steps** tab for relevant labs.

People more prone to low levels of vitamin B12 include [R]:

- Vegetarians and vegans
- Older adults
- People with gut disorders (e.g., Crohn's disease, celiac disease)

A hallmark of vitamin B12 deficiency is a lack of healthy red blood cells (anemia). Anemia can cause symptoms like weakness and fatigue. A sign of long-term vitamin B12 deficiency is nerve damage [R, R, R, R].

Vitamin B12 deficiency can be detected with a blood test. After it is diagnosed, you may need to work with your doctor to figure out the cause. Your doctor may recommend oral supplements or injections of vitamin B12 to help correct the deficiency [R, R].

If you are not deficient, it is best to get vitamin B12 from food. Talk to your doctor before taking vitamin B12 supplements [R].

TYPICAL NEED

Likely typical need for vitamin B12 based on 1,023,826 genetic variants we looked at

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
TCN2	rs1801198	GG
FUT2	rs1047781	AA
FUT2	rs602662	AG
CUBN	rs11254363	GG
ADGRE1	rs62123070	CC
FUT2	rs601338	AG
MTRR	rs1801394	AG
ABCD4	rs4148077	CC
TCN1	rs526934	AG
FUT5	rs3760775	GT
FUT3	rs708686	CT
FUT2	rs516246	TC
CBS	rs234706	AG
MMAB	rs7134594	CT
CUBN	rs1801222	GG
TCN1	rs34324219	CC
RGS7	rs7544372	TT
/	rs1990193	AA
/	rs1513859	AA
FAM240C	rs12478296	CC
SLC25A2	rs3749779	AA
FOXK1	rs314590	AA
CFAP299	rs1385890	AA
LAMA4	rs76190642	GG
CHODL	rs34988353	AA
ARAP2	rs142554771	TT
LAMA4	rs144505878	GG

GENE	SNP	GENOTYPE
C1QL3	rs79770840	GG
RGS18	rs114973754	CC
ADGRL3	rs545255284	TT
C16ORF82	rs139645308	CC
POU3F3	rs188141458	GG
KCNK2	rs72761546	TT
KCNK2	rs189754522	AA
PCSK2	rs141477158	GG
TMEM179	rs79885401	CC
LRRC6	rs117429467	AA
STT3B	rs188968123	AA
SPATA18	rs142766122	CC
SRRM4	rs73215576	CC
MICA	rs556990455	GG
CADM2	rs188586547	AA
CENPF	rs72759663	GG
SMYD3	rs148487271	TT
HSPB7	rs144839376	AA
AKAIN1	rs7239302	CC
ST8SIA6	rs188363440	AA
DACT1	rs118119041	GG
MMUT	rs9473555	GG
TCN2	rs9606756	AA

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

Magnesium

Some people may have higher magnesium levels than others. This may be partly due to genetics. Genes involved may influence:

- Magnesium transport in and out of cells [R, R, R, R]
- Magnesium metabolism [R, R]

Genetically higher magnesium levels may be causally associated with:

- Stroke [R]
- Bone health [R]
- Gout [R, R]
- Uric acid [R]
- Cataracts. [R]
- Mood Swings [R]
- Joint Inflammation [R]
- Atrial fibrillation [R]
- Heart Health [R]

TYPICAL NEED

Likely typical need for magnesium based on 31 genetic variants we looked at

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
TRPM6	rs11144134	TT
MTMR7	rs3764796	TT
CSTA	rs1801725	GG
FGFR2	rs1219515	GG
RTL1	rs915364	CC
PAPSS2	rs1969821	GG
VIPR1	rs11718502	TC
THBS3	rs4072037	TC
PAPSS2	rs791888	GG
RALGDS	rs7032317	CT
CDKL2	rs6838240	CT
ALPK1	rs2074379	AG
C8ORF48	rs10888073	CT
CANT1	rs11891	GA
THBS3	rs4971100	AG
BORCS7	rs3740393	GC
CDKL2	rs6852678	TC
TRPM6	rs113607577	GG
HDHD2	rs117060920	GG
MPPED2	rs3925584	CC
SHROOM3	rs13146355	GG
SHROOM3	rs9993810	GA
MECOM	rs448378	GA
TRPM6	rs2274924	TT
ASAP1	rs72728275	AA
CAMK1D	rs2648708	CC
FGFR2	rs3135758	CC

GENE	SNP	GENOTYPE
CCDC136	rs1472147	TT
METTL21C	rs603894	CC
PHACTR2	rs2073214	CC
DLK1	rs4905994	CC
OR5BS1P	rs193153567	CC
PRMT7	rs7197653	GG
ATP2B1	rs7965584	AA

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

Celiac Disease

Key Takeaways:

- It's estimated that 1-2% of the population has gluten sensitivity. The most likely risk factor is genetics.
- If you have symptoms, diet restriction may indicate whether you have the sensitivity or not. You should speak to a healthcare professional if symptoms persist.
- Symptoms include diarrhea/constipation, fatigue, weight loss, gut pain/bloating, and nausea.
- Celiac disease is rare, so even with high genetic risk, your overall risk is still low.
- Click the **next steps** tab for relevant labs.

TYPICAL LIKELIHOOD

Typical likelihood of celiac disease based on 1,019,187 genetic variants we looked at

Gluten is a protein found in grains such as wheat, rye, spelt, barley, and triticale. Some people cannot properly digest gluten. In fact, their immune systems may react to gluten as if it is dangerous. To make matters worse, gluten is similar to a normal protein in the intestine. Sometimes, the immune system will attack both. People with this type of reaction have celiac disease [R, R, R].

Researchers aren't completely sure why some people are sensitive to gluten. Infections in the gut may play a role. However, a major risk factor is probably genetic [R, R, R].

The most important genes involved in celiac disease are *HLA* genes. These genes help make HLA proteins, which sit on the surface of white blood cells. They help the immune system attack and remove dangerous invaders like bacteria and viruses. In people with celiac disease, HLA proteins may attack gluten by mistake and damage the gut barrier [R, R].

Moreover, genetically high testosterone levels may be causally associated with a lower risk of celiac disease in men [R].

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
HLA-DRB5	rs2395182	TG
HLA-DQA2	rs7454108	TT
HLA-DQA1	rs2187668	CC

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

PPARA (Keto Diet)

So far, the most well-studied PPARA SNP in nutrigenomics is rs1800206. **Its minor 'G' allele (also known as the *L162V polymorphism*) reduces PPAR-α activity**, according to the available data [R].

Carrying this allele has been associated with [R]:

- Increased heart disease risk in whites, with higher levels of triglycerides, total cholesterol, LDL, apoA1, and apoB, and decreased levels of HDL
- Possible, but uncertain impact on diabetes development

The negative effects of this genotype seem to be more pronounced in men than in women, and in whites than in Asians. Data on other ethnicities are sparse [R].

Moreover, **people carrying at least one 'G' allele who consumed high amounts of saturated fat had smaller LDL particles than those with lower intakes** in a study. Based on this, **they don't seem to be well suited for a ketogenic diet high in saturated fat** [R].

The opposite may be true for 'CC' carriers. Among people with this genotype, those with higher saturated fat intakes had larger LDL particles than those with lower saturated fat intakes [R].

A study of 2373 participants found an association between the 'G' allele and higher total and LDL cholesterol in men and apolipoprotein B in both genders. The LDL cholesterol link was even stronger in carriers of the "good" E2 *APOE* allele [R].

A follow-up study of 2106 people from the same cohort concluded that **'G'-allele carriers had greater triglyceride and apoC-III levels when they consumed a low-PUFA diet.** But when their PUFA intake was high, they had *lower* triglyceride and apoC-III levels. The authors pointed out that the more PUFAs 'G'-allele carriers ate, the more their triglycerides and apoC-III levels dropped--and vice versa [R, R].

Theoretically, a higher PUFA intake might make up for lower PPARA activity in 'G'-allele carriers. A diet high in omega-3 PUFAs is still the healthiest choice even for people carrying the more common 'CC' genotype, but these subjects might be less

TYPICAL ACTIVITY

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

89%

OF USERS SHARE THE SAME SCORE

You have the same genetic predisposition as **89% of our users.**

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
PPARA	rs1800206	CC

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

prone to triglyceride spikes if their diet happens to be a bit lower in PUFAs, as most diets that rely on animal fat are [R].

Fat Metabolism

Your genes may affect your response to different levels of fat in a diet. Some people do better on a high-fat diet, and others on a low-fat diet, in terms of weight control and cholesterol levels [R, R].

Some of the genes responsible may also influence [R, R, R]:

- Fat metabolism
- Sugar metabolism
- Inflammation

Talk to your doctor before making big changes to your diet. Keto and other high-fat diets may increase the risk of some nutrient deficiencies. They may also affect the body's response to medication [R].

BETTER

Predisposed to better fat metabolism based on 53 genetic variants we looked at

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
ADRB3	rs4994	AA
TCF7L2	rs7903146	CT
PPARA	rs135549	TT
APOA1	rs670	CC
ABCA1	rs2230806	CC
MC4R	rs2229616	CC
GIPR	rs2287019	CC
ACSL5	rs2419621	CC
STAT3	rs2293152	GC
STAT6	rs1799986	CT
CETP	rs5882	AG
MTTP	rs1800591	TG
AHSG	rs4917	CT
CD36	rs1984112	AG
CLOCK	rs1801260	AG
PEX11A	rs894160	CT
APOB	rs693	AG
IRS1	rs2943641	TC
CLOCK	rs3749474	TC
LPL	rs328	CC
LPL	rs1121923	GG
TLR4	rs5030728	GG
CLOCK	rs4580704	CC
APOA4	rs5110	CC
SIDT2	rs5070	GG
FABP1	rs2241883	TT
UCP3	rs1800849	GG

GENE	SNP	GENOTYPE
TCF7L2	rs12255372	GT
LPL	rs13702	TC
FCER1G	rs5082	AA
PPARG	rs1801282	CC
FTO	rs9939609	TT
PCSK7	rs662799	AA
FABP2	rs1799883	CC
RFC4	rs17300539	GG
APOC1	rs405509	GG
SIDT2	rs964184	CC
STAT3	rs8069645	AA
STAT3	rs744166	AA
APOE	rs7412	CC
CETP	rs708272	AA
AGT	rs699	GG
APOE	rs429358	TT
PPARG	rs3856806	CC
NSMAF	rs3808607	TT
MICB	rs361525	GG
ADAM10	rs2070895	GG
TNF	rs1800629	GG
ADAM10	rs1800588	CC
PPARA	rs1800206	CC

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

Caffeine Sensitivity

Genetic variants may explain about 75% of the difference in caffeine sensitivity [R, R].

Several genetic variants are associated with caffeine metabolism and sensitivity, impacting how quickly caffeine is broken down and the strength of its effects:

CYP1A2 (rs762551, −163 A>C): The CYP1A2 gene is a key enzyme responsible for caffeine metabolism. The rs762551 variant (−163 A>C) determines whether someone is a “fast” or “slow” caffeine metabolizer, with the AA genotype associated with faster metabolism and reduced caffeine sensitivity, while the AC or CC genotype is linked to slower metabolism and heightened sensitivity [R, R, R, R].

AHR (rs4410790): This variant is located near the AHR gene, which regulates the expression of **CYP1A2**, an enzyme crucial for caffeine metabolism. Certain alleles at rs4410790 are associated with slower caffeine metabolism, increasing both sensitivity and the duration of caffeine’s effects in the body [R].

ADORA2A (rs5751876): This variant affects the ADORA2A gene, which encodes the adenosine A2A receptor, a primary target of caffeine in the brain. Caffeine may make people with the “T” variant more anxious. Women tend to be affected more strongly than men. Interestingly, this variant seems to have the opposite effects on caffeine-related sleep problems (“C” carriers are more affected) [R, R, R].

COMT (rs4680, Val158Met G>A): The COMT gene is involved in the breakdown of dopamine, a neurotransmitter affected by caffeine. The rs4680 variant (Val158Met G>A) can influence caffeine’s effect on dopamine levels, potentially increasing sensitivity to caffeine and affecting mood and cognition.

In male carriers, heavy coffee intake further increases the risk of heart disease. People with this variant may also be more sensitive to the positive effects of caffeine on vigilance and performance after sleep deprivation [R, R].

NAT2 (R/S, rs1495741): NAT2 is involved in the metabolism of various substances, including caffeine. Individuals with a “slow” acetylator status in the NAT2 gene may break down caffeine

LOWER

Predisposed to lower caffeine sensitivity based on 4 genetic variants we looked at

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
AHR	rs4410790	TC
ADORA2A	rs5751876	CT
NAT2	rs1495741	GA
COMT	rs4680	AG
CYP1A2	rs762551	AA

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

more slowly, leading to prolonged effects and increased sensitivity [R].

These genetic variations collectively influence individual responses to caffeine, determining both its intensity and duration in the body. Understanding these genetic factors can help tailor caffeine intake to avoid adverse effects and optimize performance and well-being.

CYP1A2 (Detox)

CYP1A2 is an enzyme that helps break down caffeine, drugs, and certain toxins like mold. Variants in the *CYP1A2* gene affect how fast people break down those substances [R, R, R].

The "slow metabolizer" variants make a less efficient enzyme. People who carry these variants may be more **sensitive to caffeine**. Accordingly, they may be more likely to experience negative effects when drinking coffee [R, R, R].

In terms of detox, they may be more susceptible to the adverse effects of certain drugs and toxins. However, the link between CYP1A2 variants and environmental toxins is more complex and requires further investigation [R, R].

The "fast metabolizer" variant makes a protein that breaks down caffeine. People with these variants may be less sensitive to its effects [R, R, R, R].

Nevertheless, "fast metabolizers" may experience the benefits of caffeine supplementation on athletic performance after a short time while "slow metabolizers" may need a longer ingestion period [R, R].

The following factors and substances may **increase** CYP1A2 activity:

- Cigarette smoke: 1.72-fold for >20 cigarettes per day [R, R]
- Coffee consumption: 1.45-fold per liter of coffee drunk daily [R, R]
- Meat pan-fried at high temperatures: 1.4-fold [R]
- Chargrilled meat: 1.89-fold [R]
- Cruciferous vegetables [R, R, R]
- Green and black tea [R]
- Insulin [R]
- Being female: 0.90-fold [R]
- Heavy exercise [R]
- Omeprazole [R]
- Evodioa
- Reishi
- Andrographis,
- Modafinil
- Glycyrrhizin (liquorice)

HIGHER ACTIVITY

Likely higher CYP1A2 activity based on the genetic variants we looked at

41%

OF USERS SHARE THE SAME SCORE

You have the same genetic predisposition as **41% of our users.**

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
CYP1A2	rs762551	AA
LMAN1L	rs2069514	GG

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

The following factors and substances may **decrease** CYP1A2 activity:

- Apiaceous vegetables (carrots, parsnips, celery, and parsley) [R]
- Curcumin [R]
- Grapefruit juice and its component naringenin [R]
- Echinacea [R]
- Quercetin [R]
- Antibiotic fluoroquinolones [R]
- Fluvoxamine, an antidepressant [R]
- Peppermint, chamomile, and dandelion tea [R]
- Garlic
- Berberine
- Chamomile
- Lactoferrin
- Hops
- Galangin (galangal root)
- Scutellaria baicalensis,
- Tangeritin
- Trans-resveratrol

FADS1/2 (Fatty Acid Metabolism)

A number of studies suggest that specific variants in *FADS1/2* may cause fat metabolism issues.

Using data from 426 individuals from Spain, one genome-wide study found that the 'T' allele of **rs174546** is associated with lower levels of PUFAs, such as the omega-6 fatty acid arachidonic acid (AA) and the omega-3s EPA and DHA. This may be because this variant impairs the conversion of ALA from plant sources into EPA and DHA [R].

Another study of 224 people from an isolated island population in the U.S. found that the 'T' allele is also associated with reduced levels of omega-6 fatty acids [R].

This allele has also been associated with higher triglyceride levels, but lower LDL and total cholesterol, based on research in European, Canadian, and Mexican populations [R, R, R, R].

Similar results have been found for other SNPs, such as **rs174547**, **rs174548**, **rs174550**, and **rs1535**. In all these cases, the minor allele was associated with lower D5D activity and decreased levels of omega-3 and omega-6 fatty acids. These alleles are usually inherited together, so you will typically carry all the minor variants or none of them [R, R, R, R, R, R, R].

A different study looked at the SNP **rs174547** in over 21,000 Japanese and over 1,200 Mongolian individuals. Researchers also found that the 'C' allele was associated with higher triglycerides and lower HDL cholesterol in Japanese individuals. In the Mongolian population, the 'C' allele was only associated with lower LDL cholesterol but was unrelated to HDL or triglyceride levels [R].

Another study of **rs174547** suggests that the 'C' allele is only associated with lower LDL in people who have a low intake of omega-3 fatty acids [R].

In addition, the 'C' allele of **rs174550** may also be associated with low HDL and higher triglyceride levels, according to research in Chinese populations [R].

HIGHER ACTIVITY

Likely higher FADS1/2 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
FADS2	rs174546	CC
FADS2	rs174550	TT
FADS2	rs174548	CC
FADS2	rs174547	TT

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.

Folate & Methylation

Methylation is like your body's master control switch, influencing everything from energy production to mood regulation. This section examines genes involved in folate processing and methylation cycles - crucial processes that affect how your cells function. Understanding your genetic variations in these pathways can provide insights into your body's unique needs for certain B vitamins and other nutrients that support these essential cellular processes.

LOWER ACTIVITY

MTHFR

Likely lower MTHFR activity

LOWER ABILITY

Methylation

Predisposed to lower methylation ability

INCREASED NEED

Folate (Functional)

Predisposed to increased need for folate

LOWER ACTIVITY

MTHFD1 (Folate/ Methylation)

Likely lower MTHFD1 activity

LOWER ACTIVITY

MTR (Methylation)

Likely typical MTR activity

TYPICAL NEED

Choline

Likely typical need for choline

TYPICAL ACTIVITY

PEMT (Choline)

Likely typical PEMT activity

TYPICAL ACTIVITY

MTRR (Methylation)

Likely typical MTRR 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.

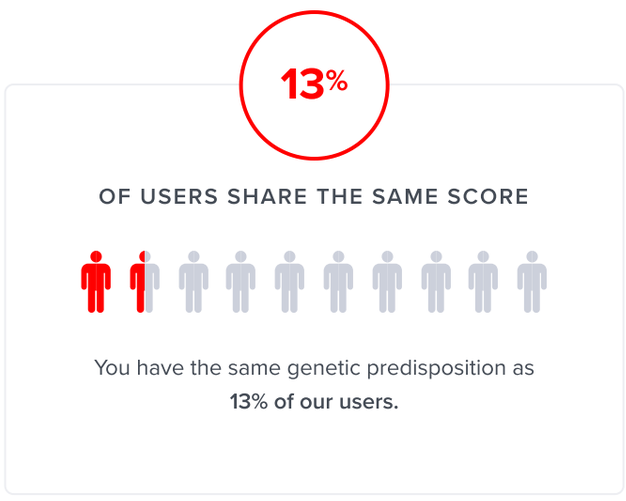
If you carry a lower-activity variant, make sure your diet is healthy, well-balanced, and contains plenty of folate-rich food sources. These include [R, R, R]:

- 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

Methylation

Optimal function of the pathways discussed above depends on a number of enzymes that enable chemical reactions. Gene variants in some of those enzymes can alter their function and potentially compromise methylation.

Please note: Methylation is a complex process that goes way beyond the pathways and enzymes discussed in this report. There is insufficient evidence that any of the gene variants analyzed in this report impair methylation and its vital roles in the human body.

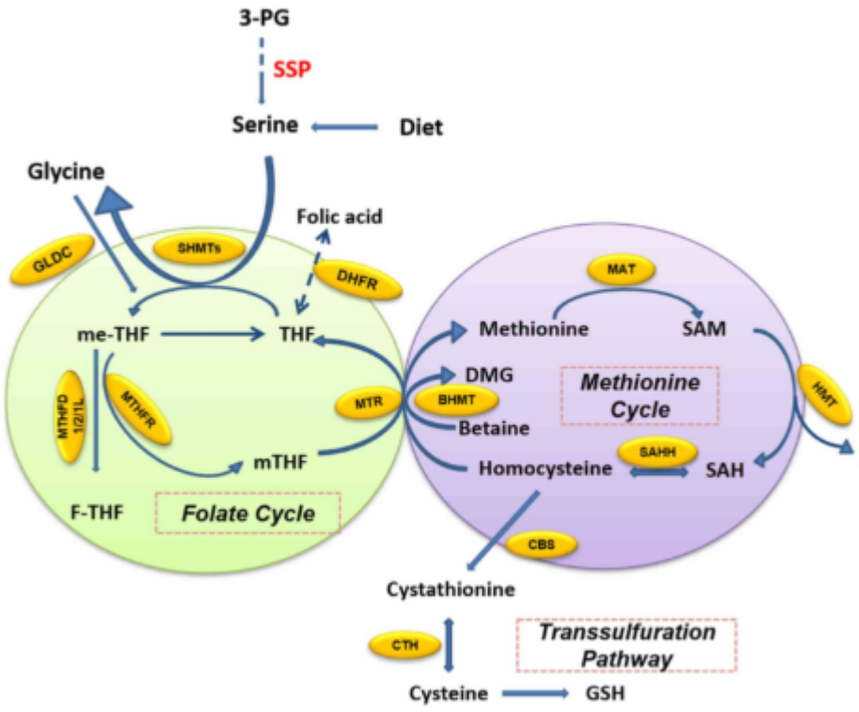


Image source: [Pan S, et al. 2020]

MTHFR

The *MTHFR* gene helps make an enzyme called methylenetetrahydrofolate reductase (MTHFR). It produces the active form of folate, methylfolate [R].

The whole methylation cycle depends on MTHFR, which is why it is called a "*rate-limiting enzyme*". Low MTHFR activity can make methylation as a whole much less productive [R].

Two of the most widely studied variants—**rs1801133 and rs1801131**—reduce MTHFR enzyme activity [R, R, R, R].

Studies found links between these variants, higher homocysteine, and [R, R, R, R, R, R]:

- Cognitive problems
- Heart disease and stroke

LOWER ABILITY

Predisposed to lower methylation ability based on 45 genetic variants we looked at

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
MTHFR	rs1801133	AA
MTHFR	rs2066470	GG
BHMT	rs3733890	AG
GNMT	rs9296404	TT
SHMT1	rs1979277	AA
MTR	rs2275565	GG
COMT	rs4680	AG
JMY	rs3797546	TC
MTRR	rs1801394	AG
PEMT	rs7946	CT
MTHFD1	rs2236225	GA
BHMT	rs651852	CT
CBS	rs234706	AG
CHDH	rs9001	TT
MTR	rs1805087	AA
FOLH1	rs61886492	GG
CPS1	rs1047891	AC
MTRR	rs1532268	CT
MAT1A	rs3851059	AG
TRDMT1	rs12780845	GA
BHMT2	rs625879	AC
SLC19A1	rs1051266	CT
PEMT	rs4646343	GT
PEMT	rs12936587	GA
MAT1A	rs7087728	GA
MS4A6A	rs558660	GG
MAT1A	rs2993763	AA

- Asthma and allergies
- Fertility and pregnancy issues
- Mental health issues
- Migraines

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

Other Genes

The *PEMT* gene encodes an enzyme that produces phosphatidylcholine (PC) in the liver. This pathway supplies choline and thus plays a key role in the methylation cycle [R, R].

PEMT gene variants like **rs7946** **and** **rs12325817** are linked to:

- Choline deficiency
- Fatty liver
- Heart disease

The *MTHFD1* gene encodes an enzyme that helps produce active folate and supports homocysteine methylation. A variant in this gene, **rs2236225**, is linked to increased choline and folate needs [R, R, R].

The *MTRR* gene encodes an enzyme that helps turn homocysteine into methionine, using vitamin B12 and riboflavin. *MTRR* variants like rs1801394 have been linked to [R, R]:

- Higher homocysteine levels
- Congenital disorders (mixed evidence) [R, R, R]
- Some types of cancer [R, R]
- Male fertility issues (mostly in Asians) [R, R]
- ADHD in children [R]

The *CHDH* codes for choline dehydrogenase, an enzyme that turns choline into betaine or TMG. Betaine then supplies a methyl group needed for homocysteine clearance. CHDH gene variants like rs9001 are linked to choline deficiency and may thus affect methylation [R, R].

Variants in the following genes may also affect methylation and play a role in related health issues:

- *CBS*: a key component of the transsulfuration pathway [R, R, R]
- *BHMT*: helps turn homocysteine into methionine (betaine pathway)

GENE	SNP	GENOTYPE
FOLR3	rs651933	AG
MTRR	rs1802059	GA
TCN1	rs526934	AG
COMT	rs4633	TC
BHMT	rs567754	CT
MTHFD1L	rs17349743	TC
MMAB	rs7134594	CT
CBS	rs2851391	TC
MAT1A	rs4934028	GA
MTHFR	rs1801131	TT
CHMP4B	rs819171	TT
ITCH	rs819147	TT
MTHFR	rs3737965	GG
FOLH1	rs202676	AA
PDXK	rs147242481	GG
TYMS	rs2853533	GG
DHFR	rs1643649	TT
AHCY	rs13043752	GG
PEMT	rs12325817	CC
GNMT	rs10948059	CC
NQO1	rs1800566	GG
OGG1	rs1052133	CC
MTHFD1L	rs6922269	GG

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

- *COMT*: methylates important chemicals with the help of SAM-e [R]
- *SHMT1*, *DHFR*, and *FOLH1*: involved in folate metabolism [R, R, R, R]
- *GNMT and DNMT3B: play a role in SAM-e metabolism [R, R]*
- *MTR*: helps turn homocysteine into methionine (folate pathway) [R]
- *MAT1A*: helps turn methionine into SAM-e [R]
- *TRDMT1*: plays a role in DNA methylation [R]
- *PDXK*: plays a role in vitamin B6 metabolism [R]
- *AHCY*: involved in homocysteine and SAM-e metabolism [R, R].
- *TYMS*: supports DNA methylation with the help of methyl-folate [R, R]

Folate (Functional)

Several genetic variants are associated with folate metabolism, affecting how the body processes, utilizes, and requires folate.

MTHFR (rs1801133, 677 C>T): MTHFR is essential for converting folate to its active form. The rs1801133 variant (677 C>T) can reduce enzyme activity, leading to higher homocysteine levels and an increased need for dietary folate to support healthy methylation [R].

MTHFR (rs1801131, 1298 A>C): Another variant in *MTHFR*, rs1801131 (1298 A>C), also impacts folate processing efficiency. This variant may compound the effects of the 677 C>T variant, further increasing folate needs for individuals with both mutations [R, R, R, R].

MTHFD1 (rs2236225, 1958 G>A): The *MTHFD1* gene is involved in folate metabolism, particularly in providing one-carbon units for methylation and DNA synthesis. The rs2236225 variant (1958 G>A) can affect enzyme efficiency, potentially impacting folate requirements for optimal metabolic function [R].

MTHFS (rs6495446, G482S): The *MTHFS* gene is involved in the folate cycle, specifically in converting folinic acid (a form of folate) into 5,10-methylenetetrahydrofolate, which is crucial for DNA synthesis and repair. The rs6495446 variant (G482S) may reduce enzyme activity and has been linked to kidney disease [R].

MTHFD1L (rs202676, 484 T>C): The *MTHFD1L* gene plays a role in the folate metabolism pathway, specifically in the conversion of folate derivatives needed for cellular methylation and DNA synthesis. The rs202676 variant (484 T>C) may reduce the efficiency of this enzyme, potentially leading to impaired methylation and homocysteine removal. This variant has been associated with Alzheimer's disease, Parkinson's disease, and depression [R, R, R, R, R].

SHMT1 (rs1979277, 1420 C>T): The *SHMT1* gene encodes serine hydroxymethyltransferase, an enzyme that converts serine to glycine while generating 5,10-MTHF, a key form of folate involved in DNA synthesis and repair. The rs1979277 variant (1420 C>T) seems to reduce the ability of SHMT to produce 5,10-MTHF, leading to lower levels of active folate. The

INCREASED NEED

Predisposed to increased need for folate based on 12 genetic variants we looked at

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
MTHFR	rs1801133	AA
SHMT1	rs1979277	AA
MTHFS	rs6495446	CC
FOLH1	rs61886492	GG
MTHFD1	rs2236225	GA
MTRR	rs1801394	AG
MSH3	rs408626	TT
MSH3	rs1650697	AA
MTHFR	rs1801131	TT
MTHFD1L	rs11754661	GG
FOLH1	rs202676	AA
MTR	rs1805087	AA

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

minor allele has been linked to liver cirrhosis, congenital problems with blood vessels, and Down's syndrome [R, R]

DHFR (rs408626, 317 A>G): The *DHFR* gene encodes an enzyme called dihydrofolate reductase that converts dihydrofolate (DHF) into tetrahydrofolate (THF). THF is a methyl group shuttle required for the production of purines and thymidine, both of which are required for DNA synthesis and cell growth. The rs408626 variant (317 A>G) may increase gene expression [R].

DHFR (rs1650697, 473 T>C): Another *DHFR* gene variant, rs1650697 (473 T>C) may increase DHFR levels [R].

MTHFD1 (Folate/ Methylation)

A study of 54 participants studied the impact of *MTHFD1* gene variations on choline dietary requirements. When placed on a low-choline diet, people with the “A” allele at rs2236225 were seven times more likely to develop the signs of choline deficiency, such as fatty liver [R].

In another trial of 43 young women, this variant worsened the effects of folate deficiency. Women with the “AA” genotype saw a higher increase in homocysteine levels during a low-folate diet. This variant had no impact during folate treatment (400 and 800 µg daily) [R].

The presence of the “A” allele at rs2236225 changes one amino acid in the MTHFD1 enzyme, making it less stable and more temperature-sensitive. Reduced MTHFD1 activity means less methyl-THF, which forces the body to use more choline for homocysteine methylation. When the intake of choline and folate is low, this effect may become significant and contribute to the signs of deficiency [R].

LOWER ACTIVITY

Likely lower MTHFD1 activity based on the genetic variants we looked at

66%

OF USERS SHARE THE SAME SCORE

You have the same genetic predisposition as **66% of our users.**

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
MTHFD1	rs2236225	GA

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

MTR (Methylation)

The main *MTR* gene variant is **rs1805087 or A2756G**. The "**G**" allele changes the enzyme structure and appears to **increase** MTR activity, judging by its link with **lower homocysteine levels** [R, R, R, R, R].

However, studies have also linked this allele to:

- Fertility problems [R]
- Autism [R]
- Depression and stress [R, R]
- Cognitive impairment [R]

Assuming a higher activity, the "G" allele should increase methylation, and some studies have confirmed this. The mechanism behind the negative associations of this allele is not clear, but it may involve **excessive or altered DNA methylation** [R, R].

Finally, studies have found negative or mixed results for the link between rs1805087 and:

- Cancer [R, R]
- Neural tube defects [R]
- Congenital heart disease [R]

LOWER ACTIVITY

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

65%

OF USERS SHARE THE SAME SCORE

You have the same genetic predisposition as **65% of our users.**

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
MTR	rs1805087	AA

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

Choline

Some people have no symptoms despite their reduced choline intake, while others may need even more than usually recommended amounts. Genetics may be partly responsible for this.

The *PEMT* gene helps make an enzyme that produces phosphatidylcholine (PC) in the liver. PC can release choline and make up for lower amounts of this nutrient in a diet [R, R, R].

People with certain *PEMT* variants, such as rs12325817-G, may benefit from getting more choline. Read this post for more details [R, R].

Fatty liver is usually the first clinical sign of choline deficiency. One PEMT variant, rs7946-T, correlates with fatty liver and reduced choline supply. If you have this variant, you're more likely to experience liver damage due to poor choline intake, a sedentary lifestyle, and overeating. Read this post for more details [R, R].

The *CHDH* gene helps make an enzyme that turns choline into betaine. It may affect choline needs by 'spending' too much of this nutrient for betaine production. People with the following variants may be more sensitive to reduced choline intake [R]:

- rs9001-T
- rs12676-A

Read this post for more details.

The *CHKA* gene helps make an enzyme called '*choline kinase alpha*' that turns dietary methionine into phosphatidylcholine. People with the rs10791957-A allele may need higher dietary choline since they don't convert dietary protein into choline well [R, R].

Choline helps remove homocysteine, along with folate and vitamin B12. The *MTHFD1* and *MTRR* genes are involved in this process and may affect choline needs. People with the following variants may benefit from increasing their choline intake [R, R, R, R, R]:

- rs2236225-A (read this post for more details)
- rs1801394-G (read this post for more details)

TYPICAL NEED

Likely typical need for choline based on 12 genetic variants we looked at

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
MTRR	rs1532268	CT
CHDH	rs9001	TT
PEMT	rs7946	CT
ALDH3B1	rs10791957	AC
BHMT	rs3733890	AG
MTHFD1	rs2236225	GA
PEMT	rs4646343	GT
PEMT	rs3760188	CT
MTRR	rs1801394	AG
CHKA	rs7928739	AC
PEMT	rs12325817	CC
CHDH	rs12676	CC

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

- rs1532268-T

Please note: *The available research for this report is limited, so take your results with a grain of salt. We will update the report as soon as more research is available. Also, keep in mind that your diet, environment, and other genetic variants can influence your choline needs.*

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

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
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.

MTRR (Methylation)

The most studied SNP in the *MTRR* gene is **rs1801394 or A66G**. The **"G" allele** changes one amino acid in the MTRR structure, **reducing** its ability to bind and activate MTR [R].

This variant has shown mixed results when it comes to homocysteine levels. Most studies observed its link with elevated homocysteine but some found no link. People with rs1801394-G may have an impaired response to folic acid for homocysteine reduction [R, R, R, R, R].

Studies have observed a potential link between this variant and:

- Colorectal and other types of cancer [R, R]
- Male fertility issues (mostly in Asians) [R, R]
- ADHD in children [R]
- Congenital heart disease (only in Asians) [R, R]
- Down syndrome [R, R]
- Increased choline needs [R]

A large meta-analysis failed to confirm the link between this variant and neural tube defects. In one study, the "GG" genotype was linked to spina bifida only in a subgroup of mothers **deficient in vitamin B12** [R, R].

Another well-researched SNP in this gene is **rs1532268**. The **"T" allele** changes the enzyme structure and **reduces its activity** [R].

The effects of this variant may **also depend on vitamin B12 status**. In one study, it was associated with increased homocysteine when B12 status was low. Other studies have linked it to [R]:

- Gastric cancer [R]
- Congenital heart disease [R]
- Neural tube defects (mixed evidence) [R, R]

TYPICAL ACTIVITY

Likely typical MTRR 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
MTRR	rs1801394	AG
MTRR	rs1532268	CT

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

Exercise & Recovery

Your genes influence not just your athletic potential, but also how your body responds to and recovers from different types of exercise. This section explores genetic markers related to strength, power, and endurance capabilities, as well as your body's natural recovery patterns. We examine genes that affect muscle performance, exercise adaptation, and recovery speed. This information can help you optimize your workout routine and recovery strategies to match your genetic predispositions.

For more detailed information and a personalized workout routine, please check out our Fitness report.

LOWER ACTIVITY

SOD2 (Oxidative Stress)

Likely lower SOD2 activity

LOWER

Tolerance to Exercise Intensity

Predisposed to lower tolerance to high-intensity exercise

TYPICAL

Strength

Predisposed to typical strength

TYPICAL

Power

Likely typical power performance

TYPICAL ACTIVITY

ACTN3 (Power)

Likely typical ACTN3 activity

TYPICAL ACTIVITY

PPARGC1A (Fitness/Blood Sugar)

Likely typical PPARGC1A activity

TYPICAL

Exercise Recovery

Predisposed to typical recovery after exercise

TYPICAL ACTIVITY

TNF Gene (Inflammation)

Likely typical TNF activity

TYPICAL ACTIVITY

IL6 Gene (Inflammation)

Likely typical IL6 activity

HIGHER

Endurance

Predisposed to higher endurance

LOWER ACTIVITY

ACE (Fitness/ Cardiovascular)

Likely lower ACE activity

SOD2 (Oxidative Stress)

The *SOD2* gene has many described polymorphisms. Among them, rs4880 has got most of the spotlight in SOD2 research. Its minor allele ‘G’ is associated with decreased activity and worse protection against oxidative stress. However, some cell research suggests that this variant can cross the mitochondrial membrane more easily [R].

Owing to its decreased antioxidant activity, this variant has been associated with diseases such as [R, R, R, R]:

- Breast, prostate, and colorectal cancer
- Hypertension
- Sporadic motor neuron disease
- Alzheimer’s disease
- Parkinson’s disease
- Noise-induced hearing loss
- Cisplatin-induced ear toxicity
- Infertility
- Phthalate-induced lung damage

In contrast, the major ‘A’ variant is more common among people with [R]:

- Cardiomyopathy
- Atherosclerosis
- Lung cancer

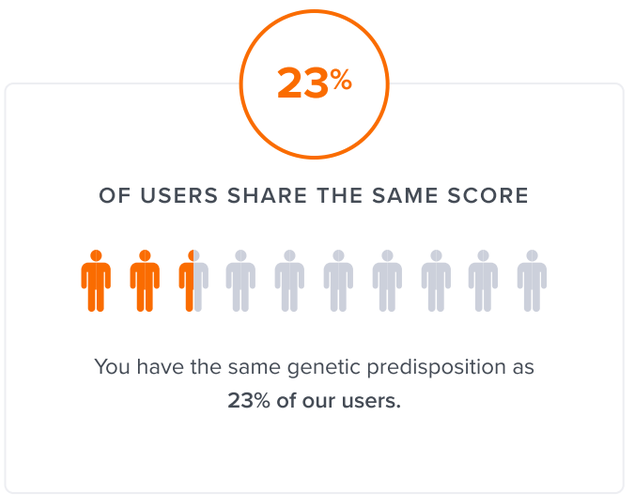
The association of this variant with longevity isn’t straightforward either. While a study found the ‘G’ variant was more common among very elderly Danish people, the ‘A’ variant was prevalent among very elderly Ashkenazi Jewish men in another study. Nevertheless, **the growing consensus is that ‘G’ is the risk allele of rs4880** [R, R].

A second SNP, rs2758331, has also been associated with lifespan. In one study of exceptionally long-lived people in New England, the ‘C’ allele of rs2758331 was significantly more common in the oldest old than in the general population [R].

This SNP is nowhere near as well-studied as rs4880, and only a single study has investigated its effect on lifespan so far. Furthermore, while the ‘A’ allele of rs2758331 has been associated with prostate cancer (thereby supporting the idea of

LOWER ACTIVITY

Likely lower SOD2 activity based on the genetic variants we looked at



Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
SOD2	rs4880	GG
TCP1	rs2758331	AA

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

a beneficial ‘C’ allele), the ‘C’ allele has been associated with liver damage after bisphenol A (BPA) exposure [R, R].

Tolerance To Exercise Intensity

Several genetic variants are associated with tolerance to high-intensity exercise, affecting peak workload, as well as hemodynamic and oxidative response to this type of exercise. Some of them include:

ACTN3 (rs1815739, 577 R/X): The *ACTN3* gene, often referred to as the "speed gene," is linked to fast-twitch muscle fiber function. The rs1815739 variant (577 R/X) affects muscle performance, with the R allele associated with enhanced power and sprint performance, as well as reduced muscle damage from high-intensity exercise [R, R, R, R].

ADRB2 (rs1042713, Arg16Gly A>G) and ADRB2 (rs1042714, Gln27Glu): The *ADRB2* gene encodes the β2-adrenergic receptor. The rs1042713 (Arg16Gly A>G) and rs1042714 (Gln27Glu) can affect energy mobilization and endurance, thus supporting power and high-intensity performance [R, R, R].

AGT (rs699, Met235Thr A>G): The *AGT* gene produces angiotensinogen, a precursor to angiotensin II. The ‘G’ allele of the rs699 variant (Met235Thr A>G) is associated with higher angiotensinogen levels and higher exercise performance at peak workload [R].

ACE (rs4343, Ins/Del): The *ACE* gene encodes angiotensin-converting enzyme, which converts angiotensin I to angiotensin II, a potent vasoconstrictor. Carriers of the insertion allele (‘A’ at rs4343) may improve endurance performance and aerobic capacity more from high-intensity exercise while experiencing lower blood pressure increments [R, R, R].

AMPD1 (rs17602729, 133 C>T): *AMPD1* encodes an enzyme involved in muscle energy metabolism. The minor ‘A’ allele of rs17602729 is associated with lower performance in sprint/power-oriented sports, reduced exercise capacity, and decreased training response [R, R].

SLC6A4 (rs1049434, Glu490Asp): the *SLC6A4* gene encodes a serotonin transporter protein that moves this neurotransmitter back into brain cells to reduce the length of serotonin signals. The minor ‘A’ allele of rs1049434 is overrepresented in wrestlers

LOWER

Predisposed to lower tolerance to high-intensity exercise based on 1,047,916 genetic variants we looked at

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
SLC16A1	rs1049434	TT
GABRA5	rs17116985	CC
CNR1	rs6454672	CC
ACTN3	rs1815739	TC
HFE	rs1799945	CC
GABPB1	rs7181866	AA
GABPB1	rs8031031	CC
ADRB2	rs1042713	GA
ANKK1	rs1800497	GA
LEPR	rs12405556	GT
CYBA	rs4673	GA
GALNT13	rs10196189	GA
ADRB2	rs1042714	GC
PPARGC1A	rs8192678	TC
AMPD1	rs17602729	GG
AGT	rs699	GG
ACE	rs4343	AA
GABRG3	rs8036270	AA
SOD2	rs4880	GG
IL6	rs1800795	GG
GABPB1	rs12594956	AA
MYBPC3	rs1052373	CC

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

and triathletes, and has been associated with lower lactate buildup after an intermittent sprint test [R, R].

LEPR (rs12405556): The *LEPR* gene encodes the leptin receptor, which plays a role in regulating body weight and fat storage. Having at least one copy of the 'T' allele at rs12405556 has been associated with increased tolerance to high-intensity exercise [R].

DRD2 (rs1800497, Taq1A): The *DRD2* gene helps make dopamine D2 receptors. Those are proteins on the surface of brain cells that bind dopamine. Having at least one copy of the 'G' allele at rs1800497 has been associated with increased tolerance to high-intensity exercise [R].

CNR1 (rs6454672): The *CNR1* gene encodes the type-1 cannabinoid receptor (CB1). Carrying two copies of the 'T' allele at rs6454672 has been associated with increased tolerance to high-intensity exercise. Moreover, people with this genotype may have more minutes of moderate-to-vigorous physical activity [R].

GABRG3 (rs8036270): The *GABRG3* gene encodes a subunit of a receptor of the neurotransmitter GABA. Having at least one copy of the 'G' allele at rs8036270 has been associated with increased tolerance to high-intensity exercise [R].

GABRB3 (rs17116985): The *GABRB3* gene encodes another subunit of a receptor of the neurotransmitter GABA. A study associated the 'T' allele of rs17116985 with greater improvements in aerobic capacity from high-intensity interval training [R].

CYBA (rs4673, C242T): The *CYBA* gene encodes a subunit of a group of proteins that form an enzyme complex called NADPH oxidase. The 'T' allele of rs4673 has been associated with higher cardiopulmonary efficiency and decreased release of pro-inflammatory cytokines in response to high-intensity exercise [R].

SOD2 (rs4880, Ala16Val): The *SOD2* gene codes for superoxide dismutase 2 (SOD2), an antioxidant enzyme that helps protect against oxidative stress by transforming the toxic molecule superoxide (O2-) into oxygen (O2) and hydrogen peroxide (H2O2). People with the 'AA' genotype of rs4880 may be underrepresented among elite, high-intensity athletes [R, R, R].

Strength

Strength is the maximum force applied in one movement (e.g., in a single weight lift). The best way to build strength is to take part in **strength (resistance) training**. Methods include using weight machines, lifting free weights, and doing bodyweight exercises such as planks or pushups [R, R].

Some people are stronger than others. This may be due to many factors, such as [R, R, R, R, R, R, R, R, R, R, R]:

- Fitness level
- Age
- Diet
- **Genetics**

In fact, **about 50% of people's differences in strength may be due to genetics**. Genes involved may influence the size and proportion of different muscle fiber types [R, R, R, R, R].

TYPICAL

Predisposed to typical strength based on 23 genetic variants we looked at

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
MTHFR	rs1801131	TT
SLC16A1	rs1049434	TT
LRPPRC	rs10186876	GG
PPARG	rs1801282	CC
LEMD2	rs12055409	GG
IL11RA	rs41274853	GG
BDNF	rs10501089	CC
HIF1A	rs11549465	CC
FTO	rs9939609	TT
VEGFA	rs2010963	GG
GABPB1	rs7181866	AA
/	rs9320823	CT
PITX3	rs2273555	AG
IGF2	rs680	CT
ACTN3	rs1815739	TC
ADRB2	rs1042713	GA
ADRB2	rs1042714	GC
BDKRB2	rs1799722	CT
AGT	rs699	GG
TBC1D7	rs6905419	CC
ZNF608	rs4626333	CC
ACVR1B	rs2854464	AA
AMPD1	rs17602729	GG
TRHR	rs16892496	AA

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

Power

Several genetic variants are associated with power, affecting factors such as muscle fiber composition, oxygen delivery, and energy metabolism, all of which influence an individual's ability to generate explosive force.

ACTN3 (rs1815739, 577 R/X): The *ACTN3* gene, often referred to as the "speed gene," is linked to fast-twitch muscle fiber function. The rs1815739 variant (577 R/X) affects muscle performance, with the R allele associated with enhanced power and sprint performance due to increased fast-twitch muscle fiber efficiency [R, R, R].

CKM (rs8111989, NcoI T>C): The *CKM* gene encodes creatine kinase, an enzyme critical for energy production in muscle tissue during high-intensity activity. The rs8111989 variant (NcoI T>C) may influence muscle energy capacity, affecting power and strength performance.

IL6 (rs1800795, −174 G>C): IL-6 is involved in muscle inflammation and repair. The rs1800795 variant (−174 G>C) can influence recovery after intense exercise, with certain variants potentially improving muscle resilience and power performance.

ACVR1B (rs2854464, A>G): The *ACVR1B* gene is involved in muscle growth regulation. The rs2854464 variant (A>G) can impact muscle development, with the G allele potentially enhancing muscle strength and power capacity.

ADRB2 (rs1042713, Arg16Gly A>G) and ADRB2 (rs1042714, Gln27Glu): These variants in the *ADRB2* gene influence muscle response to adrenaline. The rs1042713 (Arg16Gly A>G) and rs1042714 (Gln27Glu) can affect energy mobilization and endurance, indirectly supporting power and high-intensity performance.

AGT (rs699, Met235Thr A>G): The *AGT* gene is associated with blood pressure regulation and can influence muscle performance. The rs699 variant (Met235Thr A>G) may impact power performance by influencing muscle efficiency and vascular response during intense activity.

ACE (rs4343, Ins/Del): The *ACE* gene affects blood flow and cardiovascular efficiency. The insertion/deletion (Ins/Del) variant

TYPICAL

Likely typical power performance based on 14 genetic variants we looked at

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
ACTN3	rs1815739	TC
ACVR1B	rs2854464	AA
ACE	rs4343	AA
CKM	rs8111989	CT
ADRB2	rs1042713	GA
PKDREJ	rs4253778	GC
ADRB2	rs1042714	GC
NOS3	rs2070744	TC
PPARGC1A	rs8192678	TC
VDR	rs1544410	CT
VDR	rs731236	AG
HIF1A	rs2301113	AA
IL6	rs1800795	GG
HIF1A	rs11549465	CC
AGT	rs699	GG
AMPD1	rs17602729	GG

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

can influence endurance and power, with the insertion allele being associated with improved strength and anaerobic performance.

AMPD1 (rs17602729, 133 C>T): AMPD1 plays a role in muscle energy metabolism. The rs17602729 variant (133 C>T) may influence power capacity, with certain alleles associated with enhanced muscle endurance and response to high-intensity activity.

HIF1A (rs11549465, Pro582Ser C>T): The *HIF1A* gene regulates the body's response to low oxygen conditions, which is critical during high-intensity exercise. The rs11549465 variant (Pro582Ser C>T) may affect the efficiency of oxygen delivery to muscles, influencing power and anaerobic performance, especially under conditions of limited oxygen availability.

NOS3 (rs2070744, −786 T>C): The *NOS3* gene is involved in the production of nitric oxide, which supports blood flow and muscle function during exercise. The rs2070744 variant (−786 T>C) can impact nitric oxide levels, potentially enhancing muscle performance and power by improving blood flow during high-intensity efforts.

PPARGC1A (rs8192678, Gly482Ser G>A): The *PPARGC1A* gene plays a role in energy metabolism and mitochondrial biogenesis, essential for muscle endurance and power. The rs8192678 variant (Gly482Ser G>A) may influence aerobic capacity and recovery, indirectly affecting power output in high-intensity activities.

VDR (rs1544410, BsmI G>A) and VDR (rs731236, Taq1 T>C): The VDR gene encodes the vitamin D receptor, which plays a role in muscle function and strength. The rs1544410 (BsmI G>A) and rs731236 (Taq1 T>C) variants can affect vitamin D metabolism, potentially impacting muscle strength, power, and overall physical performance.

PPARA (rs4253778, 7G/C): The PPARA gene encodes a receptor that plays a critical role in lipid metabolism, inflammation, and the regulation of muscle function. The rs4253778 variant has been associated with lipid profile alterations, potentially influencing endurance and aerobic performance. The 'G' allele may enhance fat oxidation capacity, supporting improved stamina and efficiency in prolonged high-intensity exercise. In contrast, the 'C' allele may enhance performance at short-term, power exercise.

ACTN3 (Power)

Power is the ability to produce short, intense movements (e.g., sprinting, jumping, throwing). Our muscles are made up of fibers. The type of fibers determines what a muscle is good at. **Fast-twitch fibers support rapid movements and are more common in power athletes** [R, R, R].

Fast-twitch muscle fibers contain higher amounts of a specific protein (alpha-actinin-3) that supports muscle power. The gene that helps make this protein is called *ACTN3* [R].

A specific *ACTN3* gene variant determines whether people produce this protein or not. People who produce this protein tend to have increased power performance. They are more likely to be elite power athletes [R, R, R].

On the other hand, people with more slow-twitch muscle fibers may be more suitable for endurance sports. They may also have better cold adaptation.

However, fitness level and other lifestyle factors have a strong effect on your power. The impact of genetics is more pronounced in elite athletes because they have improved all other factors [R].

Also, other gene variants not included in this report may influence power performance.

TYPICAL ACTIVITY

Likely typical ACTN3 activity based on the genetic variants we looked at

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
ACTN3	rs1815739	TC

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

PPARGC1A (Fitness/Blood Sugar)

The most well-researched *PPARGC1A* polymorphism is **rs8192678**. Its minor 'T' allele decreases *PPARGC1A* expression and PGC-1α levels in the muscles [R, R, R].

This variant has been associated with a decreased overall athletic ability and sports performance, especially in endurance sports such as long-distance running and cycling. Moreover, carriers may benefit less from aerobic exercise for improving their aerobic capacity, gaining muscle mass, and lowering LDL cholesterol [R, R, R].

This variant has been associated with an increased risk of type 2 diabetes in European, Indian, and Chinese populations, as well as with higher blood pressure in individuals younger than 50 years old [R, R, R, R].

It may also be linked to **worse cold adaptation** due to reduced PGC-1α levels and impaired mitochondrial function.

In contrast, a study of 161 Caucasian athletes from Russia and Lithuania found an increased prevalence of the 'TT' genotype among powerlifters [R].

TYPICAL ACTIVITY

Likely typical PPARGC1A 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
PPARGC1A	rs8192678	TC

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

Exercise Recovery

Exercise puts stress on the body. After exercise, it's common to feel tired and sore. Our bodies need time to recover after each bout. Many athletes have perfected ways of quickly returning to their best, including massage, heat or cold application, increased protein and carb intake, or antioxidant supplements [R, R].

Some people may recover from exercise more quickly and easily than others. Part of the reason for this may be genetic.

Genes involved in exercise recovery may influence [R, R, R, R, R]:

- Nerve development
- Heart development
- Muscle function
- Blood sugar levels

Be sure to use techniques like stretching, massage, and cold applications after you exercise.

TYPICAL

Predisposed to typical recovery after exercise based on 36 genetic variants we looked at

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
FTO	rs9939609	TT
IGF2	rs7924316	GG
HGF	rs5745697	GG
HGF	rs5745678	GG
IL6R	rs4129267	TT
MYLK	rs28497577	TT
IL6R	rs2228145	CC
ACTN3	rs1815739	TC
CCR2	rs1799865	TT
SLC30A8	rs13266634	CC
CRP	rs1205	CC
IL1B	rs1143634	GG
GPX1	rs1050450	GG
IGF2	rs680	CT
IL1A	rs4848306	GA
CYBA	rs4673	GA
IGF2	rs3213221	GC
CD28	rs3116496	CT
CCL8	rs2857656	CG
COL2A1	rs2070739	TC
IL1B	rs16944	AG
COL5A1	rs12722	TC
CAT	rs1001179	TC
SLC16A1	rs1049434	TT
SLC16A1	rs7169	AA
SOD2	rs4880	GG
IGF2	rs4244808	GG

GENE	SNP	GENOTYPE
CCR2	rs3918358	AA
CCL2	rs3917878	CC
C11ORF21	rs3842748	GG
SPP1	rs28357094	TT
MYLK	rs2700352	GG
IL6	rs1800795	GG
TNF	rs1800629	GG
EEF1AKMT3	rs11613457	GG

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

TNF Gene (Inflammation)

The **rs1800629** polymorphism (also known as *TNF* -308) is one of the most researched SNPs in the *TNF* gene. **The 'A' allele is associated with 6-7 times higher levels of TNF-alpha** [R].

In line with this, this variant has been associated with:

- IBD risk and severity[R, R, R]
- ARDS and sepsis [R, R]
- Chronic pain [R, R, R, R]
- Obesity [R, R, R, R]
- Hashimoto's disease [R]
- Acne [R]
- Insulin resistance and poor blood sugar control [R]
- Asthma and COPD [R, R]
- Heart disease [R]
- Rheumatoid arthritis [R, R]
- Systemic lupus erythematosus [R]
- Liver and digestive system cancers [R, R]

Probably due to its association with lower inflammation and a reduced risk of these conditions, the 'G' allele has been associated with a longer lifespan. In contrast, it has been linked to higher PTSD severity [R, R, R].

Another variant, 'C' at **rs1799964** (commonly referred to as TNF -1031), may increase TNF levels and has been associated with an increased risk of [R]:

- Crohn's disease [R, R]
- Hashimoto's disease [R]

Finally, the 'C' variant at **rs1799724** (commonly referred to as TNF -857C) may also increase TNF levels and has been associated with an increased risk of [R]:

- IBD [R, R, R]
- Acne [R]

People with variants linked to higher TNF-alpha levels may benefit more from interventions that counteract the negative effects of this cytokine, such as cold immersion for exercise recovery.

TYPICAL ACTIVITY

Likely typical TNF activity based on 3 genetic variants we looked at

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
PHACTR4	rs188618085	CC
YTHDF2	rs185682149	CC
TMEM71	rs72725197	CC
CRISPLD2	rs118135095	GG
TRIB2	rs116434579	GG
TNF	rs1799724	TC
NCR3	rs1800610	AG
ROBO1	rs149420276	AG
GPX3	rs111332265	GA
/	rs7256693	CC
ATP10B	rs149126334	GG
ANO3	rs10834997	GG
TNF	rs1800629	GG
SPRY1	rs115669577	GG
ERICH1	rs138808635	CC
PSD3	rs79105320	GG
MICB	rs361525	GG
TNF	rs1799964	TT
/	rs72841564	TT
GTF2E1	rs10511404	GG
/	rs8121916	CC
RBM11	rs72490194	CC
GBA2	rs10814274	TT

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

IL6 Gene (Inflammation)

Since IL-6 can have both pro-inflammatory and anti-inflammatory properties, variants with decreased activity may increase the risk of infections while reducing chronic inflammation [R, R, R].

By far, the most well-researched *IL6* polymorphism is **rs1800795** (also known as the “-174G>C” polymorphism). The major 'G' allele of this SNP has been linked with higher levels of IL-6, while the 'C' allele has been associated with lower IL-6 levels [R].

The ‘G’ variant has been associated with some health benefits such as:

- Faster muscle recovery and increased power performance [R, R]
- Increased longevity [R]
- Reduced risk of obesity [R, R, R]
- Reduced risk and severity of PTSD [R]
- Reduced incidence of respiratory infections [R]
- Reduced risk of type 2 diabetes and insulin resistance [R, R]
- Reduced risk of blood clots [R]
- Decreased risk of coronary artery disease (especially in smokers or drinkers) [R, R]
- Decreased risk of cervical cancer [R, R, R]
- Decreased risk of prostate cancer [R]
- Decreased risk of PCOS [R]

However, it may also increase the risk of some conditions such as:

- Gum disease [R, R]
- Rheumatoid arthritis [R]
- Coronary artery disease [R]
- Liver cancer [R]

TYPICAL ACTIVITY

Likely typical IL6 activity based on the genetic variants we looked at

77%

OF USERS SHARE THE SAME SCORE

You have the same genetic predisposition as **77% of our users.**

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
IL6	rs1800795	GG

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

Endurance

Endurance is the ability to produce low-intensity movements for a long period of time (e.g., cycling, running, swimming). It's made up of **cardiorespiratory endurance** (the ability of the heart and lungs to deliver oxygen to muscles during longer, less intense periods of exercise) and **muscular endurance** (the ability of muscles to contract during longer, less intense periods of exercise) [R, R, R, R, R].

Some people may have greater endurance than others. This may be due to [R, R, R, R, R, R, R]:

- Fitness levels
- Age (endurance can actually improve with age!)
- **Genetics**

Up to 70% of people's differences in endurance may be due to genetics. Genes involved may influence [R, R, R, R, R, R, R]:

- The body's ability to use oxygen
- Heart function
- Muscle composition and efficiency

Some tips that may help you build endurance include:

- Doing the same exercise regularly and letting your body adapt to it over time
- Slowly increasing the amount and intensity of your workouts over time
- Getting at least than 150 min of cardio per week
- Switching between periods of high-intensity training and resting. This is called high-intensity interval training (HIIT).

HIGHER

Predisposed to higher endurance based on 38 genetic variants we looked at

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
HFE	rs1799945	CC
GABPB1	rs7181866	AA
GABPB1	rs8031031	CC
ACTN3	rs1815739	TC
SLC16A1	rs1049434	TT
TTN	rs10497520	CC
KDR	rs1870377	TT
PRDM1	rs10499043	CC
ADRB3	rs4994	AA
CHRNB3	rs4950	AA
GSTP1	rs1695	AA
HIF1A	rs11549465	CC
TSHR	rs7144481	TT
NFE2L2	rs35652124	TT
DES	rs7564856	GA
SATB1	rs4973706	CT
PPARGC1A	rs8192678	TC
GALNTL6	rs558129	GA
ADRB2	rs1042713	GA
ADRB2	rs1042714	GC
COL5A1	rs12722	TC
GNB3	rs5443	CT
BDKRB2	rs1799722	CT
RBFOX1	rs7191721	GA
CNDP2	rs6566810	AT
PKDREJ	rs4253778	GC
AGTR2	rs11091046	C

GENE	SNP	GENOTYPE
CKM	rs8111989	CT
DEF6	rs2016520	CT
PPARGC1A	rs7665116	TC
PPARGC1A	rs2970869	TC
NR1H3	rs7120118	TT
ACE	rs4343	AA
GABPB1	rs12594956	AA
MYBPC3	rs1052373	CC
CYFIP1	rs8029108	AA
NFIA	rs1572312	GG
TTC23	rs1464430	AA
KCNA4	rs1323860	GG
PPARA	rs1800206	CC
PPARGC1A	rs3774923	CC
HIF1A	rs2301113	AA

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

ACE (Fitness/ Cardiovascular)

The two main ACE gene variants, **rs4341 and rs4343**, influence gene and enzyme activity. Their **“G” alleles** may increase ACE activity and levels. In line with this, they are linked to **high blood pressure and heart disease** [R, R, R, R].

Regarding athletic performance, higher ACE activity may favor short, high-intensity bursts of activity. This makes it advantageous for **power-based sports** [R, R, R].

Conversely, **rs4341-C and rs4343-A** are linked to lower ACE activity, which may offer some protection against hypertension and cardiovascular conditions. Lower ACE activity can enhance **endurance** by improving blood flow and oxygen delivery to muscles during prolonged physical activity [R, R, R, R].

Please note: Some people's genetic files don't contain the rs4341 variant, so we didn't include it in the model. However, this variant is almost always inherited with rs4343, so one of them is sufficient to estimate your ACE genetics.

LOWER ACTIVITY

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

15%

OF USERS SHARE THE SAME SCORE

You have the same genetic predisposition as **15% of our users.**

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
ACE	rs4343	AA

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

Sleep

Quality sleep is essential for health, and your genes play a role in how you sleep. This section examines genetic variations that influence your sleep patterns, including your natural circadian rhythm and sleep quality. Understanding these genetic factors can help explain why you might be naturally more of a night owl or early bird, and how deeply you tend to sleep, helping you optimize your sleep habits.

WORSE GENETICS

NPAS2 (Mood/ Sleep Schedule)

Likely worse NPAS2 genetics

TYPICAL

Sleep Quality

Predisposed to typical sleep quality

TYPICAL LIKELIHOOD

Circadian Rhythm

Typical likelihood of circadian rhythm imbalances

TYPICAL ACTIVITY

ADORA2A (Anxiety)

Likely typical ADORA2A activity

DEEP

Deep Sleep (ADA)

Likely a deep sleeper

NPAS2 (Mood/ Sleep Schedule)

The main *NPAS2* variant, **rs2305160**, is often studied in relation to cancer. A 2015 meta-analysis confirmed the link between the **A allele and lower odds of cancer, especially breast cancer** [R].

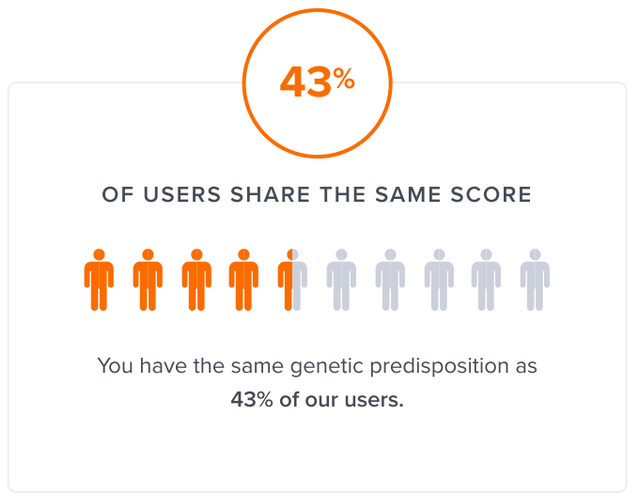
Another *NPAS2* variant, **rs11123857**, may also be linked to slightly higher odds of breast cancer. It may also correlate with **depression**, according to one study. People with the **G allele** had 1.5x higher odds of depression [R, R].

NPAS2 helps determine when we sleep and when we eat. The above associations are not surprising, given the key role of our internal clock in mood and cellular health.

More precisely, **eating late and having small fasting windows** may contribute to inflammatory changes linked to breast cancer. Disrupted circadian rhythm also has an established role in depression and other mood disorders [R, R].

WORSE GENETICS

Likely worse NPAS2 genetics based on the genetic variants we looked at



Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
NPAS2	rs2305160	GG
NPAS2	rs11123857	AA

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

Sleep Quality

The quality of your sleep can have a big impact on how much energy you have during the day [R, R].

Many genetic variants influence sleep [R]. However, your environment and your habits also affect sleep quality.

Some strategies that may improve sleep quality 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

TYPICAL

Predisposed to typical sleep quality based on 576,999 genetic variants we looked at

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
/	rs71365296	AA
KANSL1	rs1107820	TT
VGLL2	rs4946246	TG
RALYL	rs118149821	CC
CHRM2	rs146885652	GG
FOXO6	rs2226263	TT
/	rs184060364	GG
TENM4	rs117191802	AA
TCF21	rs13201465	AA
RALYL	rs191939331	GG
FBN2	rs115375165	GG
TJP2	rs7030480	AA
COQ8A	rs113207574	CT
PRICKLE1	rs11829548	GT
ADCY1	rs79209880	CC
CHRM2	rs74757156	CC
/	rs111921861	AA
/	rs140707667	GG
FUT9	rs142123475	CC
UFL1	rs75842709	CC
COX7C	rs2964898	CC
ERCC4	rs74321030	TT
VRK1	rs78807545	GG
/	rs147738873	CC
MSX2	rs28450080	CC
RFX4	rs11610873	GG
CDH13	rs111702115	GG

GENE	SNP	GENOTYPE
CASP3	rs7695597	AA
TNF	rs1800629	GG
NREP	rs140529718	GG
EPB41L4A	rs146128029	TT
RBMS3	rs17023449	TT
SASH1	rs112390069	GG
FAM107B	rs74122981	AA
PLK2	rs76395602	GG
RGS6	rs36032616	AA
PIGZ	rs4916588	CC
PLK2	rs170741	TT
ENC1	rs76768179	TT
ZNF626	rs6511152	CC
CD36	rs4437584	TT
LAMA2	rs11962701	CC

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

Circadian Rhythm

Morning or evening preference is impacted by genetics and environment. A number of genetic variants may impact your internal clock. Gender and age may also play a role [R, R].

The *CLOCK* ('Circadian Locomotor Output Cycles Kaput') gene is a core component of the biological clock. The rs1801260 polymorphism is the most studied SNP in the *CLOCK* gene. Its minor 'G' allele increases CLOCK activity and has been associated with abnormal and less stable circadian rhythms [R, R, R].

NPAS2 (neuronal PAS domain protein 2) is one of the core genes responsible for coordinating our circadian rhythms. The 'G' allele of rs11123857 and the 'A' allele of rs2305160, have been associated with circadian disruptions [R, R, R].

Melatonin is a hormone responsible for your **sleep-wake cycle (circadian rhythm)**. It is made in the pineal gland in response to the absence of light. The *MTNR1A* and *MTNR1B* genes encode two melatonin receptors. The rs12506228-A variant of *MNTR1A* has been associated with job-related exhaustion in shift workers. In turn, the rs10830963-G and rs1387153-T variants of *MTNR1B* have been linked to shift work-related breast cancer, prostate cancer, and type 2 diabetes [R, R, R, R, R, R, R, R].

ADORA2A encodes the adenosine A2A receptor. These receptors are mainly located in the brain area where dopamine is produced. **Adenosine accumulates in the evening and promotes calmness and sleepiness.** In contrast, less adenosine means more wakefulness. Two variants in this gene, rs5751876-T and rs2298383-C, have been linked to anxiety, sleep disturbances, and worse cognitive performance after sleep deprivation [R, R, R, R].

The *ADA* gene encodes the adenosine deaminase enzyme, one of the two enzymes that break down adenosine. The 'T' allele of rs73598374 encodes an underactive protein and has been linked to increased drowsiness and reduced attention in the morning [R, R, R].

BDNF (brain-derived neurotrophic factor) is a component produced mainly in brain cells. It plays many key roles that

TYPICAL LIKELIHOOD

Typical likelihood of circadian rhythm imbalances based on 12 genetic variants we looked at

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
CLOCK	rs1801260	AG
MTNR1B	rs1387153	TT
MTNR1B	rs10830963	CG
ADORA2A	rs5751876	CT
ADORA2A	rs2298383	TC
ADA	rs73598374	TC
BDNF	rs6265	TC
COMT	rs4680	AG
MTNR1A	rs12506228	CC
NPAS2	rs2305160	GG
TNF	rs1800629	GG
NPAS2	rs11123857	AA

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

support your brain's ability to grow and learn. The 'T' allele of rs6265, also known as "Val66Met", decreases BDNF levels and has been associated with social jetlag and disrupted sleeping patterns in adolescents [R, R, R].

The *TNF* gene encodes a cytokine that plays a central role in the immune response and inflammation. The rs1800629 polymorphism (also known as *TNF* -308) is one of the most researched SNPs in the *TNF* gene. **The 'A' allele is associated with 6-7 times higher levels of TNF-alpha.** This allele has been linked to sensitivity to sleep deprivation, sleep disturbances and morning fatigue [R, R, R, R].

The *COMT* gene helps make an enzyme that helps break down neurotransmitters such as dopamine, norepinephrine, and epinephrine. People with two copies of the "G" allele at rs4680 may have higher COMT enzyme activity and have been nicknamed the "worriers" because they break down stress-related chemical messengers more quickly. People with this genotype may be more susceptible to the negative effects of sleep deprivation on cognition [R, R, R, R].

ADORA2A (Anxiety)

Some *ADORA2A* gene variants may reduce the number of adenosine receptors. Lower adenosine activity promotes wakefulness but may also promote anxiety [R, R].

The main one is **rs5751876-T, linked to anxiety and panic disorder**. Caffeine may make people with this variant even more anxious. Women tend to be affected more strongly than men [R, R, R, R].

Another important variant is **rs2298383-C**, linked to anxiety, depression, and sleep disturbances [R, R, R].

These two variants are almost always inherited together, meaning you will likely have either none or both. Interestingly, rs2298383 could be the one causing a change in adenosine receptors, even though the research has mainly focused on rs5751876 [R].

Two more ADORA2A variants potentially linked to anxiety are rs3761422 and rs5751862, but this link is not well established [R].

TYPICAL ACTIVITY

Likely typical ADORA2A activity based on the genetic variants we looked at

47%

OF USERS SHARE THE SAME SCORE

You have the same genetic predisposition as **47% of our users.**

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
ADORA2A	rs5751876	CT
ADORA2A	rs2298383	TC

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

Deep Sleep (ADA)

Deep sleep is one of the stages of non-REM sleep. It is also called *slow-wave sleep* or *delta-wave sleep* because the brain emits slow (delta) waves during this stage [R, R, R].

A compound called adenosine builds up in the brain while we are awake and peaks at bedtime, causing us to feel sleepy. The longer we stay awake, the sleepier we get. Adenosine decreases while we sleep, so we feel rested when we wake up [R].

The *ADA* gene helps make an enzyme that breaks down adenosine. Scientists suggest that one variant in this gene reduces the enzyme's activity. This variant is linked to a faster buildup of adenosine [R].

People with at least one copy of this variant tend to [R, R, R]:

- Be sleepier
- Awaken less often during the night
- Have longer deep sleep
- Have stronger slow (delta) waves

Caffeine can promote wakefulness and interrupt sleep by reducing adenosine activity. However, it's still not clear if the effects of caffeine on sleep depend on this gene variant [R].

DEEP

Likely a deep sleeper based on the genetic variants we looked at

11%

OF USERS SHARE THE SAME SCORE

You have the same genetic predisposition as **11% of our users.**

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
ADA	rs73598374	TC

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

Mood & Behavior

Your genetic makeup influences how your brain processes information and regulates mood. This section explores genes that affect neurotransmitter function and emotional processing, providing insights into your natural tendencies regarding mood, stress response, and emotional resilience. While genes aren't destiny, understanding these factors can help you develop more effective strategies for maintaining emotional well-being.

MORE LIKELY

Low Mood

More likely to have chronically low mood

SLIGHTLY LOWER LEVELS

BDNF

Relatively lower BDNF levels

TYPICAL LIKELIHOOD

Anxiety

Typical likelihood of anxiety

TYPICAL ACTIVITY

COMT

Likely typical COMT activity

LOWER ACTIVITY

FAAH (Cannabinoids)

Likely lower FAAH activity

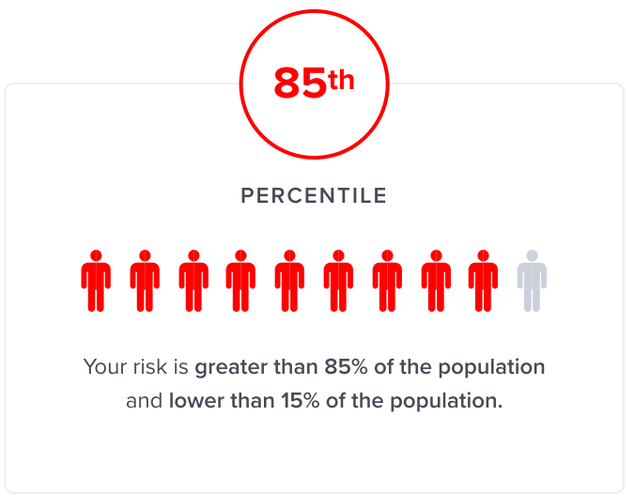
Low Mood

Key Takeaways:

- About 40% of differences in people's odds of developing depression may be due to genetics.
- It is more likely for young adults and the elderly but can affect people of all ages.
- Other risk factors include traumatic and stressful events, serious medical conditions, and substance use problems.
- If you have high genetic risk, you may want to consider optimizing your stress management.
- Click the **next steps** tab for relevant labs and lifestyle factors.

MORE LIKELY

More likely to have chronically low mood based on 84,205 genetic variants we looked at



Depression is more than just a low mood. People with depression tend to have [R]:

- Low motivation
- Problems with concentration
- Changes in appetite
- Poor sleep quality
- Aches and pains
- Thoughts of self-harm or suicide

If any of these symptoms resonate with you, you can work with your doctor to improve them. **Psychotherapy and medication are the most effective treatments for depression.** Strategies such as exercise may also boost your mood [R, R].

The strategies most likely to work for you may depend on your genetics. This is because genetic factors account for roughly 40% of differences in depression [R].

Gene variants linked to this condition may cause [R, R, R, R]:

- An exaggerated stress response (*CRHR1*, *COMT*)
- Low levels or activity of brain chemicals (*COMT*, *OPRM1*, *SLC6A4*, *DRD2*)
- Impaired brain function (*BDNF*, *VRK2*)
- Inflammation (*IL6*, *VRK2*)
- Sleep disturbances (*CLOCK*, *TIMELESS*)

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
MTHFR	rs1801133	AA
NEGR1	rs1993709	GG
MICB	rs1150757	GG
MEF2C	rs409645	GG
TCF4	rs1452787	AG
TTC12	rs1554929	CC
NOX4	rs10047486	AA
ZCCHC7	rs6476606	GG
FKBP4	rs2302729	CC
RNF180	rs878567	GG
TULP1	rs9296158	GG
FAM53B	rs35936514	CC
ANKK1	rs1800497	GA
OXTR	rs2254298	GA
TERT	rs2736100	AC
SH3YL1	rs6548238	TC
FAAH	rs324420	CA
TPH1	rs1799913	GT
PUM3	rs7044150	CT
MAOA	rs909525	C

Genetically high white blood cell count and testosterone and low DHA may be causally associated with a higher risk of depression. Moreover, depression may also lead to increased white blood cells [R, R, R].

It's important to note that **genetics is only one piece of the puzzle.** Other risk factors for depression include [R]:

- Stressful or traumatic events
- Serious medical conditions, such as cancer
- Heavy drug and alcohol use

GENE	SNP	GENOTYPE
TTC12	rs2283265	CA
CES1	rs1566652	GT
TTC12	rs1079727	TC
TTC12	rs1079597	CT
TTC12	rs1076560	CA
ANK3	rs10761482	CT
CRHR2	rs3779250	TC
CNR1	rs806371	TT
CNR1	rs1049353	TT
SLC25A21	rs17105696	AA
PTPRR	rs4760933	AA
UGT2B4	rs6832167	AA
ARNTL	rs7107287	TT
CHRM2	rs1824024	CC
ATG9A	rs7596956	TT
HCN4	rs12905211	TT
TMEM263	rs10861683	TA
BHLHE40	rs9311395	AA
TPH2	rs1843809	TT
CHRM2	rs2061174	GG
EHD3	rs590557	GA
CNIH4	rs11579964	CC
GNB3	rs5443	CT
VPS8	rs7647854	GG
VGLL4	rs6781822	CT
GYPE	rs7676614	AG
CHST11	rs1344677	CT
PHACTR3	rs8122984	GA
UGGT2	rs17767562	CT
LHFPL2	rs12651937	TC

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

BDNF

The *BDNF* gene helps produce BDNF and strongly impacts its levels and activity [R].

A crucial *BDNF* gene variant is **rs6265**, also known as "**Val66Met**". It may affect BDNF production, storage, and release in brain cells [R, R, R, R].

As a result, the **"T" ("Met") allele is linked to reduced cognitive function**, including [R, R, R, R]:

- Learning difficulties
- Poor memory
- Dementia

Besides cognitive effects, this variant may also play a role in [R, R, R, R, R, R, R]:

- Stress and anxiety
- PTSD and OCD
- Weight control
- Migraines
- Fatigue

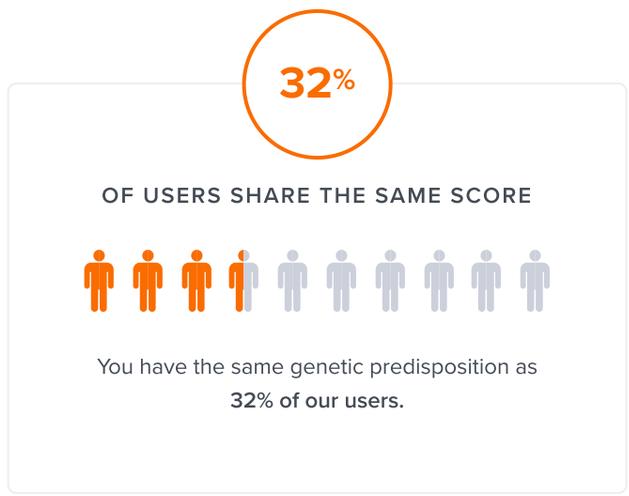
Moreover, the "T" variant may impair response to the antidepressant effects of low-dose ketamine. Nevertheless, this variant may not affect the effectiveness of ketamine for treatment-resistant depression [R, R, R, R, R].

However, you should keep in mind some **important limitations** [R, R, R, R, R, R]:

- The effects of this variant on some traits are conflicting.
- Many studies looking into the cognitive effects of this variant are limited to people with mental health problems.
- The link between this variant and some conditions, such as OCD and dementia, may be significant only in women.
- **Your other genetic variants, lifestyle, and environment may also influence your BDNF levels and activity.**

SLIGHTLY LOWER LEVELS

Relatively lower BDNF levels based on the genetic variants we looked at



Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
BDNF	rs6265	TC

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

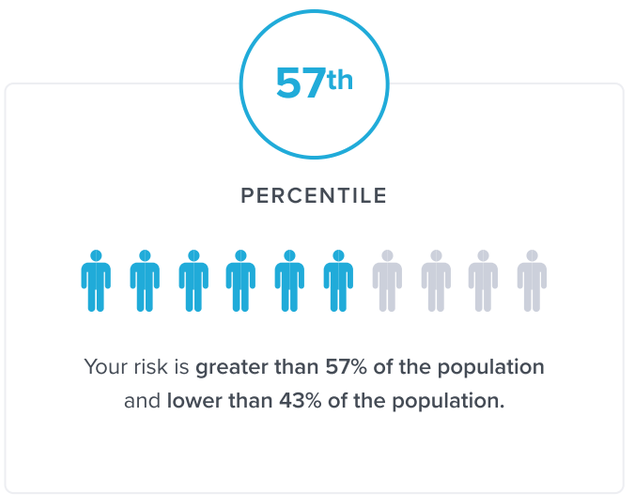
Anxiety

Key Takeaways:

- Up to **65%** of the differences in people's risk of getting anxiety may be due to genetics.
- Other risk factors include traumatic and stressful events, thyroid problems, heart problems, and substance use problems.
- If your genetic risk is high, managing stress and substance use may help reduce overall risk.
- Anxiety can cause issues with sleep, fatigue, the gut, stress, focus, and mood.
- Click the **Recommendations** tab for potential dietary and lifestyle changes and **next steps** for relevant labs.

TYPICAL LIKELIHOOD

Typical likelihood of anxiety based on 807,582 genetic variants we looked at



It's completely normal to feel anxious about things from time to time. Occasional anxiety can help us solve problems and make better life decisions. However, people with *anxiety disorders* often worry about normal activities, which impacts their daily life [R, R].

Two parts of your brain process threats [R, R, R]:

- The *amygdala* helps activate the "fight or flight" response
- Frontal areas of your brain override the amygdala and help you respond logically

People experience anxiety when they have too much activity in their amygdala or too little in frontal brain areas [R, R].

If you're anxious, you may experience [R]:

- Restlessness
- Fatigue
- Problems concentrating
- Short temper
- Muscle tension
- Heavy sweating
- Trembling
- Gut problems
- Heart rate changes

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
ATP8B4	rs2413998	AA
/	rs16838980	GG
DNAH8	rs4714177	AA
NUP107	rs11177321	GG
FKBP4	rs2302729	CC
PREPL	rs1067327	CC
RNF180	rs6295	GG
IL20RB	rs17374749	GG
PID1	rs10498237	GG
/	rs10092548	AA
C6ORF118	rs9295300	AA
NOX4	rs17221829	CC
NOX4	rs10830352	GG
GABRG2	rs211037	TT
MARCHF4	rs955816	GG
IRX6	rs2397376	TT
HTR2A	rs12584920	GG
COMT	rs4680	AG
ERCC6L2	rs7867155	CC
COMT	rs4633	TC

- Sleep problems

People are more likely to have these symptoms if they experience [R]:

- Traumatic or stressful events
- Thyroid problems
- Heart problems
- Substance use problems

Another important risk factor for anxiety is genetics. About 30-65% of the differences in people's chances of getting anxiety can be attributed to genetics. Genes linked to anxiety may influence the levels and activity of different brain chemicals, such as [R, R, R, R, R, R, R]:

- Serotonin and dopamine, which make you feel happy (*SLC6A4*, *HTR1A*, *TPH2*, *MAOA*)
- GABA, which calms the mind (*GABRG2*)
- Stress hormones such as cortisol (*MC4R*, *MAOA*)
- Substances that promote new brain cell growth (*BDNF*, *NGF*)

GENE	SNP	GENOTYPE
SLC6A2	rs3785151	CG
CES1	rs1566652	GT
GAD1	rs3828275	TC
GAD1	rs701492	CT
GAD1	rs769407	GC
GAD1	rs3791878	GT
IL18R1	rs2058622	AG
GAD1	rs3791851	TC
ZPLD1	rs1709393	TC
DMD	rs921896	C
CAMTA1	rs11120917	CT
OR5P3	rs7112002	AC
SRBD1	rs2344662	AC
ADRB1	rs1034258	GA
SSH2	rs6354	TT
ESR1	rs9340799	GA
ESR1	rs2234693	CT
AKAP6	rs17406568	GG
OSCP1	rs906228	AC
AGPAT4	rs3798943	CC
CCNY	rs2086153	CT
COX7B2	rs6447514	TT
DDT	rs755622	GG
TULP1	rs3800373	AA
RGS2	rs10801153	GG
RNF220	rs12138940	AG
MC4R	rs10871777	AA
TBL1X	rs5934574	T
TACR1	rs3771841	AG
DSCAM	rs1040315	AG

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.

FAAH (Cannabinoids)

One common variant of the *FAAH* gene, rs324420, is associated with reduced FAAH levels and activity. As a result, carriers of the minor 'A' allele have higher levels of endocannabinoids such as anandamide [R].

Carriers of this variant may have:

- Lower anxiety in response to stressful situations [R]
- Lower odds of PTSD [R]
- Decreased pain sensitivity [R]
- Better athletic performance [R, R]

However, this variant is also linked to an increased risk of:

- ARDS [R]
- Obesity (especially early-onset) [R, R]
- Antipsychotic-induced weight gain [R]
- Problematic drug and alcohol use [R, R, R, R]
- Generalized epilepsy [R]
- Heart attack [R]

LOWER ACTIVITY

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

44%

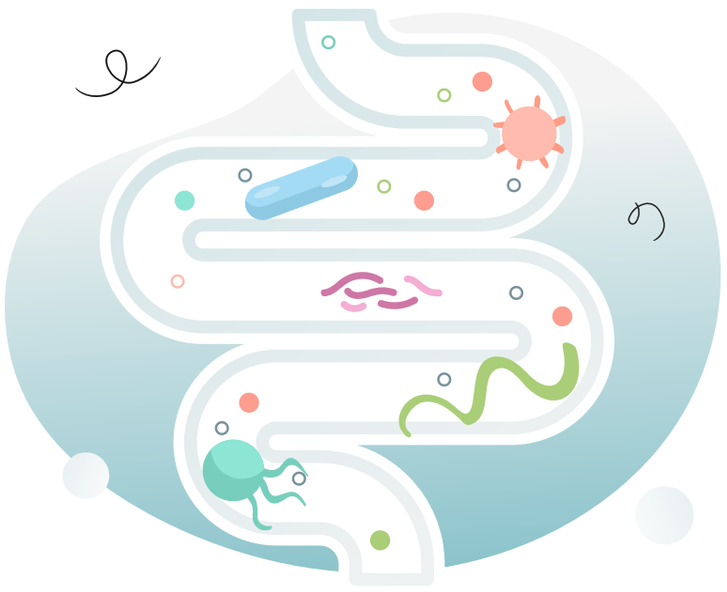
OF USERS SHARE THE SAME SCORE

You have the same genetic predisposition as **44% of our users.**

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
FAAH	rs324420	CA

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



Microbiome

Your gut microbiome - the trillions of bacteria living in your digestive system - plays a crucial role in your health. This section examines genes that influence how your body interacts with these beneficial bacteria and processes various compounds they produce. Understanding these genetic factors can help you better support your gut health and overall well-being.

LOWER

Gut Microbiome Diversity

Predisposed to lower gut microbiome diversity

HIGHER LEVELS

TMAO

Predisposed to higher TMAO levels

TYPICAL LEVELS

Bifidobacterium

Predisposed to typical Bifidobacterium levels

TYPICAL LEVELS

Bifidobacterium Bifidum

Predisposed to typical B. bifidum levels

TYPICAL LEVELS

Bifidobacterium Breve

Predisposed to typical B. breve levels

TYPICAL LEVELS

Bifidobacterium Longum

Predisposed to typical B. longum levels

Gut Microbiome Diversity

Key Takeaways:

- Genes that affect our gut bacteria are involved in nutrition, blood type, and metabolism.
- Other risk factors for reduced gut microbiome diversity include age, diet, and certain medications.
- A lack of diversity may be linked to diabetes, obesity, mood disorders, allergic conditions, IBS, and IBD. A diverse gut microbiome may improve the immune system, cognitive abilities, and mood.
- If your genetic risk is high or believe your gut microbiome may be out of balance, take action now on factors you can change.

We share our bodies with our gut microbes. They may make us thin or fat, healthy or sick, happy or depressed. The entire community of microbes (bacteria, fungi, viruses) living in your gut is called the 'gut microbiome' [R].

Gut microbes play many beneficial roles in our bodies. They [R, R, R]:

- Help harvest more energy from food
- Provide nutrients such as vitamins B12 and K
- Strengthen the gut barrier and the immune system
- Protect from harmful microbes
- Degrade toxins and cancer-causing chemicals
- Impact our mood and cognitive ability

While in perfect harmony, the gut microbiome is beneficial to our health. Off balance, these microbes can contribute to a range of issues, including [R]:

- Gut disorders (e.g., inflammatory bowel disease)
- Mood disorders (e.g., anxiety and depression)
- Allergic conditions (e.g., eczema and asthma)

Genetics influences our microbiome composition. Genes that affect our gut bacteria are involved in [R, R, R]:

LOWER

Predisposed to lower gut microbiome diversity based on 497 genetic variants we looked at

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
GPR158	rs71495423	CC
BRSK2	rs574686237	GG
SORCS3	rs184389714	AA
NIPSNAP3A	rs12348106	CC
NR2F2	rs6496140	TT
/	rs144477852	CC
MACF1	rs74786007	GG
AGPAT5	rs2928601	CC
CACNA1D	rs188274086	AA
/	rs139795364	AA
INHBC	rs145837154	GG
ISCA2	rs72730160	TT
CHL1	rs6442427	TT
GP2	rs73546249	CC
CCBE1	rs111870840	AA
RASEF	rs13284654	CC
NSG1	rs7693922	AA
OAT	rs74160914	GG
/	rs75113042	TT
UBR5	rs9773443	GA
FUT2	rs1047781	AA

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

- Nutrition
- Blood type
- Metabolism

TMAO

Key Takeaways:

- Up to **30%** of differences in people's TMAO levels may be due to genetics.
- Other factors that may lead to high TMAO include L-carnitine, choline, and histidine supplements, certain foods, sleep deprivation, aging, kidney disease, and diabetes.
- If you have a high genetic risk or other risk factors, you may lower your overall risk by taking action now on factors that you can change.
- Click the **next steps** tab for relevant labs and lifestyle changes.

HIGHER LEVELS

Predisposed to higher TMAO levels based on 9 genetic variants we looked at

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
PHACTR4	rs114145653	AA
UBE2G1	rs75116832	GG
RPA2	rs148553452	AA
IFNK	rs143482172	CC
PLN	rs75363923	CC
ENPP4	rs146839869	GG
TENM3	rs114755225	CC
AK9	rs143831173	AA
RHOBTB2	rs6557607	GG
FMO3	rs1736557	GA
FMO3	rs2266782	GG

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

TMAO (trimethylamine N-oxide) is an oxidation product of our gut microbiome, generated from the breakdown of foods. It can also be found in some foods, especially fish [R, R].

Up to **30%** of differences in people's TMAO levels may be due to **genetics** [R, R].

Our diet and, thereby, our gut microbiome play a key role in TMAO production. Consuming animal products rich in TMAO, choline, betaine, lecithin, and carnitine may increase TMAO levels. Some examples include [R, R, R, R, R, R, R, R, R]:

- Fish and seafood
- Eggs
- Dairy
- Red meat

In line with this, the following diets may raise TMAO levels:

- Western-like and high-fat diets [R, R]
- Red meat-rich diets (e.g., Paleo diet, low-carbohydrate diet) [R]

If your TMAO levels are elevated due to high fish and seafood intake, there is likely no need for concern. Many studies link fish and seafood consumption to lower heart disease risk. Fish is also an excellent source of omega-3 fatty acids [R, R].

Other factors that may lead to **high TMAO** include:

- L-carnitine, choline, and histidine supplements [R, R, R]
- Sleep deprivation [R]
- Aging [R]
- Kidney disease [R, R, R]
- Diabetes [R]

Genetically higher levels of TMAO may be causally associated with:

- Gut inflammation [R]
- High blood pressure (systolic) [R]

Bifidobacterium

The following factors play a role in *Bifidobacterium* abundance in your gut flora:

- **Diet**: Foods rich in fiber, like fruits, vegetables, and whole grains, can increase Bifidobacterium. On the other hand, diets high in sugar and processed foods might reduce their numbers.
- **Age**: As we get older, *Bifidobacterium* levels in our gut can decrease.
- **Medications**: Some medicines, especially antibiotics, can reduce the number of these bacteria in our gut.
- **Illnesses**: Certain gut-related diseases, like irritable bowel syndrome (IBS), can change the levels of *Bifidobacterium*.
- **Probiotics**: These are supplements that contain live beneficial bacteria, often including *Bifidobacterium*. Taking them can increase the number of these bacteria in the gut.
- **Birth Method**: Babies born through natural birth tend to have more *Bifidobacterium* compared to those born through C-section. This is because they get exposed to their mother's beneficial bacteria during birth.
- **Genetics**: Some people may be genetically prone to a higher or lower abundance of *Bifidobacterium* in their gut flora.

TYPICAL LEVELS

Predisposed to typical Bifidobacterium levels based on 11,526 genetic variants we looked at

Bifidobacterium Bifidum

The following factors play a role in *B. bifidum* abundance in your gut flora [R]:

- **Diet**: Foods rich in fiber, like fruits, vegetables, and whole grains, can increase *B. bifidum*. On the other hand, diets high in sugar and processed foods might reduce their numbers.
- **Age**: As we get older, *B. bifidum* levels in our gut can decrease.
- **Stress:** High levels of stress can alter the balance of our gut bacteria.
- **Medications**: Some medicines, especially antibiotics, can reduce the number of these bacteria in our gut.
- **Illnesses**: Certain gut-related diseases, like irritable bowel syndrome (IBS), can change the levels of *B. bifidum*.
- **Probiotics**: Taking probiotic supplements containing *B. bifidum* can increase the number of these bacteria in the gut.
- **Birth Method**: Babies born through natural birth tend to have more *B. bifidum* compared to those born through C-section. This is because they get exposed to their mother's beneficial bacteria during birth.

Genetics may also play a role. A few variants have been associated with higher or lower abundance of *B. bifidum* in the gut flora [R, R].

TYPICAL LEVELS

Predisposed to typical B. bifidum levels based on the genetic variants we looked at

88%

OF USERS SHARE THE SAME SCORE

You have the same genetic predisposition as **88% of our users.**

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
/	rs8176645	AA
LCT	rs4988235	AG

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

Bifidobacterium Breve

The following factors play a role in *B. breve* abundance in your gut flora [R]:

- **Diet**: Foods rich in fiber, like fruits, vegetables, and whole grains, can increase *B. breve*. On the other hand, diets high in sugar and processed foods might reduce their numbers.
- **Age**: As we get older, *B. breve* levels in our gut can decrease.
- **Stress:** High levels of stress can alter the balance of our gut bacteria.
- **Medications**: Some medicines, especially antibiotics, can reduce the number of these bacteria in our gut.
- **Illnesses**: Certain gut-related diseases, like irritable bowel syndrome (IBS), can change the levels of *B. breve*.
- **Probiotics**: Taking probiotic supplements containing *B. breve* can increase the number of these bacteria in the gut.
- **Birth Method**: Babies born through natural birth tend to have more *B. breve* compared to those born through C-section. This is because they get exposed to their mother's beneficial bacteria during birth.

Genetics may also play a role. A genetic variant has been associated with higher abundance of *B. breve* in the gut flora [R].

TYPICAL LEVELS

Predisposed to typical B. breve levels based on the genetic variants we looked at

39%

OF USERS SHARE THE SAME SCORE

You have the same genetic predisposition as **39% of our users.**

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
LCT	rs3940549	AG

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

Bifidobacterium Longum

The following factors play a role in *B. longum* abundance in your gut flora [R]:

- **Diet**: Foods rich in fiber, like fruits, vegetables, and whole grains, can increase *B. longum*. On the other hand, diets high in sugar and processed foods might reduce their numbers.
- **Feeding method:** *B. longum ssp. longum* is more commonly found in bottle-fed babies, while *B. longum ssp. infantis* is more common in breast-fed babies.
- **Age**: As we get older, *B. longum* levels in our gut can decrease.
- **Stress:** High levels of stress can alter the balance of our gut bacteria.
- **Medications**: Some medicines, especially antibiotics, can reduce the number of these bacteria in our gut.
- **Illnesses**: Certain gut-related diseases, like irritable bowel syndrome (IBS), can change the levels of *B. longum*.
- **Probiotics**: Taking probiotic supplements containing *B. longum* can increase the number of these bacteria in the gut.
- **Birth Method**: Babies born through natural birth tend to have more *B. longum* compared to those born through C-section. This is because they get exposed to their mother's beneficial bacteria during birth.

Genetics may also play a role. A few variants have been associated with higher or lower abundance of *B. longum* in the gut flora [R, R].

TYPICAL LEVELS

Predisposed to typical B. longum levels based on the genetic variants we looked at

70%

OF USERS SHARE THE SAME SCORE

You have the same genetic predisposition as **70% of our users.**

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
LCT	rs3940549	AG
R3HDM1	rs1446585	AG

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

Health Conditions

Your genes can influence your susceptibility to various health conditions. This section examines genetic variations related to heart health, inflammation responses, and metabolic function. While having certain genetic variations doesn't guarantee you'll develop any condition, understanding these predispositions can help you and your healthcare providers make more informed decisions about preventive strategies.

TYPICAL

Heart Health

Predisposed to typical heart health

TYPICAL

Insulin Resistance

Predisposed to typical insulin resistance

TYPICAL LEVELS

Inflammation (CRP)

Predisposed to typical CRP levels

LOWER ACTIVITY

IL1B (Inflammation/ Fatigue)

Likely lower IL1B activity

Heart Health

Key Takeaways:

- Over **18 million** people have heart disease in the U.S. A third of deaths from heart disease are preventable.
- Up to **40%** of differences in people's chances of getting coronary artery disease may be due to genetics.
- Other risk factors include excess weight, stress, sedentary lifestyle, smoking, and more.
- If you have a high genetic risk, take action on modifiable risk factors. Even with a low genetic risk, having other risk factors will still make you prone to heart disease.
- Click the **next steps** tab for relevant labs and lifestyle factors.

TYPICAL

Predisposed to typical heart health based on 1,049,366 genetic variants we looked at

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
CDKN2B	rs10757278	GG
CDKN2A	rs4977574	GG
COMT	rs4680	AG
NOS3	rs2070744	TC
PEMT	rs12936587	GA
ICAM1	rs5498	AG
CETP	rs5882	AG
PCSK9	rs28362286	CC
CDKN2A	rs10757274	GG
CDKN2B	rs1333049	CC
CDKN2B	rs2383206	GG
SORT1	rs599839	AA
PLPP3	rs17114036	AA
APOB	rs515135	CC
GUCY1A1	rs7692387	GG
MTHFR	rs1801133	AA
KCNK5	rs10947789	TT
GGCX	rs1561198	TT
LPL	rs264	GG
ABO	rs579459	CC
PCSK9	rs11591147	GG
PCSK9	rs562556	AA
ATG16L1	rs10210302	TT
USF1	rs2073658	TC
NKX2-3	rs10883365	GG
PON1	rs662	TT
FHL3	rs190569784	GG

In the US, 1 in 3 deaths from heart disease could be prevented. That's about 92,000 deaths each year. **Imagine if we could save all those lives by striving to prevent heart disease** [R]!

Coronary artery disease is the most common type of heart disease. It affects the coronary arteries -- the large blood vessels that feed the heart. When these vessels become narrowed or blocked, they can't deliver as much oxygen to the heart. Because of this, heart muscle tissue can start to die off [R, R].

If a coronary artery is blocked suddenly, it can cause a heart attack. If the artery narrows slowly over a long period of time, it can cause chest pain and other problems [R].

Many factors can increase your risk of heart disease. These include [R, R]:

- Excess weight
- Unhealthy diet
- Stress
- Lack of exercise
- Smoking
- Air pollution
- Age

- High blood pressure
- High cholesterol
- Diabetes
- Genetics

According to the CDC, **over 18 million adults in the US have coronary artery disease**, and the rates keep increasing. However, death rates have been going down. This is likely due to improved diagnosis and treatment [R, R, R, R]!

Medications that doctors often prescribe for coronary artery disease include [R]:

- Low doses of aspirin, to help prevent blood clots
- Statins, to reduce cholesterol and slow down fat buildup in blood vessels
- Beta-blockers, to lower blood pressure and relax the heart

It's much easier to prevent heart disease than to treat it. To avoid heart disease, experts recommend a "heart-healthy" lifestyle, which includes [R]:

- Not smoking cigarettes
- Eating a healthy diet
- Staying physically fit
- Getting good-quality sleep

Up to 40% of differences in people's chances of getting coronary artery disease may be attributed to genetics. Genes that may contribute to coronary artery disease influence [R]:

- Fat metabolism
- Inflammation
- Blood clotting
- Blood vessel function

Genetically higher levels of the following markers are causally associated with a higher risk of heart disease [R, R, R, R, R, R, R, R, R, R, R]:

- White blood cells
- Fasting insulin
- IGF-1
- ApoB
- Neutrophils
- L-carnitine

In contrast, genetically high total testosterone and EPA may be causally associated with a lower risk of coronary heart disease [R, R].

GENE	SNP	GENOTYPE
SERPINA1	rs112635299	GG
ANGPTL4	rs116843064	GG
APOE	rs7412	CC
KIF6	rs20455	GA
PITX2	rs2200733	CT
SMARCA4	rs1122608	TG
MRPS6	rs9982601	TC
ZC3HC1	rs11556924	TC
/	rs2252641	CT
PLG	rs4252120	TC
SLC22A4	rs273909	AG
FES	rs17514846	AC
IRGM	rs1000113	TC
LDLR	rs6511720	GG
IL23R	rs11805303	CT
/	rs72711827	GG
SORT1	rs12740374	GG
PHACTR1	rs9349379	GG
FBXL20	rs72823390	CC
PLPP3	rs17114046	AA
/	rs2457480	AA
ADO	rs10761659	AG
MCTP2	rs28607113	TT

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

Insulin Resistance

Insulin resistance is the reduction of the body's ability to control blood sugar levels. It happens when the muscles, liver, and fat cells no longer respond to insulin and have trouble taking sugar up [R].

In response, the pancreas is forced to produce more insulin than normal to keep blood sugar in balance. Hence, people with insulin resistance may have high insulin levels. Blood sugar levels may also rise eventually, paving the way for diabetes [R, R].

Homeostatic model assessment (HOMA-IR) helps measure insulin resistance. It is calculated using your fasting glucose and fasting insulin. The higher your HOMA-IR, the more insulin resistant you are [R, R].

Insulin resistance is commonly caused by two factors**:** **overeating and lack of physical activity**. These can cause a buildup of fat in the liver and muscles that lead to insulin resistance [R, R, R].

Insulin resistance is associated with overweight and obesity, especially due to the accumulation of belly fat. However, normal-weight people may also have insulin resistance. Other health conditions may also lead to insulin resistance, including [R]:

- Sleep apnea [R]
- Thyroid disorders [R, R, R]
- Polycystic ovary syndrome (PCOS) [R, R]
- Pancreas disease [R, R]
- Acromegaly (too much growth hormone) [R]
- Cushing's syndrome (excess of cortisol) [R]
- Rare genetic diseases [R, R, R, R]

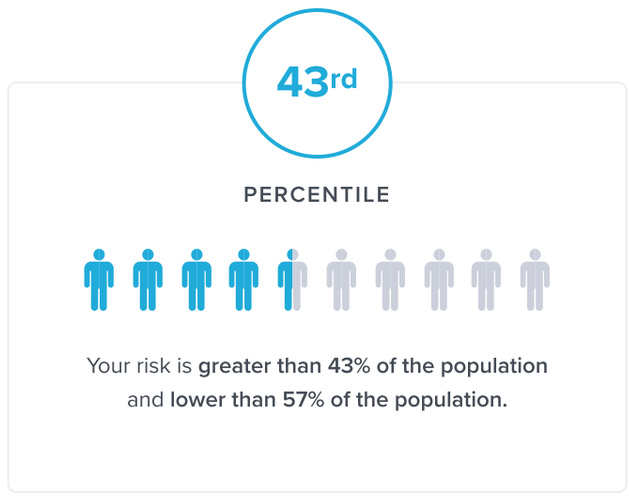
Keep in mind that this report is not about the rare genetic disorders mentioned above. They are very rare and usually diagnosed in infancy.

The risk of insulin resistance may also increase due to:

- Aging [R, R]
- Stress [R, R]
- Fasting [R, R, R]
- Western diet [R]

TYPICAL

Predisposed to typical insulin resistance based on 2,426 genetic variants we looked at



Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
GAS1	rs9792548	AA
PPARG	rs1801282	CC
IRS1	rs2943641	TC
PPARG	rs3856806	CC
FOXO3	rs13217795	TT
FOXO3	rs2802288	AA
IGF1	rs35767	GG
NAT2	rs1208	AA
TIMP4	rs13081389	AA
KLHL2	rs17046216	AA
LEPR	rs1137101	AG
MRPS31	rs4581585	CC
ZC3H12C	rs475338	AA
FBXO21	rs2036313	GG
HAPLN1	rs1457105	CC
/	rs12969333	AA
DAAM2	rs4345393	GG
ME1	rs11967452	CC
KCNK17	rs10456469	GG
ORMDL3	rs939345	CC

- Too little sleep [R, R, R, R]
- Pregnancy [R]
- Exposure to toxins (e.g., herbicides) [R, R, R]
- Some drugs (e.g., corticosteroids) [R, R]

Genetics also influences insulin resistance. Up to **65%** of differences in people's insulin resistance may be due to genetics [R, R].

Insulin resistance may increase the risk of:

- Diabetes
- Liver disease
- Metabolic syndrome

Interestingly, insulin resistance may occur up to 15 years before diabetes develops. Read this post for a detailed list of tips to reduce insulin resistance [R].

GENE	SNP	GENOTYPE
ZIC2	rs7338383	GG
CSNK2A1	rs6053042	CC
RAB28	rs1197712	AA
ATP8B1	rs10439020	AA
MPC1	rs2281056	AA
MROH8	rs11698899	GG
RUNX3	rs803323	AA
TLR4	rs13290714	CC
SORCS1	rs7088188	CT
MDGA1	rs17589516	AA
CACNA1D	rs1401492	CC
SLC10A2	rs16962638	AA
ATP10A	rs6576507	TT
/	rs7043482	AC
CSMD1	rs2407314	CC
FTO	rs9939609	TT
TCERG1L	rs7077836	GG
ADRB3	rs4994	AA
FABP2	rs1799883	CC
FTO	rs1421085	TT
FTO	rs1121980	GG
BRD1	rs13057821	CC
KL	rs9535766	TT
UBR1	rs17776090	AA
BMP8A	rs710912	CC
/	rs2873975	GG
POLL	rs3730464	AA
RUNX1	rs17227476	GG
NINL	rs11698267	GG
FAM135B	rs10088248	CC

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

Inflammation (CRP)

Key Takeaways:

- Chronic inflammatory diseases like diabetes and heart disease are responsible for **3 in 5** deaths worldwide.
- About **40-50%** of the differences in people's hs-CRP (inflammatory protein) levels may be due to genetics.
- Other factors are equally important. They include diet, exercise, and life satisfaction.
- Click the **next steps** tab for relevant labs.

Inflammation is an important biological process. It protects the body from disease and damage. When germs or other foreign substances enter the body, white blood cells rush to the site. The area then gets red, swollen, and warm. These changes help kill pathogens and prepare the tissue to heal [R, R].

A common marker that helps measure inflammation is **C-reactive protein** (**CRP**). **High sensitivity CRP** (**hs-CRP**) in particular helps measure low-grade inflammation.

CRP is produced in the liver. It helps recognize disease-causing microbes and damaged cells that need to be removed from the body. However, it may also play a role in autoimmune disease [R, R].

Short-term inflammation is helpful. However, too much inflammation can be a bad thing [R, R, R, R].

Chronic inflammation is linked to many diseases, including:

- Autoimmune conditions [R, R]
- Heart disease [R, R, R]
- Obesity [R, R]
- Type 2 diabetes [R, R]
- Fibromyalgia [R, R]
- Mental health conditions [R, R, R, R]
- Cancer [R, R, R, R, R]

In 2014, an estimated **60%** of Americans were living with at least one chronic inflammatory condition [R].

TYPICAL LEVELS

Predisposed to typical CRP levels based on 9,023 genetic variants we looked at

36th

PERCENTILE

Your risk is **greater than 36% of the population** and **lower than 64% of the population.**

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
CRP	rs1205	CC
IL6R	rs2228145	CC
FUT2	rs601338	AG
IL1B	rs16944	AG
CTLA4	rs231775	AG
IL19	rs1800872	GG
IL19	rs3024505	AG
IL4R	rs1805011	AA
IL1RN	rs419598	TT
ATG16L1	rs10210302	TT
ATG16L1	rs2241880	GG
STEAP1B	rs1554606	GG
IL13	rs20541	GG
KLC1	rs8702	GG
STAT4	rs10181656	CG
ADRB2	rs1042713	GA
IL19	rs1800896	CT
CYP1B1	rs1056836	GG
TIMP4	rs3755724	CC
AOC1	rs1049793	GC

Factors that may influence chronic inflammation include [R, R, R]:

- Diet
- Exercise
- Life satisfaction
- **Genetics**

Common strategies for reducing low-grade inflammation include [R, R, R, R, R]:

- Lifestyle changes
- Diet changes
- Weight management
- Drugs targeting the underlying condition

Genetics may play an important role in inflammatory conditions. Genes involved in inflammation may influence [R, R, R, R, R, R]:

- Immune messengers (*STAT3*, *IL6*, *IL10*)
- Immune cell function (*HLA-DRB1*, *PTPN22*)
- Histamine levels (*AOC1*, *HNMT*)

Genetically high free testosterone levels may be causally associated with lower C-reactive protein [R].

GENE	SNP	GENOTYPE
IFIH1	rs1990760	TC
IL21	rs6822844	TG
IL6	rs1524107	CT
IL6	rs2066992	GT
LRP6	rs2160525	AG
LRP6	rs2302685	CT
FUT2	rs492602	GA
FUT2	rs281377	CT
FUT2	rs602662	AG
LEPR	rs4394621	AA
SIRT1	rs12778366	TC
MICB	rs361525	GG
CRP	rs3093059	AA
RAD50	rs2069812	AA
SLC22A5	rs1800925	CC
TNF	rs1800629	GG
HLA-DQA1	rs2187668	CC
APOE	rs429358	TT
SRA1	rs2569191	TT
IL6	rs1800795	GG
SLC20A1	rs1800587	GG
IL1A	rs17561	CC
FADS2	rs174546	CC
IL1B	rs1143634	GG
CRP	rs10494326	CC
CFH	rs6677604	GG
TLR4	rs4986790	AA
SOD2	rs4880	GG
LGALS9	rs2248814	AA
TOM1	rs2071746	AA

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

IL1B (Inflammation/ Fatigue)

One of the most highly-studied SNPs in the *IL1B* gene is rs16944, also known as the '*C-511/T*' polymorphism. Its 'A' allele is associated with higher IL-1β levels. In line with this, the variant is associated with multiple inflammatory conditions such as [R, R, R, R]:

- Rheumatoid arthritis [R]
- Acute pancreatitis [R]
- Severe reactions to common infectious illnesses, such as the flu [R]

In addition, the variant has been linked to:

- Depressive and anxiety symptoms of PTSD [R, R]
- Chronic fatigue syndrome [R]
- Various types of cancer (including cervical, prostate, gastric, bone marrow, and breast cancers) [R, R, R, R, R, R, R]
- Mortality from systemic infections, such as septic shock [R]
- Reduced longevity (in males only) [R]

Other variants that may increase *IL1B* activity include:

- 'C' at rs1143633 [R]
- 'T' at rs1143643 [R]
- 'A' at rs1143627 [R]
- 'A' at rs1143634 [R, R]
- 'C' at rs1143623 [R]

These variants have been associated with

- Asthma [R]
- Allergies [R]
- Rheumatoid arthritis [R, R]
- Cavities and gum disease [R, R, R, R]
- Metabolic syndrome and higher waist circumference [R]
- Acute pancreatitis [R]
- Preeclampsia [R]

On the bright side, they may be linked to a lower risk of:

- Obesity and high body fat [R, R, R, R, R, R]
- PTSD and depressive symptoms in this condition [R, R]

LOWER ACTIVITY

Likely lower IL1B activity based on 6 genetic variants we looked at

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
IL1A	rs1143633	CC
IL1B	rs16944	AG
IL1A	rs1143627	GA
IL1A	rs1143623	GC
IL1B	rs1143643	CC
IL1B	rs1143634	GG

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

Longevity

Your genes influence not just how long you might live, but how well you age. This section explores genetic factors involved in cellular aging, cognitive health, and how your body handles oxidative stress - a key factor in the aging process. We examine genes like TERT and SIRT1 that play roles in maintaining cellular health and longevity, as well as markers that influence cognitive function as you age.

While these genes provide insights into your natural aging tendencies, remember that lifestyle choices significantly impact how these genes express themselves, potentially influencing your healthspan - the number of years you live in good health.

LOWER ACTIVITY

UCP1 (Weight)

Likely lower UCP1 activity

WORSE

Mitochondrial Health (Functional)

Predisposed to worse mitochondrial health

TYPICAL

Longevity

Predisposed to typical longevity

TYPICAL ACTIVITY

TERT (Longevity)

Likely typical TERT activity

TYPICAL ACTIVITY

OBFC1 (Longevity)

Likely typical OBFC1 activity

TYPICAL ACTIVITY

SIRT1 (Longevity)

Likely typical SIRT1 activity

TYPICAL

Oxidative Stress

Likely typical oxidative stress

LESS LIKELY

Cognitive Decline

Less likely to have cognitive decline

UCP1 (Weight)

One of the best-studied SNPs in the *UCP1* gene is rs1800592 (also known as the "-3826 A>G" polymorphism). It helps determine how your body uses and stores the energy that you get from food [R].

The 'T' allele is linked to increased activity of the *UCP1* gene. It's associated with a higher resting metabolic rate, higher body heat production, and less weight gain. According to some researchers, this variant helps turn more of the energy from food into heat instead of body fat (white fat) [R, R].

Conversely, the 'C' allele is linked to *decreased* activity of the *UCP1* gene. It's associated with a lower resting metabolic rate, lower body heat production, higher weight gain, and a higher BMI. If less of the energy acquired from food is turned into heat, then more of it would get stored as body fat [R, R].

According to several studies, the 'C' allele (and especially the 'CC' genotype) is associated with increased weight gain as well as a higher chance of being obese [R, R, R, R, R, R, R, R].

For example, people with the 'CC' genotype were found to have lower basal metabolic rates than people with the 'T' allele. In other words, they burned less energy when resting. In fact, one study reported that 'C' carriers may burn as much as 200 fewer calories per day than people with the 'TT' genotype [R, R]!

Apart from burning less energy when resting, people with the 'CC' genotype also produced less heat when exposed to cold [R, R].

We all lose brown fat as we age. However, in one study, people with the 'CC' genotype had less brown fat at a younger age than people with the 'T' allele [R].

Several studies link the 'C' allele and the 'CC' genotype to metabolic disturbances commonly associated with being overweight. In various studies, the 'C' allele has been associated with elevated blood pressure, greater insulin resistance, and higher LDL cholesterol and triglycerides [R, R, R, R, R, R].

Fun fact: worldwide, about 30% of people have the 'TT' genotype, which is associated with higher resting metabolism

LOWER ACTIVITY

Likely lower UCP1 activity based on the genetic variants we looked at

42%

OF USERS SHARE THE SAME SCORE

You have the same genetic predisposition as **42% of our users.**

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
UCP1	rs1800592	TC

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

and increased heat production. But this genotype is much more frequent in Europe, where 58% of people have it! Many researchers believe that the *UCP1* gene and the rs1800592 SNP are in part responsible for human adaptation to colder climates [R].

However, although today we consider the 'T' allele beneficial in terms of its potential effect on body weight, this allele is essentially linked to lower metabolic efficiency. In other words, people with this allele may “waste” more of the energy that they get from food on generating body heat. It is plausible that the more efficient 'C' allele may be advantageous when food is scarce and the climate is warm [R].

Mitochondrial Health (Functional)

This report analyzes key genetic variations (SNPs) that influence how well your mitochondria function. These genetic markers can affect various aspects of mitochondrial performance, from energy production efficiency to antioxidant capacity. While genetics play an important role, it's crucial to remember that lifestyle factors such as diet, exercise, sleep, and stress management can significantly impact how these genes express themselves.

WORSE

Predisposed to worse mitochondrial health based on 22 genetic variants we looked at

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
NDUFS8	rs1051806	CC
COQ2	rs6535454	GG
SOD2	rs4880	GG
BCL2	rs12454712	TT
NFE2L2	rs35652124	TT
UQCRC2	rs4850	GG
COX5A	rs8042694	AA
NFE2L2	rs6726395	AA
UCP1	rs1800592	TC
SIRT1	rs3758391	CT
SIRT1	rs12778366	TC
NDUFS7	rs809359	AA
UCP2	rs659366	CT
PPARGC1B	rs7732671	GC
CAT	rs1001179	TC
PPARGC1A	rs8192678	TC
NDUFS3	rs4147730	GG
NFE2L2	rs6721961	GG
UQCRC2	rs11648723	GG
SIRT6	rs352493	TT
CAT	rs769217	CC
COX6C	rs4626565	TT
ATP5F1C	rs1244414	CC

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

Energy Production Chain: NDUFS7 and NDUFS8 are involved in the initial stages of energy production, acting like ignition switches and wire components. If these aren't working well, the whole process can falter. UQCRC2, COX5A, and COX6C work in the middle and final stages, passing electrons along and using oxygen efficiently. ATP5F1C is the final piece, converting all this work into usable energy (ATP).

Mitochondrial Regulators: PPARGC1B acts as master switches for creating new mitochondria and controlling their efficiency. CoQ2 produces Coenzyme Q10, which keeps this machinery running smoothly, like oil in an engine.

Protection and Quality Control: SOD2 and CAT work as internal cleaning crews, neutralizing harmful byproducts of energy production. NFE2L2 coordinates overall cellular defense against oxidative stress. BCL2 serves as quality control, deciding whether to repair or remove damaged mitochondria. SIRT1 and SIRT6 help maintain mitochondrial health and stress response.

Energy Efficiency Controllers: UCP1 and UCP2 fine-tune how efficiently mitochondria convert food into energy versus heat, acting like pressure-release valves in different cell types.

Each of these genes plays a crucial role in mitochondrial function, and variations in them can affect how well our cellular power plants work.

Longevity

Key Takeaways:

- Factors that help you live longer include a healthy diet, physical activity, not smoking, limiting alcohol intake, being a financially stable female, and having good mental health.
- Whether your genetics predispose you to living longer or not, you will benefit from taking action on the risk factors that you can control.
- Genes that influence your longevity may influence heart and brain health, cholesterol levels, and body fat.

Researchers have spent a lot of time trying to figure out why some people live such long lives. Some of the factors that may play a role include [R, R, R, R, R, R, R]:

- Healthy diet
- Physical activity
- Not smoking
- Limited alcohol intake
- Mental health
- Female sex
- Higher socioeconomic status
- **Genetics**

Healthy habits seem to have a relatively large impact on longevity [R].

Exercise is especially important as the body ages. People who keep moving not only live longer; they can maintain their independence as they get older [R].

Following a healthy diet is also important. This includes eating a lot of fruits, vegetables, and healthy fats (such as omega-3s). It also includes limiting the intake of red and processed meats, added sugars, and salt [R].

Research suggests that genetics also play a role in human lifespan. Genes involved in longevity may influence [R, R]:

- Heart health (*IL6R*, *LDLR*, *APOE*)
- Brain health (*APOE*)
- Cholesterol levels (*LDLR*, *APOE*)
- Body fat (*KCNK3*, *PGPEP1*)

TYPICAL

Predisposed to typical longevity based on 884,680 genetic variants we looked at

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
SIRT1	rs7895833	AA
STN1	rs10786775	CC
TERT	rs4449583	CC
ZGPAT	rs755017	AA
TERT	rs2736100	AC
SIRT1	rs12778366	TC
SIRT1	rs7896005	GA
GSTO1	rs9420907	AA
TERT	rs7705526	CA
PCSK7	rs5128	CC
TERT	rs2853677	AG
SIRT1	rs3758391	CT
FOXO3	rs4946936	CC
FOXO3	rs9398171	TT
FOXO3	rs12212067	TT
FOXO3	rs12202234	CC
FOXO3	rs17069665	AA
FOXO3	rs3800230	TT
ARMC2	rs6911407	AA
IGF1R	rs34516635	GG
FOXO3	rs2764264	TT
CETP	rs5882	AG
PON1	rs662	TT
CETP	rs708272	AA
STN1	rs11191865	AG
SIDT2	rs2854116	CT
TAS2R16	rs860170	TT

Genetically lower IGF-1 and higher glucosamine (in women) may be causally associated with longevity. In contrast, genetically high ApoB, total testosterone (in women), and bioavailable testosterone (in men) may be causally associated with shorter longevity [R, R, R, R].

GENE	SNP	GENOTYPE
SOD2	rs4880	GG
TP53	rs1042522	CC
SOD3	rs2536512	AA
FOXO3	rs9400239	CC
FOXO3	rs479744	GG
SIDT2	rs2542052	AC
GHR	rs6873545	CT
SDHAF3	rs799605	GG
TAS2R16	rs978739	TC
TAS2R16	rs6466849	CT
IL1B	rs16944	AG
SLC12A1	rs9920281	GA
IL1A	rs1143623	GC
PARP1	rs1805415	CT
PARP1	rs3219090	TT
SOD3	rs1799895	CC
SOD3	rs13306703	CC
NICN1	rs3448	CT
/	rs9528753	AA
SPATA2L	rs445537	GG
IL1A	rs1143627	GA
/	rs923994	GA
TSPYL6	rs11125529	CC

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

TERT (Longevity)

The *TERT* gene has a lot of known variations. Most people will probably have a mix of variations that increase and decrease relative telomere length, so it's important to look at as many SNPs as possible to see which way you lean. The following variants have been associated with an increased telomere length, potentially increasing longevity while reducing the risk of neurodegenerative diseases [R, R, R, R, R, R]:

- 'T' at **rs2736108**
- 'A' at **rs7705526**
- 'C' at **rs2736100**
- 'A' at **rs7705526**
- 'T' at **rs4449583**
- 'G' at **rs33961405**
- 'C' at **rs10069690**
- 'A' at **rs13167280**
- 'A' at **rs2075786**
- 'G' at **rs2242652**
- 'A' at **rs2735940**
- 'C' at **rs2736098**
- 'A' at **rs2853669**
- 'A' at **rs2853672**
- 'C' at **rs2853676**
- 'A' at **rs2853677**
- 'C' at **rs4975605**

TYPICAL ACTIVITY

Likely typical TERT activity based on 17 genetic variants we looked at

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
SLC6A3	rs2736108	CC
TERT	rs4449583	CC
TERT	rs2075786	GG
TERT	rs7705526	CA
TERT	rs2736100	AC
TERT	rs10069690	CT
TERT	rs13167280	AG
TERT	rs2242652	GA
SLC6A3	rs2735940	GA
TERT	rs2853672	AC
TERT	rs2853676	CT
TERT	rs2853677	AG
TERT	rs4975605	CC
TERT	rs33961405	GG
CLPTM1L	rs2853669	AA
TERT	rs2736098	CC

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

OBFC1 (Longevity)

The following alleles have been associated with longer telomeres and are more commonly found in very elderly people [R]:

- 'G' of **rs10786775**
- 'G' of **rs11191865**
- 'A' of **rs4387287**
- 'T' of **rs9419958**
- 'C' of **rs9420907**

Population frequencies of these SNPs vary a lot between ethnic groups. Generally speaking, the long-telomere-associated alleles are much more common in African descendants than in any other group on the planet.

For example, though only 22% of all people have at least one 'G' (long telomere) allele at rs10786775, almost 60% of people of African descent do. Likewise, at rs4387287, 16% of all people have the long-telomere-associated 'AA' genotype, while 51% of African descendants do!

The reverse is true for European descendants, who tend to have fewer of the long-telomere-associated alleles: at rs4387287, only 2.4% of Europeans have the 'AA' genotype.

TYPICAL ACTIVITY

Likely typical OBFC1 activity based on 5 genetic variants we looked at

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
STN1	rs10786775	CC
GSTO1	rs4387287	CC
SLK	rs9419958	CC
GSTO1	rs9420907	AA
STN1	rs11191865	AG

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

SIRT1 (Longevity)

A handful of studies have shown that people with certain *SIRT1* variants are more likely to live very long lives. One of the variations with the strongest effect so far is rs12778366: even one copy of the 'C' allele may reduce all-cause mortality risk by as much as 30%. This variant also increases glucose tolerance and is believed to increase SIRT1 levels [R, R].

Another SNP with a large potential impact on lifespan is rs7895833: the 'G' allele here is almost twice as common in older people as it is in the average adult. Carriers of the 'AA' genotype have lower levels of this protein [R, R].

The 'T' allele of rs3758391 variant has been associated with reduced cardiovascular mortality and decreased cognitive decline during aging. This variant increases SIRT1 levels [R, R, R].

The 'A' allele of rs7896005 is more common among longer-lived populations. This variant has been associated with major cardiovascular outcomes such as myocardial infarction, coronary heart disease, heart failure, or peripheral artery disease in people with type 2 diabetes. This variant may have increased affinity for some of its target proteins [R, R, R].

Finally, the 'T' allele of rs2273773 has been associated with higher blood pressure, blood sugar, and risk of obesity and heart disease. However, carriers of the 'C' allele may have higher odds of artery calcification and two studies found no association between this variant and longevity [R, R, R, R, R, R].

TYPICAL ACTIVITY

Likely typical SIRT1 activity based on 5 genetic variants we looked at

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
SIRT1	rs7895833	AA
SIRT1	rs12778366	TC
SIRT1	rs3758391	CT
SIRT1	rs7896005	GA

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

Oxidative Stress

The causes of oxidative stress can be multifaceted, including environmental factors such as pollution, radiation, and toxins, as well as lifestyle factors like dietary choices, smoking, alcohol consumption, and chronic stress. The body's metabolism also naturally produces free radicals as byproducts. Oxidative stress is implicated in the pathogenesis of numerous diseases, including neurodegenerative diseases like Alzheimer's and Parkinson's, cardiovascular diseases, diabetes, and inflammatory conditions.

It is also involved in the aging process itself. Therefore, maintaining a balance between oxidative stress and antioxidants is critical for health, and enhancing antioxidant defenses through diet and lifestyle changes is often suggested as a preventive strategy.

TYPICAL

Likely typical oxidative stress based on 60 genetic variants we looked at

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
SOD2	rs4880	GG
SOD3	rs2536512	AA
CAT	rs769217	CC
FOXO3	rs12212067	TT
FOXO3	rs4946936	CC
PON1	rs662	TT
FOXO3	rs12202234	CC
FOXO3	rs17069665	AA
FOXO3	rs9398171	TT
FOXO3	rs3800230	TT
FOXO3	rs9400239	CC
FOXO3	rs479744	GG
SIRT1	rs7895833	AA
CAT	rs7943316	TA
GPX4	rs713041	CT
CAT	rs1001179	TC
APEX1	rs1130409	GG
NOS3	rs2070744	TC
GCLC	rs1555903	CT
UGT1A6	rs1105879	AA
NOS1	rs1879417	CT
SIRT1	rs12778366	TC
GSTO2	rs156697	GA
UCP2	rs659366	CT
TFAM	rs1937	GC
PPARGC1A	rs8192678	TC
CDKN2A	rs10811661	TT

GENE	SNP	GENOTYPE
UCP1	rs1800592	TC
HNRNPA3	rs13001694	GG
GPX1	rs1050450	GG
MVD	rs9932581	CT
SOD1	rs2234694	AA
NQO1	rs1800566	GG
GSTP1	rs1695	AA
PON1	rs854560	AT
ARMC2	rs6911407	AA
MRPS31	rs4581585	CC
GCLM	rs41303970	GG
FOXO3	rs2802292	GG
MPO	rs2333227	CC
TOM1	rs2071746	AA
OGG1	rs1052133	CC
ARMC2	rs768023	GG
ALDH2	rs671	GG
APOE	rs429358	TT
SLC23A1	rs33972313	CC
FOXO3	rs2802288	AA
NOS2	rs2297518	GG
FOXO3	rs2253310	CC
FOXO3	rs1935952	CC

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

Cognitive Decline

Mild cognitive decline is a normal part of aging that can affect cognitive functions such as memory, attention, and problem-solving.

About **60-70%** of the differences in people's cognitive decline may come from genetics. For example, genetically high total and bioavailable testosterone may be causally associated with larger gray matter volume in men [R, R, R].

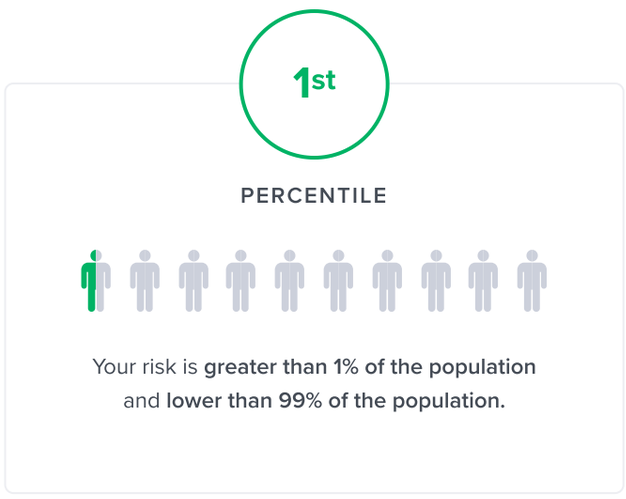
Other risk factors for cognitive decline include [R]:

- Older age
- Female sex
- Lifestyle factors like smoking and being inactive
- Lower education level

Different health conditions may play a role in cognitive decline, including high cholesterol and blood pressure [R].

LESS LIKELY

Less likely to have cognitive decline based on 272,168 genetic variants we looked at



Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
CDCA7	rs182734936	CC
ANXA5	rs141005242	CC
/	rs200668351	GG
TEK	rs147486058	AA
DUSP15	rs6089150	CC
CTBP2	rs61869228	CC
HHEX	rs60320343	AA
CRP	rs1205	CC
FOXO3	rs4946936	CC
APOE	rs7412	CC
CLU	rs11136000	CC
KIF11	rs6583817	CC
MS4A6A	rs610932	GG
TRIM32	rs7852872	CC
LHFPL6	rs9315702	AA
DPP4	rs6741949	GG
/	rs11706133	TT
WDFY2	rs9535753	TT
LAMP3	rs630527	GG
FOXJ2	rs7138264	GG

GENE	SNP	GENOTYPE
OPCML	rs11606197	TT
/	rs72956174	TT
B3GALNT1	rs4455332	CC
C3ORF56	rs11716691	AA
IRX2	rs72720951	AA
ZNF799	rs4804181	AA
/	rs57169846	GG
BDNF	rs6265	TC
ALCAM	rs34476301	GA
SIRT1	rs3758391	CT
TNF	rs1799724	TC
SNRPB	rs2076650	TC
A2M	rs11609582	TA
APBB2	rs13133980	GC
BCHE	rs1803274	TC
PRR16	rs3991625	TC
CEMIP2	rs12237894	CG
SALL1	rs2075199	CT
MRPS18C	rs10004897	AG
SALL3	rs7231688	AG
CHD6	rs6072411	GA
HSD11B1	rs60686175	TC
/	rs10457441	TT
TMEM106B	rs1990622	AG
APOE	rs429358	TT
TNS1	rs13013766	GG
/	rs62477365	TT
BCL11A	rs6545794	GG
IFNL3	rs73050457	CC
ABCA2	rs908832	GG

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

Recommendations Details

1

Strength Training

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

Helps with these Symptoms & Conditions:

Artery Hardening | Cognitive Decline | Underactive Thyroid

Helps with these Goals:

Cognitive Function | Fat Loss | Focus | Longevity | Memory | Mood | Short Term Memory | Strength

Helps with these DNA Risks:

⚠ Low Mood

Recommendation Note:

These are my personal recommendations to you

How it helps

⚠ Low Mood

IMPACT 4 / 5

EVIDENCE 5 / 5

People who exercise regularly have lower rates of depression and milder depression symptoms [R, R, R].

Exercise may boost your mood by improving [R]:

- Stress levels
- Self-esteem
- Energy and sleep quality
- Sex drive
- Alertness
- Weight and fitness

Cardio, resistance training, and their combination can help you prevent or reduce depression [R, R].

The *American Psychological Association* suggests exercise for depression [R].

2 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

Helps with these DNA Risks:

Low Mood | Gut Microbiome Diversity | Methylation | TMAO

How it helps

Low Mood

IMPACT 3 / 5 | EVIDENCE 3 / 5

Poor sleep may worsen depression. At the same time, people with depression may have more difficulty falling or staying asleep [R, R, R, R, R].

Getting too little sleep may worsen depression by [R]:

- Affecting the way you think
- Making you more emotional

Experts recommend applying strategies to improve sleep to help with depression. For example, cognitive-behavioral therapy (CBT) for insomnia may also help reduce depression symptoms [R, R].

Gut Microbiome Diversity

IMPACT 2 / 5 | EVIDENCE 3 / 5

The sleep centers in the brain and your microbiome communicate and affect each other through various hormones and metabolites [R].

It is no surprise then that lack of sleep and low sleep quality may disturb the gut microbiome [R, R, R, R, R].

Shifts in the sleep-wake cycle can also affect gut bacteria. This can include [R, R, R, R]:

- Shift work
- Early morning starts

- Delayed bedtimes

In turn, the composition of your microbiome can affect how well you sleep [R, R].

Methylation

IMPACT 2 / 5 EVIDENCE 1 / 5

Sleep plays a crucial role in regulating methylation processes in the body, impacting gene expression and overall health. Here's how adequate sleep can support methylation:

- **Cellular Repair and Regeneration**: Sleep is a time for the body to repair and regenerate. During sleep, methylation processes are involved in cell repair and the maintenance of DNA integrity. Adequate sleep ensures these processes occur efficiently.
- **Stress Hormone Regulation**: Sleep helps regulate cortisol, a stress hormone. Disrupted sleep patterns can lead to altered cortisol levels, impacting methylation patterns. Stress and cortisol are known to affect DNA methylation, particularly in genes related to the stress response.
- **Detoxification**: Sleep aids in the body's detoxification processes, partly mediated by methylation. This includes the clearance of metabolic byproducts and toxins that can interfere with methylation if accumulated.

TMAO

IMPACT 1 / 5 EVIDENCE 1 / 5

Sleep deprivation may increase TMAO levels [R].

3 Omega-3 (Fish Oil)

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

TYPICAL STARTING DOSE
500 mg

Helps with these Symptoms & Conditions:

Artery Hardening | Cognitive Decline

Helps with these Goals:

Focus | Longevity | Memory | Mood | Strength

Helps with these DNA Risks:

Low Mood | BDNF

How it helps

Low Mood

IMPACT 3 / 5

EVIDENCE 3 / 5

Omega-3s help **support brain function and reduce inflammation** [R, R].

People with higher omega-3 intakes and blood levels may be less prone to depression [R, R, R, R, R].

Supplementing with 200-2200 mg/day of EPA may improve mood when taken alone or with antidepressants. Only supplements containing **60% or more EPA** showed beneficial effects on mood [R, R, R, R].

BDNF

IMPACT 2 / 5

EVIDENCE 2 / 5

Two meta-analyses (the largest one with 12 studies and 587 participants) concluded that supplementation with fish oil increases BDNF levels by 0.72 pg/mL or 1.01 µmol/L. Fish oil may be most effective in interventions lasting longer than 10 weeks, at doses below 1500 mg/day, and in individuals older than 50 years old [R, R].

4 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

Helps with these DNA Risks:

Low Mood | BDNF

How it helps

Low Mood

IMPACT 3 / 5

EVIDENCE 3 / 5

A meta-analysis of 23 studies found a borderline, non-significant association between tea intake and a reduced risk of depression [R].

Another meta-analysis (8 studies) did find an inverse relationship between green tea consumption and depression symptoms [R].

Please note: *polyphenols from green tea may bind to iron and form insoluble complexes, which reduces iron absorption in the gut. If you have anemia, consult your healthcare provider before using green tea* [R].

BDNF

IMPACT 0 / 5

EVIDENCE 0 / 5

Green tea boosts brain-derived neurotrophic factor (BDNF), a protein that supports brain health by facilitating brain cell survival and growth. Through its antioxidants, it also helps prevent any damage to your brain cells, effectively reducing the chances of low BDNF levels.

5 Probiotics

Take a probiotic supplement containing 10 billion or more live cultures once daily, preferably with a meal or as directed by the packaging or a healthcare provider.

TYPICAL STARTING DOSE

10 billion

Helps with these Symptoms & Conditions:

Cognitive Decline | Food Allergies

Helps with these Goals:

Fat Loss | Mood | Strength

Helps with these DNA Risks:

Low Mood | Gut Microbiome Diversity | TMAO

How it helps

Low Mood

IMPACT 4 / 5

EVIDENCE 3 / 5

Your gut bacteria can affect your mood! People with mental illness tend to have different gut bacteria compared to healthy people [R, R].

Probiotic supplements may improve your mood by restoring "good" gut bacteria. They may also benefit people with depression [R, R, R, R, R].

Supplements used for mood problems contained one or more of the following probiotics [R, R, R, R, R, R]:

- *L. helveticus*
- *B. longum*
- *L. acidophilus*
- *L. rhamnosus*
- *B. bifidum*
- *L. casei*

PERSONALIZED TO YOUR GENES

Probiotics may be more likely to improve mood in people with your *IL1B* variant [R].

YOUR GENETIC VARIANTS

GENE	SNP	GENOTYPE	EVIDENCE
IL1B	**rs16944**	AG	●●

Gut Microbiome Diversity

IMPACT 3 / 5 | EVIDENCE 3 / 5

Probiotics can increase the levels of “good” bacteria, such as *Lactobacilli* and *Bifidobacteria*, in the gut. They can also decrease the levels of potentially harmful microbes [R, R, R, R, R, R, R, R, R, R].

They can be taken with or without prebiotics [R, R].

In general, probiotics that contain multiple species and higher CFU* tend to be more effective.

**CFU (colony forming units) = the number of active bacteria in one probiotic serving*

TMAO

IMPACT 2 / 5 | EVIDENCE 3 / 5

Probiotics (taken for at least 3 months) may lower TMAO levels. Studied probiotics include:

- *Lactobacillus rhamnosus* [R]
- *L. acidophilus* [R]
- *Bifidobacterium lactis* [R]

However, some studies found **no effect** of probiotics on TMAO levels [R, R].

6 Mediterranean Diet

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.

Helps with these Symptoms & Conditions:

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

Helps with these Goals:

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

Helps with these DNA Risks:

Low Mood | Gut Microbiome Diversity | TMAO

How it helps

Low Mood

IMPACT 2 / 5

EVIDENCE 4 / 5

Following the Mediterranean diet may reduce your risk of depression [R, R, R, R].

Olive oil and other brain-friendly foods might be behind this benefit. They may help **improve your mood by reducing inflammation and protecting the brain** [R, R, R, R].

People who eat more olive oil tend to have lower depression rates [R, R, R].

PERSONALIZED TO YOUR GENES

Your *PSMB4* gene variant may contribute to depression by increasing inflammation. The Mediterranean diet may reduce inflammation [R, R, R, R, R, R].

YOUR GENETIC VARIANTS

GENE	SNP	GENOTYPE	EVIDENCE
SELENBP1	**rs4971040**	CC	

Gut Microbiome Diversity

IMPACT 3 / 5

EVIDENCE 3 / 5

People who eat a Mediterranean diet may have a more diverse gut microbiome. This diet may increase the growth of beneficial species and genera such as *Clostridium leptum, Eubacterium rectale*, *Bifidobacteria*, *Bacteroides*, and *Faecalibacterium prausnitzii* while inhibiting harmful *Firmicutes* and *Blautia* [R, R, R, R].

TMAO

IMPACT 1 / 5

EVIDENCE 1 / 5

Eating a Mediterranean diet, especially if it restricts red meat, may lower TMAO levels. However, the evidence is mixed [R, R, R].

The Mediterranean diet emphasizes plant-based foods and heart-healthy fats, which can help modulate the gut microbiota and reduce TMAO levels.

7 Coffee

Drink 1 to 3 cups of black coffee daily, preferably in the morning to minimize potential sleep disturbances. Avoid adding sugar or cream to keep it healthy. Continue this habit daily for long-term benefits.

Helps with these Symptoms & Conditions:

Artery Hardening | Cognitive Decline

Helps with these Goals:

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

Helps with these DNA Risks:

Low Mood | BDNF

How it helps

Low Mood

IMPACT 3 / 5

EVIDENCE 2 / 5

A meta-analysis found that high coffee intake lowered the risk of depression by ~32%. The risk decreased by 8% for each additional cup/day [R].

Coffee increases the production of dopamine, a neurotransmitter associated with feelings of joy and happiness.

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

BDNF

IMPACT 0 / 5

EVIDENCE 0 / 5

Coffee increases the levels of a protein called BDNF (Brain-Derived Neurotrophic Factor) in the brain. Higher BDNF levels boost brain health, improving memory and cognitive function, thus helping prevent neurological conditions.

8 Yoga

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

Helps with these Symptoms & Conditions:

Artery Hardening

Cognitive Decline

Helps with these Goals:

Cognitive Function

Creativity

Energy

Fat Loss

Focus

Libido

Longevity

Memory

Mood

Short Term Memory

Helps with these DNA Risks:

Low Mood

BDNF

Methylation

How it helps

Low Mood

IMPACT 3 / 5

EVIDENCE 4 / 5

Practicing yoga may relieve anxiety and depression [R, R, R, R].

It helps improve your mood by [R, R, R, R, R]:

- Reducing stress hormones
- Boosting important brain chemicals
- Clearing your thoughts

The *American Psychological Association* suggests considering yoga for depression [R, R].

PERSONALIZED TO YOUR GENES

Your *BDNF* gene variant may be linked to low mood. It likely reduces the levels of BDNF, a crucial brain chemical. Yoga may improve mood by boosting BDNF levels [R, R, R, R, R, R].

OXTR codes for the oxytocin receptor, which is involved in counteracting the stress response [R].

Your **rs2254298** genotype is associated with increased risk of mood problems [R, R].

Some good lifestyle hacks for your genotype are **yoga** [R, R] and **aromatherapy**, which raise your oxytocin levels and have a calming effect [R, R].

YOUR GENETIC VARIANTS

GENE	SNP	GENOTYPE	EVIDENCE
BDNF	**rs6265**	TC	

GENE	SNP	GENOTYPE	EVIDENCE
OXTR	**rs2254298**	GA	

BDNF

IMPACT 2 / 5

EVIDENCE 2 / 5

Different yoga programs increased BDNF in several trials of middle-aged volunteers, older adults, and patients with major depressive disorder [R, R, R, R].

Methylation

IMPACT 1 / 5

EVIDENCE 1 / 5

Yoga has been associated with changes in DNA methylation, which may reflect its health benefits. A pilot study found that a brief yoga intervention could influence the methylation of genes related to immune function and inflammation in women experiencing chronic stress. Detailed mechanisms include [R]:

1. **Stress Reduction**: Yoga is known for its stress-reducing effects. Chronic stress can lead to changes in DNA methylation patterns, particularly in genes associated with the stress response. By reducing stress, yoga can help maintain balanced methylation in these genes.
2. **Anti-inflammatory Effects**: Regular yoga practice can reduce inflammation. Inflammation is linked to alterations in DNA methylation, especially in genes involved in the immune response. Yoga's anti-inflammatory benefits might therefore support healthier methylation patterns.
3. **Hormonal Balance**: Yoga can help regulate hormones, including cortisol, the stress hormone. Since hormonal balance is crucial for proper methylation processes, yoga may indirectly support efficient methylation through its regulatory effects on hormones.
4. **Improved Sleep Quality**: As yoga can enhance sleep quality, and adequate sleep is essential for optimal methylation processes, yoga indirectly supports methylation through its positive impact on sleep.

9 Social Activity

Participate in group activities or gatherings with friends, family, or community members at least twice a week. This could include joining clubs, attending local events, or scheduling regular outings with friends. Aim for these social engagements to last at least an hour each time to foster meaningful connections and conversations.

TYPICAL STARTING DOSE

1 hour

Helps with these Symptoms & Conditions:

Cognitive Decline

Helps with these Goals:

Cognitive Function | Longevity | Memory | Mood

Helps with these DNA Risks:

Low Mood

How it helps

Low Mood

IMPACT 2 / 5

EVIDENCE 2 / 5

Perceived social support has been associated with a decreased risk of depression in the overall adult population, children and adolescents, and pregnant women, while loneliness may increase the risk [R, R, R].

Social support-based interventions have small preventive effects on depression according to a meta-analysis of 9 trials and 927 participants [R].

Engaging in meaningful social activities can increase feelings of connectedness and combat loneliness, which can improve mood.

10 Walking

Incorporate at least 30 minutes of brisk walking into your daily routine, aiming for a minimum of five days a week. This can be done in one continuous session or broken into shorter periods, such as three 10-minute walks throughout the day.

TYPICAL STARTING DOSE

30 minutes

Helps with these Symptoms & Conditions:

Artery Hardening | Cognitive Decline

Helps with these Goals:

Creativity | Energy | Fat Loss | Longevity | Mood

Helps with these DNA Risks:

Low Mood

How it helps

Low Mood

IMPACT 2 / 5

EVIDENCE 3 / 5

Walking increases your body's production of endorphins - the brain chemicals that boost mood and act as natural antidepressants. Further, it activates the release of proteins in the brain which can foster new brain cell growth and connections, improving brain health and mental function.

A systematic review and meta-analysis of 42 studies involving 1843 participants found that walking groups have wide-ranging health benefits, including a significant **reduction in depression scores with an effect size of -0.67 (-0.97 to -0.38)** [R].

11 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:

Low Mood | MTHFR | MTHFD1 (Folate/ Methylation)

How it helps

Low Mood

IMPACT 2 / 5

EVIDENCE 2 / 5

Folate (30 mg/day) may improve symptoms of depression by increasing the production of serotonin and dopamine [R, R, R, R].

Please note: *You shouldn't consume more than 1,000 micrograms of folate from supplements per day* [R].

PERSONALIZED TO YOUR GENES

FOLH1B has two main functions: creating glutamate and absorbing folate from your diet [R].

Your **rs10047486** genotype does not contain any protective alleles, putting you at relatively higher risk of stress-related mood problems [R].

Getting enough folate from diet and supplements is crucial to support FOLH1B function [R, R, R, R].

YOUR GENETIC VARIANTS

GENE	SNP	GENOTYPE	EVIDENCE
NOX4	**rs10047486**	AA	

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].

MTHFD1 (Folate/ Methylation)

IMPACT 2 / 5

EVIDENCE 2 / 5

Folate supplements may help by providing more of this vitamin and enhancing homocysteine methylation, especially in pregnant women and those planning to conceive. Most supplements contain the recommended daily amount of 400 mcg [R, R].

People with specific MTHFR variants can't produce enough methylfolate, which is the active form. They should supplement with L-methylfolate [R].

12 Tai Chi

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

TYPICAL STARTING DOSE

1 hour

Helps with these Symptoms & Conditions:

Cognitive Decline

Helps with these Goals:

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

Helps with these DNA Risks:

Low Mood | BDNF

How it helps

Low Mood

IMPACT 2 / 5

EVIDENCE 3 / 5

Tai chi (once a week for at least 4 weeks) may improve depression symptoms and well-being, especially in old adults. However, most studies are of low quality and some show that tai chi doesn't benefit depression [R, R, R].

Tai chi may help with depression by supporting deep breathing and body relaxation [R].

BDNF

IMPACT 0 / 5

EVIDENCE 0 / 5

Tai Chi incorporates physical activity and meditation, both of which have been associated with increased BDNF levels.

13

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:

Low Mood | MTHFR | Methylation | MTHFD1 (Folate/ Methylation)

How it helps

Low Mood

IMPACT 2 / 5

EVIDENCE 3 / 5

Folate may improve symptoms of depression by increasing the production of serotonin and dopamine [R, R, R, R].

Please note: *You shouldn't consume more than 1,000 micrograms of folate from supplements per day* [R].

PERSONALIZED TO YOUR GENES

FOLH1B has two main functions: creating glutamate and absorbing folate from your diet [R].

Your **rs10047486** genotype does not contain any protective alleles, putting you at relatively higher risk of stress-related mood problems [R].

Getting enough folate from diet and supplements is crucial to support FOLH1B function [R, R, R, R].

YOUR GENETIC VARIANTS

GENE	SNP	GENOTYPE	EVIDENCE
NOX4	**rs10047486**	AA	

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

Methylation

IMPACT 3 / 5

EVIDENCE 3 / 5

People with methylation issues may not be able to produce enough methylfolate, which is the active form [R].

Food sources of folate provide the active form of this vitamin. They include raw leafy greens, liver, eggs, nuts, seeds, kimchi, and nutritional yeast [R].

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

MTHFD1 (Folate/ Methylation)

IMPACT 3 / 5

EVIDENCE 2 / 5

Folate deficiency in people with the MTHFD1 variant contributed to both fatty liver (due to low choline) and homocysteine elevation. To counteract these effects, make sure to get enough folate daily [R, R].

14 Extra Virgin Olive Oil (EVOO)

Incorporate 1-2 tablespoons of extra virgin olive oil into your daily diet. Use it as a dressing for salads, vegetables, or incorporate it into cooking, but avoid using it at high temperatures to preserve its health benefits.

Helps with these Symptoms & Conditions:

Artery Hardening | Cognitive Decline

Helps with these Goals:

Cognitive Function | Fat Loss | Longevity | Mood

Helps with these DNA Risks:

Low Mood

How it helps

Low Mood

IMPACT 2 / 5

EVIDENCE 3 / 5

Consumption of olive oil and oleic acid — the main fatty acid in olive oil — is associated with a reduced risk of depression [R, R, R].

A study found that extra virgin olive oil (52 mL/day for 12 weeks) may reduce depression symptoms [R].

Olive oil may help with depression by improving dopamine metabolism [R].

15

Fish

Incorporate two servings of fish into your diet each week, focusing on oily fish like salmon, mackerel, or sardines for their high omega-3 fatty acid content. Each serving should be about 3.5 ounces cooked, or about ¾ cup of flaked fish.

Helps with these Symptoms & Conditions:

- Cognitive Decline

Helps with these Goals:

- Longevity
- Mood

Helps with these DNA Risks:

- Low Mood

How it helps

Low Mood

IMPACT 2 / 5

EVIDENCE 3 / 5

Omega-3s help **support brain function and reduce inflammation** [R, R].

People with higher omega-3 intakes and blood levels may be less prone to depression [R, R, R, R, R].

Fatty fish (such as mackerel, salmon, sardines, and herrings) is especially rich in omega-3 fatty acids [R].

16

Magnesium

Take up to 350 mg of magnesium daily as a supplement, preferably with a meal to enhance absorption.

TYPICAL STARTING DOSE

250 mg

Helps with these Symptoms & Conditions:

Artery Hardening | Cognitive Decline

Helps with these Goals:

Cognitive Function | Energy | Focus | Mood

Helps with these DNA Risks:

Low Mood | MTHFD1 (Folate/ Methylation)

How it helps

Low Mood

IMPACT 1 / 5

EVIDENCE 1 / 5

A 6-week magnesium chloride intervention at 248 mg/day significantly improved PHQ-9 scores by 6.0 points and Generalized Anxiety Disorders-7 scores by 4.5 points compared to a control group [R].

In a double-blind, randomized trial with 46 depressed subjects, daily intake of 500 mg magnesium for 8 weeks improved Beck's test score and serum magnesium but did not significantly affect BDNF levels [R].

In a placebo-controlled trial of 60 depressed individuals with low magnesium, supplementation with magnesium oxide tablets caused a more significant decrease in depression scores [R].

However, fluoxetine treatment alongside magnesium ions (120 mg/day as magnesium aspartate) or placebo showed no significant differences in depression scores or serum magnesium levels over 8 weeks in a double-blind study with 37 participants experiencing recurrent depressive disorder. Similarly, magnesium (both alone and combined with vitamin D) failed to reduce depression scores in a study of 108 obese women with depressive symptoms [R, R].

Magnesium may help by supporting the brain's function and mood regulation. It also assists in the production of serotonin, a key hormone for happiness and stress reduction.

MTHFD1 (Folate/ Methylation)

IMPACT 3 / 5

EVIDENCE 1 / 5

The presence of the "A" allele at rs2236225 changes one amino acid in the MTHFD1 enzyme, making it less stable and more temperature-sensitive. Adequate levels of magnesium and folate may lessen this effect [R].

17 Cherries

Incorporate a serving of cherries, which is about 1 cup or 21 cherries, into your daily diet. You can eat them fresh, frozen, dried, or in juice form. If opting for juice, ensure it's 100% cherry juice without added sugars.

Helps with these Symptoms & Conditions:

- Cognitive Decline

Helps with these Goals:

- Mood

Helps with these DNA Risks:

- Low Mood

How it helps

Low Mood

IMPACT 1 / 5

EVIDENCE 1 / 5

Cherries, particularly tart ones, contain high levels of antioxidants like anthocyanins and bioflavonoids, which are known to boost brain function and serotonin levels that improve mood. Additionally, cherries have a sleep-promoting substance called melatonin, which contributes to good quality sleep, further helping uplift mood.

In a placebo-controlled trial of 30 healthy volunteers, consuming a cherry-based product (18.85 g pitted, freeze-dried cherries) for 5 days reduced anxiety status in the middle-aged and elderly participants, and enhanced subjective mood parameters (particularly family relationships) in young participants, and frame of mind and fitness in both middle-aged and elderly subjects [R].

18 Lion's Mane

Take a Lion's Mane supplement of 500-1000 mg daily, usually in capsule or powder form. It can be taken with or without food, but if you experience any digestive upset, take it with meals. Continue this regimen for at least 4 weeks to evaluate its benefits.

TYPICAL STARTING DOSE

500 mg

Helps with these Symptoms & Conditions:

Cognitive Decline

Helps with these Goals:

Cognitive Function

Mood

Helps with these DNA Risks:

Low Mood

How it helps

Low Mood

IMPACT 1 / 5

EVIDENCE 1 / 5

According to one study, consuming lion's mane (0.5 g/day for 4 weeks) may reduce depression. Lion's mane may help by supporting good sleep [R, R].
Please note: *Lion's mane may interact with blood thinners such as warfarin (Coumadin). If you are taking blood thinners, consult your doctor before consuming lion's mane* [R].

19 Bifidobacterium Breve

Take a Bifidobacterium breve supplement according to the product's specific instructions, usually 1-2 capsules daily with water, ideally before meals for better absorption. This regimen should be followed for at least 2-4 weeks to start observing benefits.

TYPICAL STARTING DOSE

10 billion CFU

Helps with these Symptoms & Conditions:

Cognitive Decline

Helps with these Goals:

Fat Loss

Mood

Helps with these DNA Risks:

Low Mood

Gut Microbiome Diversity

How it helps

Low Mood

IMPACT 1 / 5

EVIDENCE 1 / 5

Bifidobacterium Breve is a probiotic that helps improve gut health, which is linked to mood regulation. Taking this supplement can improve your gut microbiome, possibly leading to a better mood.

In a placebo-controlled trial of 45 patients with major depressive disorder, supplementation with freeze-dried *B. breve* CCFM1025 (1010 cfu/day) for 4 weeks reduced depression and associated gastrointestinal disorders [R].

Gut Microbiome Diversity

IMPACT 1 / 5

EVIDENCE 1 / 5

Bifidobacterium breve supplement helps replenish healthy bacteria in your gut, improving its diversity. This can maintain the balance of microbiomes, improving digestion and boosting immunity.

In a placebo-controlled trial of 71 allergic infants, supplementation with a synbiotic (*B. breve* M-16V and fructo-oligosaccharides) for 8 weeks improved the fecal microbiota This synbiotic taken for 12 weeks modulated the intestinal microbiota in a placebo-controlled trial of 90 intants with this condition. Another synbiotic with long-chain fructo-oligosaccharides and *B. breve* M-16V increased *Bifidobacteria* while reducing *Enterobacteriaceae* in a placebo-controlled trial of 153 infants delivered through C-section [R, R, R].

20 Beta-Alanine

Take 2-3 grams of beta-alanine supplement daily, ideally in divided doses throughout the day to minimize potential skin tingling sensations. This supplementation can be continued for at least 4 weeks to observe benefits in exercise performance and muscle endurance.

TYPICAL STARTING DOSE

2 g

Helps with these Symptoms & Conditions:

Cognitive Decline

Helps with these Goals:

Energy Mood Strength

Helps with these DNA Risks:

Low Mood

How it helps

Low Mood

IMPACT 1 / 5

EVIDENCE 1 / 5

Beta-Alanine supplementation assists in the production of carnosine, a compound that can enhance mood by influencing neurotransmitters in your brain. By increasing carnosine levels, you may experience improved mood response and potentially less feelings of depression or anxiety.

A study involving 100 older adults (average age 70.6) investigated 10 weeks of β-alanine (BA) supplementation (2.4g/day) versus a placebo. The results indicated that BA supplementation may enhance cognitive function in older adults with below-normal baseline cognitive function and potentially reduce depression scores [R].

In a study with participants randomized into β-alanine (BA) or placebo (PL) groups for 14 days, there were no significant changes in cognitive function or BDNF levels. However, BA reduced feelings of depression, while PL reduced feelings of vigor before a simulated military operation [R].

21 Propolis

Take a propolis supplement in capsule or tablet form, typically ranging from 500mg to 1000mg per day. It's best to follow the dosage instructions on the product label or a healthcare provider's advice. Propolis can be taken continuously, but consult a healthcare provider for specific durations especially if it exceeds three months.

Helps with these Symptoms & Conditions:

- Cognitive Decline

Helps with these Goals:

- Fat Loss
- Mood

Helps with these DNA Risks:

- ⚠ Low Mood

How it helps

⚠ Low Mood

IMPACT 1 / 5 EVIDENCE 1 / 5

Propolis, a compound produced by bees, contains bioflavonoids and antioxidants that can enhance the function of your brain, helping to improve your mood. Its anti-inflammatory properties can also alleviate stress and anxiety, which can contribute to low mood.

In a 6-week study with 54 participants, those given propolis alongside SSRIs experienced a significant reduction in depression symptoms, compared to the placebo group [R].

22 Limit Manganese Exposure

Avoid consuming water with high levels of manganese by using filters certified to remove it, especially if your water comes from a well. Limit the intake of dietary supplements containing manganese unless prescribed, and use personal protective equipment if you work in industries with manganese exposure, such as welding or mining.

Helps with these Symptoms & Conditions:

Cognitive Decline

Helps with these Goals:

Cognitive Function

Mood

Helps with these DNA Risks:

Low Mood

How it helps

Low Mood

IMPACT 1 / 5

EVIDENCE 1 / 5

A study of 5,560 participants associated high urinary levels of manganese and tin with adult depression [R].

High levels of manganese are associated with neurotoxicity and can alter neurotransmitter levels in the brain, affecting mood regulation.

23

Fermented Foods

Incorporate a variety of fermented foods into your daily meals, such as yogurt, kefir, sauerkraut, kimchi, and kombucha. Aim to consume these foods at least once per day, making sure to vary the types for a broad spectrum of beneficial bacteria.

Helps with these Goals:

Longevity

Mood

Helps with these DNA Risks:

Low Mood

Gut Microbiome Diversity

How it helps

Low Mood

IMPACT 3 / 5

EVIDENCE 2 / 5

A meta-analysis of 8 studies and 83,533 participants associated the intake of fermented dairy products such as yogurt and cheese with a 10% decreased risk of depression [R].

Fermented foods contribute to gut health, which is increasingly recognized as important for mental health due to the gut-brain axis.

Gut Microbiome Diversity

IMPACT 4 / 5

EVIDENCE 3 / 5

Fermented foods can promote the growth of “good” bacteria and help maintain a healthy microbiome [R, R, R, R, R, R, R, R, R, R].

Fermented foods may help by providing probiotic bacteria or beneficial fermentation byproducts.

24 Psychotherapy

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

Helps with these Goals:

Energy | Fat Loss | Focus | Libido | Mood

Helps with these DNA Risks:

Low Mood

How it helps

Low Mood

IMPACT 5 / 5

EVIDENCE 5 / 5

Psychotherapy can boost your mood by helping you [R, R, R, R, R]:

- Cope with stress
- Control negative thoughts and emotions
- Improve social skills
- Build stronger relationships

Types of psychotherapy that can help with depression include:

- **Cognitive-behavioral therapy (CBT)**: aims to improve your coping mechanisms by altering thinking patterns and behavior [R, R, R]
- **Psychodynamic therapy**: tries to reduce the negative impact of feelings from your past experiences [R, R, R]
- **Interpersonal therapy**: focuses on improving your communication, relationships, and emotional control [R, R, R]

CBT is part of the "gold standard" treatment for depression, recommended by health experts worldwide [R, R, R, R].

PERSONALIZED TO YOUR GENES

People with your *COMT* gene variant may experience greater mental health improvements from CBT [R]. Ask your doctor about CBT.

CBT may be more effective for depression in people with your *BDNF* gene variant [R]. Ask your doctor about CBT.

YOUR GENETIC VARIANTS

GENE	SNP	GENOTYPE	EVIDENCE
COMT	**rs4680**	AG	●●●○○

GENE	SNP	GENOTYPE	EVIDENCE
BDNF	**rs6265**	TC	●●○○○

25 Cognitive-Behavioral Therapy (CBT)

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.

Helps with these Goals:

Energy | Fat Loss | Focus | Libido | Memory | Mood

Helps with these DNA Risks:

⚠ Low Mood

How it helps

⚠ Low Mood

IMPACT ●●●●● 5 / 5

EVIDENCE ●●●●● 5 / 5

Cognitive-behavioral therapy (CBT) may help with depression. It may help by reducing negative thoughts and behaviors [R, R, R, R, R, R, R, R, R].

CBT may help when delivered face-to-face or online [R, R, R, R].

26 Laughter Therapy

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

Helps with these Goals:

Longevity | Mood | Short Term Memory

Helps with these DNA Risks:

⚠ Low Mood

How it helps

⚠ Low Mood

IMPACT 3 / 5

EVIDENCE 3 / 5

Two meta-analyses (the largest one with 29 studies) concluded that laughter therapy improves depression. According to one of them, simulated laughter is more effective than spontaneous laughter [R, R].

Laughter therapy triggers the release of endorphins and reduces the levels of stress hormones, thereby reducing feelings of anxiety and enhancing overall well-being.

27 Interpersonal Therapy

Engage in weekly 50-minute sessions with a certified therapist trained in interpersonal therapy for a duration of 12-16 weeks. During these sessions, focus on improving your interpersonal relationships and communication skills to address specific issues such as unresolved grief, role transitions, interpersonal disputes, or social deficits.

TYPICAL STARTING DOSE

50 minutes

Helps with these Goals:

Mood

Helps with these DNA Risks:

⚠ Low Mood

How it helps

Low Mood

IMPACT 5 / 5

EVIDENCE 5 / 5

Interpersonal therapy (typically for at least 12 weeks) may help with depression. It may help when delivered personally, via the internet, or self-guided. Combination with standard care may offer greater benefits [R, R, R, R, R, R, R].

Interpersonal therapy may help with depression by helping improve [R, R, R]:

- Communication
- Relationships
- Emotional control

Keep in mind that interpersonal therapy may help less than cognitive-behavioral therapy (CBT) [R].

28

Psychodynamic Therapy

Schedule and attend weekly sessions with a trained psychodynamic therapist for a minimum duration of 6 months to several years, depending on individual needs and progress.

Helps with these Goals:

Mood

Helps with these DNA Risks:

Low Mood

How it helps

Low Mood

IMPACT 5 / 5

EVIDENCE 5 / 5

Psychodynamic therapy may help with depression by reducing the negative impact of feelings from your past experiences [R, R, R].

Both short-term (a few weeks) and long-term (typically 1 year) therapy may help and benefits may remain for up to 1 year. Individual therapy and combination with standard care may offer greater benefits [R, R, R, R, R, R].

29

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

Helps with these DNA Risks:

⚠ Low Mood

How it helps

⚠ Low Mood

IMPACT 3 / 5

EVIDENCE 3 / 5

Mindfulness meditation has been reported to improve attention and emotional self-control, both of which are important for healthy mood. A meta-analysis of 47 trials and 3515 participants found moderate evidence that this type of mediation improves mood. Mindfulness meditation also improves depressive symptoms in older adults according to a meta-analysis of 19 studies and 1076 participants [R, R, R].

A meta-analysis of 34 studies found that meditation may improve depression in students [R].

Meditation can help calm the mind, reduce stress, and improve overall emotional well-being.

30

Carnosine

Take 500 mg of carnosine twice daily with meals. Continue this regimen for at least 2 to 4 weeks to start noticing benefits. It can be taken as a capsule or powder form mixed with water or juice.

TYPICAL STARTING DOSE

1000 mg

Helps with these Symptoms & Conditions:

Cognitive Decline

Helps with these Goals:

Mood

Helps with these DNA Risks:

Low Mood

How it helps

Low Mood

IMPACT 1 / 5

EVIDENCE 1 / 5

Carnosine has been found to enhance mood by improving brain function and reducing inflammation, which can often negatively affect mood. It also protects the brain from stress-related damage, promoting better mental health and thus potentially improving mood.

In a study of 58 patients with Major Depressive Disorder (MDD), L-Carnosine combined with citalopram improved symptoms effectively over six weeks. Rapid-onset antidepressant effects were observed, warranting further investigation [R].

31 Spend Time in Nature

Aim to spend at least 120 minutes per week in natural environments, such as parks, forests, or beaches. This can be divided into short durations throughout the week, for example, 17 minutes per day or longer sessions on weekends.

TYPICAL STARTING DOSE

2 hours

Helps with these Goals:

Creativity | Energy | Longevity | Mood

Helps with these DNA Risks:

Low Mood | BDNF

How it helps

Low Mood

IMPACT 2 / 5

EVIDENCE 2 / 5

A meta-analysis of 28 studies found moderate to large effects of spending time in nature on depression. When compared to outdoor activity in urban environments, exposure to natural environments may have moderately better effects on positive affect and slightly better effects on depression. Interestingly, the beneficial effects of nature exposure may increase with altitude according to a meta-analysis of 27 studies [R, R, R].

Increased exposure to sunlight and nature may have restorative properties that could enhance mood.

BDNF

IMPACT 0 / 5

EVIDENCE 0 / 5

Being in nature can reduce stress and increase BDNF levels, aiding in brain cell growth and resilience.

32 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

Helps with these DNA Risks:

Low Mood | Methylation

How it helps

Low Mood

IMPACT 3 / 5 | EVIDENCE 3 / 5

SAM-e may reduce depression symptoms by up to 40%. Effective doses range from **200-1600 mg** per day for up to 12 weeks [R, R, R].

SAM-e appears to **work quickly and doesn't have significant side effects** [R, R].

SAM-e likely works by **increasing brain levels of serotonin and dopamine.** These chemicals help you feel happy, positive, and energetic [R, R, R, R, R].

Methylation

IMPACT 2 / 5 | EVIDENCE 2 / 5

S-adenosylmethionine or SAM-e provides methyl groups for methylation reactions and helps clear homocysteine [R, R].

It also boosts glutathione and may help support liver health, mood, and more [R].

Please note: *SAM-e may not be safe for people with bipolar disorder. It may also interact with 5-HTP, St. John's wort, and different medications. Combining it with antidepressants can be dangerous and even life-threatening. Never take SAM-e supplements without consulting your doctor* [R, R, R].

33 Tryptophan

Take 500 mg of tryptophan supplement daily. This dosage can be taken all at once, preferably before bedtime to support sleep, or as directed by a healthcare professional.

TYPICAL STARTING DOSE

500 mg

Helps with these Symptoms & Conditions:

Food Allergies

Helps with these Goals:

Mood

Helps with these DNA Risks:

Low Mood

How it helps

Low Mood

IMPACT 4 / 5

EVIDENCE 2 / 5

Low tryptophan levels are associated with depression [R, R, R].

Consider increasing your intake of tryptophan-rich foods.

34 Acceptance and Commitment Therapy (ACT)

Participate in Acceptance and Commitment Therapy (ACT) sessions with a licensed therapist weekly for a minimum of 8 to 12 weeks. During this period, engage in daily ACT exercises at home as recommended by your therapist, such as mindfulness practices and writing exercises that help you connect with your values and accept your thoughts without judgment.

Helps with these Goals:

Mood

Helps with these DNA Risks:

Low Mood

How it helps

Low Mood

IMPACT 4 / 5

EVIDENCE 4 / 5

Two meta-analyses (the largest one with 18 trials and 1088 participants) concluded that ACT helps improve depression, especially at 3-month follow-up and in those with mild symptoms. Internet-delivered ACT may also help according to a meta-analysis of 39 trials [R, R, R].

Group ACT may even be more effective than cognitive-behavioral therapy according to a meta-analysis of 40 trials [R].

ACT can enhance psychological flexibility and help individuals engage in values-based actions, improving mood.

35

High-Intensity Interval Training (HIIT)

Engage in HIIT workouts for at least 30 minutes per session, 3 times a week. Each session should include short bursts of intense exercise, such as sprinting or fast cycling, for 30-60 seconds followed by a period of rest or lower-intensity exercise for 1-2 minutes. Adjust intensity and duration based on personal fitness level.

TYPICAL STARTING DOSE

30 minutes

Helps with these Symptoms & Conditions:

- Artery Hardening

Helps with these Goals:

- Fat Loss
- Longevity
- Mood
- Strength

Helps with these DNA Risks:

- Low Mood
- BDNF
- Gut Microbiome Diversity

How it helps

Low Mood

IMPACT 2 / 5

EVIDENCE 3 / 5

HIIT helps release endorphins, chemicals in your brain that naturally uplift your mood. Regular exercise, like HIIT, also boosts your overall mental well-being, reduces stress, anxiety, negative mood, and can even enhance self-esteem and cognitive function, potentially preventing a low mood.

High-Intensity Interval Training (HIIT) shows moderate improvements in mental well-being, depression, and stress compared to inactivity, and small improvements compared to active controls in 58 randomized trials. Some evidence suggests HIIT may also benefit sleep and psychological distress [R].

A review of 22 studies found that mindfulness meditation had small to moderate positive effects on executive function and affect in acute studies, and on executive function, well-being, and reduced ill-being in chronic studies [R].

High-Intensity Interval Training (HIIT) shows promise in enhancing sleep quality (SQ) and sleep efficiency (SE), with effects influenced by HIIT specifics [R].

However, evening HIIT may impair sleep quality in early birds but not in night owls [R].

HIIT may help reduce stress and improve mood by acutely increasing pleasure and positive affect post-exercise [R, R].

Please note: *Intense exercise may not be suitable for people with chronic health conditions. Talk to your doctor before starting a new exercise regimen* [R].

BDNF

IMPACT 0 / 5

EVIDENCE 0 / 5

HIIT can raise BDNF levels in the brain, which may contribute to enhanced learning, memory, and overall brain function.

Gut Microbiome Diversity

IMPACT 0 / 5

EVIDENCE 0 / 5

HIIT has been shown to have a positive impact on gut microbiome diversity through the promotion of beneficial stress responses and modulation of the gut environment.

36

5-HTP

Take 100 mg of 5-HTP as a supplement daily, ideally with a glass of water. It can be taken at any time of the day but taking it at the same time each day may help establish a routine.

TYPICAL STARTING DOSE

100 mg

Helps with these Goals:

Fat Loss | Mood

Helps with these DNA Risks:

Low Mood

How it helps

Low Mood

IMPACT 4 / 5

EVIDENCE 3 / 5

5-HTP supplements (150-800 mg/day for up to 8 weeks) may reduce depression symptoms [R, R, R].

They work by boosting serotonin levels. Lack of serotonin may play a major role in mood problems [R, R, R, R].

Please note: *5-HTP can interact with St. John's wort, and different medications. Combining it with antidepressants can be dangerous and even life-threatening. Never take 5-HTP without consulting your doctor* [R, R, R].

PERSONALIZED TO YOUR GENES

Your *TPH2* gene variant is associated with depression. This gene affects 5-HTP and serotonin production in the brain [R, R]. 5-HTP supplements may help make up for this effect.
TPH1 codes for one of the “raw materials” your brain needs in order to make serotonin [R].

Your **rs1799913** genotype is associated with increased risk of mood problems [R].

One of the best lifestyle hacks for your genotype is to increase the amount of **sunlight exposure** you get.

The best supplement for counteracting your genotype is the serotonin precursor **5-HTP** [R].
The *TERT* gene is involved in protecting DNA during cell division. It also affects how sensitive your brain is to serotonin [R, R, R].

Your **rs2736100** genotype is associated with increased risk of mood problems [R].

You may counteract your genotype by supplementing with **5-HTP**, which helps boost serotonin [R, R, R].

YOUR GENETIC VARIANTS

GENE	SNP	GENOTYPE	EVIDENCE
TPH2	**rs4290270**	TT	
TPH1	**rs1799913**	GT	
TERT	**rs2736100**	AC	

37

Morning Bright Light Therapy

Expose yourself to a light therapy box, which mimics natural sunlight, for about 20-30 minutes each morning within the first hour of waking up. It's important to do this daily, especially during months with less natural sunlight, to help manage symptoms of Seasonal Affective Disorder (SAD) or other conditions influenced by light exposure.

TYPICAL STARTING DOSE

20 minutes

Helps with these Goals:

Cognitive Function | Energy | Mood

Helps with these DNA Risks:

Low Mood

How it helps

Low Mood

IMPACT 4 / 5

EVIDENCE 4 / 5

Mood problems tend to worsen during the winter, mostly due to reduced sunlight exposure. Light exposure may improve your mood by **balancing brain chemicals**, such as serotonin [R, R, R].

Health experts recommend light therapy for low mood during the winter. The *American Psychological Association* suggests bright light therapy for depression. [R, R, R, R].

38

Zinc

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

TYPICAL STARTING DOSE

10 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:

Low Mood | MTHFR | Methylation | MTR (Methylation) | Zinc

How it helps

Low Mood

IMPACT 3 / 5

EVIDENCE 4 / 5

People with depression may have lower zinc levels [R, R, R].

Zinc (25 mg/day zinc sulfate or 30 mg/day zinc gluconate for 2-12 weeks) may help reduce depression symptoms [R, R].

Zinc may help by increasing BDNF production [R].

Please note: *A high intake of zinc may cause stomach pain and gut irritation. Medical bodies recommend against taking more than **40 mg** of zinc per day* [R, R].

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].

Methylation

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].

MTR (Methylation)

IMPACT 0 / 5 EVIDENCE 0 / 5

Zinc is crucial for proper methylation because it supports the functioning of enzymes that transfer methyl groups to DNA. You can consider it as fuel for your body's methylation engine, helping it to work efficiently.

Zinc

IMPACT 2 / 5 EVIDENCE 1 / 5

Zinc supplements help maintain the body's immune function and facilitate the healing process, which is crucial in preventing diseases. Since Zinc is an essential trace element that our bodies can't produce, consuming recommended supplements can help prevent Zinc deficiency.

39 Avoid Sugary Foods & Drinks

To avoid sugary foods, eliminate or significantly reduce consumption of foods and beverages high in added sugars such as sodas, candies, baked goods, and sugary cereals from your diet. Instead, opt for natural sugar sources like fruits. Aim to do this daily for ongoing health benefits.

Helps with these Symptoms & Conditions:

Artery Hardening

Helps with these Goals:

Energy Focus Longevity Mood

Helps with these DNA Risks:

Low Mood

How it helps

Low Mood

IMPACT 2 / 5

EVIDENCE 3 / 5

For every 100 g/day increase in sugar consumption the risk of depression may increase 28% [R].

In line with this, high-GI diets, foods with added sugars, and sugar-sweetened beverages are associated with a higher depression risk, according to studies in more than 80,000 people [R, R].

40

Dietary Antioxidants

Incorporate foods rich in antioxidants, such as fruits (berries, oranges, plums), vegetables (spinach, kale, bell peppers), nuts (walnuts, almonds), and seeds (flaxseeds, chia seeds) into your daily meals. Aim for at least 5 servings of fruits and vegetables per day, ensuring a variety of colors to cover different antioxidants.

Helps with these Symptoms & Conditions:

- Artery Hardening

Helps with these Goals:

- Longevity
- Mood

Helps with these DNA Risks:

- Low Mood

How it helps

Low Mood

IMPACT 2 / 5

EVIDENCE 2 / 5

A poor antioxidant status has been associated with depression [R, R].

In line with this, consuming dietary flavonoids (50-100 mg/day for 8 weeks) improves depression and anxiety according to a meta-analysis of 10 studies [R].

Antioxidants can reduce oxidative stress in the brain, which is associated with better mood regulation.

41 Practice Exercise Snacks

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

Helps with these Goals:

Fat Loss | Focus | Mood

Helps with these DNA Risks:

Low Mood

How it helps

Low Mood

IMPACT 4 / 5

EVIDENCE 4 / 5

People who exercise regularly have lower rates of depression and milder depression symptoms [R, R, R].

Exercise may boost your mood by improving [R]:

- Stress levels
- Self-esteem
- Energy and sleep quality
- Sex drive
- Alertness
- Weight and fitness

42 DHEA (Dehydroepiandrosterone)

Take 25-50 mg of DHEA orally with water daily, preferably in the morning to mimic the body's natural rhythm of DHEA production. It is advisable to start at the lower dose to assess tolerance and adjust as needed. Consult a healthcare provider for personalized advice and before starting a new supplement regimen.

TYPICAL STARTING DOSE

25 mg

Helps with these Goals:

Fat Loss | Libido | Mood

Helps with these DNA Risks:

Low Mood

How it helps

Low Mood

IMPACT 4 / 5

EVIDENCE 3 / 5

Low DHEA levels are associated with depression in some people [R].

DHEA (30-450 mg/day for 6 weeks) may reduce depressive symptoms and improve mood [R, R].

DHEA may help by stimulating the brain activity of serotonin and GABA [R].

Please note: DHEA has been banned by sport associations and anti-doping agencies. DHEA should not be used at high doses or long-term and is contraindicated in patients with hormone-responsive cancers. DHEA supplements should only be used with the prescription of a medical professional. Discuss risks and side effects with your doctor [R].

43 Repetitive Transcranial Magnetic Stimulation

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

Helps with these Goals:

Mood

Helps with these DNA Risks:

Low Mood

How it helps

Low Mood

IMPACT 4 / 5

EVIDENCE 5 / 5

rTMS (3-5 sessions/week for 1-4 weeks) may help improve depression symptoms in people that didn´t respond to standard care. However, more research is needed to confirm this benefit, especially in the long term [R, R, R, R].

Other types of TMS such as deep and accelerated TMS may also help [R, R].

TMS may help by reducing inflammation and increasing the brain production of [R]:

- Dopamine
- BDNF

44

St. John's Wort

Take 300 mg of St. John's Wort supplement three times a day with meals for a duration typically ranging from four to six weeks to assess its effects on your mood and anxiety levels. Consistency is key for optimal benefits.

TYPICAL STARTING DOSE

300 mg

Helps with these Goals:

Cognitive Function | Mood | Short Term Memory

Helps with these DNA Risks:

Low Mood

How it helps

Low Mood

IMPACT 5 / 5

EVIDENCE 4 / 5

St John's wort may improve depression symptoms with few adverse effects. Pills providing **900 mg of extract per day** for 4-12 weeks may deliver the most benefits [R, R, R, R, R].

St. John's wort supports healthy mood by [R, R, R, R, R]:

- Increasing serotonin and dopamine levels
- Reducing inflammation
- Protecting the brain from toxins

Please note: *St. John's wort can interact with 5-HTP, SAM-e, birth control pills, and different medications. Combining it with antidepressants can be dangerous and even life-threatening. Never take St John's wort without consulting your doctor* [R, R].

PERSONALIZED TO YOUR GENES

Your *DRD2* gene variant is linked to depression. This gene affects brain dopamine levels. St John's wort may improve mood by boosting dopamine in the brain [R, R, R, R, R].
St John's wort may reduce the effectiveness of certain drugs in people with your *CYP2C19* gene variant. These include [R]:

- Anti-anxiety drugs such as diazepam
- Antidepressants such as citalopram or fluoxetine
- Proton pump inhibitors such as omeprazole or pantoprazole
- Anticoagulants such as warfarin
- Barbiturate sedatives such as phenobarbital
- Antimalarial drugs such as chloroguanide

Always let your doctor know if you're taking St John's wort to avoid drug interactions.

YOUR GENETIC VARIANTS

GENE	SNP	GENOTYPE	EVIDENCE
TTC12	**rs1554929**	CC	
CYP2C19	**rs4244285**	GG	

45

Limit Calorie Intake

Consume fewer calories than your body needs for maintenance. Calculate your daily caloric needs using an online calculator based on your sex, age, weight, height, and activity level, then reduce that number by 500-1000 calories per day to safely lose 1-2 pounds per week. Adjust the caloric intake as needed based on your progress.

Helps with these Goals:

Fat Loss | Longevity | Mood

Helps with these DNA Risks:

Low Mood | UCP1 (Weight)

How it helps

Low Mood

IMPACT 2 / 5 | EVIDENCE 3 / 5

Calorie restriction (for 3-6 months) and the resulting weight loss may improve depression symptoms [R, R, R, R, R, R, R].

Low-calorie diets may help with depression by increasing levels of [R, R]:

- Endorphins
- Dopamine
- Serotonin

Please note: *Limiting calorie intake too much or fasting for too long can cause malnutrition, anemia, eating disorders, and other health problems. Talk to your doctor before making any drastic changes to your calorie intake* [R].

UCP1 (Weight)

IMPACT 5 / 5 EVIDENCE 5 / 5

To promote weight loss, experts recommend lowering your calorie intake by 30% of your daily requirement [R, R].

Eating fewer calories and intermittent fasting may support short-term weight loss equally. On the other hand, people who eat fewer calories may maintain their weight loss better in the long run [R, R, R, R, R, R].

Types of intermittent fasting that may be especially helpful for weight loss include:

- **Alternate-day fasting**: fasting every other day [R]
- **Time-restricted eating**: eating within a certain time frame each day [R, R, R, R, R]

A good way to limit calorie intake is to eat more low-calorie foods. These include soups and foods rich in protein and fiber. You can also try eating a low-calorie snack before a meal [R, R, R].

These methods can help make you feel more full and thus eat less [R, R, R].

Please note: *Limiting calorie intake too much or fasting for too long can cause malnutrition, anemia, eating disorders, and other health problems. Children, pregnant women, and people with certain chronic conditions or substance abuse disorders shouldn't do intermittent fasting. Talk to your doctor before implementing any drastic calorie restriction* [R].

46 Transcendental Meditation

Practice transcendental meditation for 20 minutes twice a day, once in the morning before breakfast and once in the afternoon or early evening. Sit comfortably in a quiet place, close your eyes, and silently repeat a mantra given to you by a certified transcendental meditation teacher.

TYPICAL STARTING DOSE
20 minutes

Helps with these Symptoms & Conditions:

Artery Hardening

Helps with these Goals:

Cognitive Function | Longevity | Mood

Helps with these DNA Risks:

Low Mood

How it helps

Low Mood

IMPACT 2 / 5

EVIDENCE 2 / 5

Participating in transcendental meditation programs showed positive effects on mood in various non-placebo-controlled trials. These studies demonstrated reductions in depression and improvements in mood among teachers, prison inmates, dementia caregivers, veterans, and administrative staff. However, a meta-analysis of 9 studies concluded that transcendental meditation has no effect on depressive symptoms in people with cardiovascular disease [R, R, R, R, R, R].

Transcendental meditation may help by activating the body's relaxation response. Regular practice can enhance mood by increasing the production of serotonin.

47

Glutamine

Take 5 to 10 grams of glutamine powder, mixed with water or another beverage, daily. It can be divided into two servings, one in the morning and the other in the evening. This supplementation is generally considered safe for long-term use, but it's best to consult with a healthcare provider for personalized advice.

TYPICAL STARTING DOSE

5 g

Helps with these Symptoms & Conditions:

Artery Hardening | Cognitive Decline | Food Allergies

Helps with these Goals:

Cognitive Function | Fat Loss | Mood

Helps with these DNA Risks:

Low Mood

How it helps

Low Mood

IMPACT 0 / 5

EVIDENCE 0 / 5

Genetically lower levels of glutamate may be causally associated with depressed mood [R].

Glutamine increases the production of neurotransmitters that regulate emotions such as GABA and glutamate.

Please note: *There is no evidence from controlled clinical trials to support this recommendation. It is included based on uncontrolled clinical trials, animal or cell studies, or non-scientific criteria. Please take this recommendation with a grain of salt until more research is available.*

48

Fruits

Incorporate at least two servings of fresh, frozen, or canned fruits into your daily diet, aiming for a variety of colors and types to ensure a broad intake of vitamins, minerals, and antioxidants. One serving is equivalent to one medium-sized fruit, such as an apple or banana, or one-half cup of chopped fruit.

Helps with these Goals:

Longevity | Mood

Helps with these DNA Risks:

Low Mood

How it helps

Low Mood

IMPACT 2 / 5

EVIDENCE 3 / 5

Several meta-analyses associated high fruit intake with 16-20% lower odds of depression. For every additional 100 g per day, the risk may decrease by 3%. In adolescents, consuming fruits and vegetables less than 5x/week was associated with a 10% higher risk of depressive symptoms [R, R, R, R, R].

Depression may be causally associated with reduced levels of hippurate. Hippurate is a metabolite formed in the liver that is often used to measure gut microbial health. Consuming fruits and grains may increase its levels [R, R].

49

Mindfulness Meditation

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

Helps with these Goals:

Creativity | Fat Loss | Focus | Libido | Memory | Mood | Short Term Memory

Helps with these DNA Risks:

Low Mood | BDNF

How it helps

Low Mood

IMPACT 3 / 5

EVIDENCE 3 / 5

Mindfulness-based interventions with meditation and cognitive therapy may **moderately alleviate depression and prevent relapses** according to multiple meta-analyses. The interventions were **most effective in patients with severe symptoms** [R, R, R, R, R, R].

Mindfulness meditation has been reported to improve attention and emotional self-control, both of which are important for healthy mood. A meta-analysis of 47 trials and 3515 participants found moderate evidence that this type of mediation improves mood. Mindfulness meditation also improves depressive symptoms in older adults according to a meta-analysis of 19 studies and 1076 participants [R, R, R].

People who practice mindfulness tend to have **lower levels of the stress hormone *cortisol*** [R, R].

BDNF

IMPACT 0 / 5

EVIDENCE 0 / 5

Practicing mindfulness meditation can increase BDNF production, potentially supporting cognitive functions and mental wellbeing.

50 Avoid Iron Supplements (Unless Deficient)

Only take iron supplements if a blood test shows you are iron deficient. If not deficient, do not use iron supplements. For those diagnosed with iron deficiency, follow your healthcare provider's instructions on the type and dosage of iron supplement to take.

Helps with these Goals:

Longevity | Mood

Helps with these DNA Risks:

Low Mood

How it helps

Low Mood

IMPACT 2 / 5

EVIDENCE 2 / 5

A total of 9 studies for dietary zinc intake and 3 studies for dietary iron intake were finally included in present meta-analysis. The pooled RRs with 95% CIs of depression for the highest versus lowest dietary iron intake were 0.57, corresponding to a 75% lower risk [R].

On the other hand, genetically higher levels of iron may be associated with an increased risk of depression [R].

Please note: *Increased iron intake from meat is linked to higher odds of diabetes and heart disease. Try to find a balance between plant and animal iron sources* [R, R, R, R].